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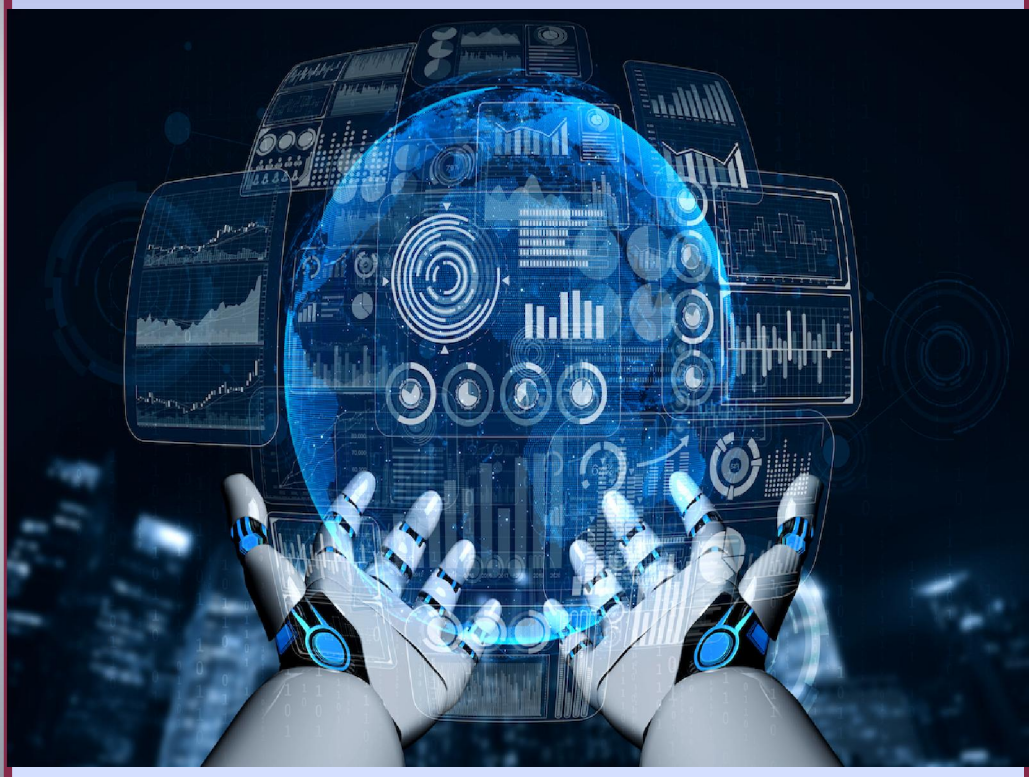

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CHHATRAPATI SHIVAJI MAHARAJ INSTITUTE OF TECHNOLOGY, PANVEL, NAVI MUMBAI

ORGANISED

INTERNATIONAL CONFERENCE

ON

MACHINE LEARNING

27th OCTOBER 2023

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Organised by

Chhatrapati Shivaji Maharaj Institute of Technology,

Panvel, Navi Mumbai

MESSAGE BY HONOURABLE SECRETARY

It gives me immense pleasure to write a message for **International Conference On Machine Learning In The Development Of India** being held by Chhatrapati Shivaji Maharaj Institute of Technology on 27th October, 2023. I hope the conference will witness enthusiastic participation of academicians across Nation resulting in productive outcomes in the field of Science and Technology.

It is a matter of great satisfaction that the Institute is doing good services by training young students. I applaud the efforts of stakeholders in taking the institute towards academic excellence.

Best wishes for successful organization of the event as well as the Souvenir planned on the occasion.

DR. KESHAV BADAYA
Honorable Secretary
St. Wilfred Education Society

MESSAGE BY PRINCIPAL, CSMIT

DR. DHARMENDRA KR DUBEY
Principal, CSMIT
CHAIR PERSON, INCML 2023

I am pleased to inform that academicians, scientists, senior scholars, teachers, and students across country have come forward enthusiastically to participate in **International Conference On Machine Learning In The Development Of India** going to be organized on 27th October, 2023. The conference will serve as a as a multi-disciplinary platform to discuss the advances, science and engineering and trends in the various field of science and engineering. I am sure that the combined efforts of the whole organizing team of the conference will surely bring this conference a great success.

We are also happy to share that we have received abstracts from so many Scientists/ Research scholars/ Faculties working in the allied areas from various states as on today. I would like to express my appreciation to the coordinators, for their effort, in organizing the conference which is of Inter-National relevance. I hope this conference INCML- 2023 will be enjoyable, memorable, and productive for the participants and looking forward to further technological events those results from your networking and discussions. I wish The Event All Success.

MESSAGE BY CONVENER OF CONFERENCE INCML 2023

We are delighted to extend our warmest invitation to you for the **International Conference On Machine Learning In The Development Of India** going to be organized on 27th October, 2023. It fills us with immense pleasure to witness the overwhelming response from academicians, scientists, senior scholars, teachers, and students from across the country, all eagerly coming forward to participate. Your presence and active involvement will undoubtedly enrich the conference, fostering insightful discussions, collaborations, and the exchange of innovative ideas. Let us unite in this collective endeavor to shape a new era of advancement through emerging technologies. Together, we can inspire and drive meaningful change.

Er. ANUP MAURYA

HOD, DEPT. OF COMPUTER ENGINEERING

CONVENER, INCML 2023

MESSAGE BY CO-CONVENER OF CONFERENCE INCML 2023

We are thrilled to extend a warm invitation to all academicians, scientists, senior scholars, teachers, and students from across the country to be a part of the **International Conference On Machine Learning In The Development Of India** going to be organized on 27th October, 2023.

Your enthusiastic response has filled us with immense joy and hope for a vibrant exchange of ideas and knowledge. Together, we shall embark on a journey to explore the frontiers of innovation and usher in a new era of progress.

Your participation will undoubtedly enrich the conference, and we are confident that your insights and contributions will pave the way for transformative advancements in various fields. Let us unite in this pursuit of knowledge and inspiration, and collectively, we shall

Er. KALIDAS BHAWALE

DEPT. OF COMPUTER ENGINEERING

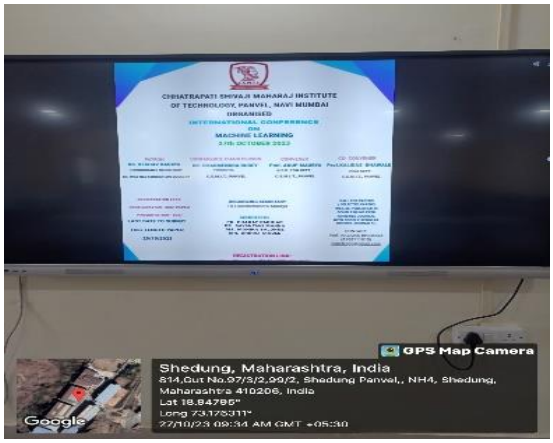
CO- CONVENER, INCML 2023

INTERNATIONAL CONFERENCE

On MACHINE LEARNING IN THE DEVELOPMENT OF INDIA

Inauguration session

Conference – Paper Presentation



Paper Presentation

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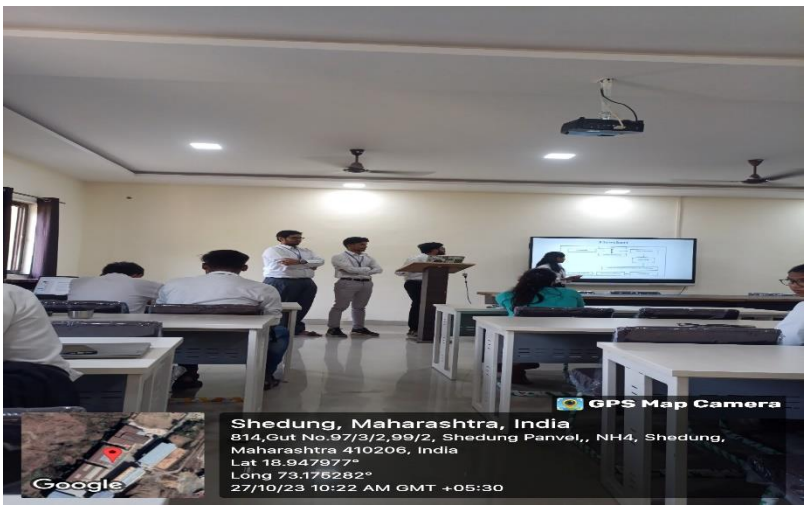

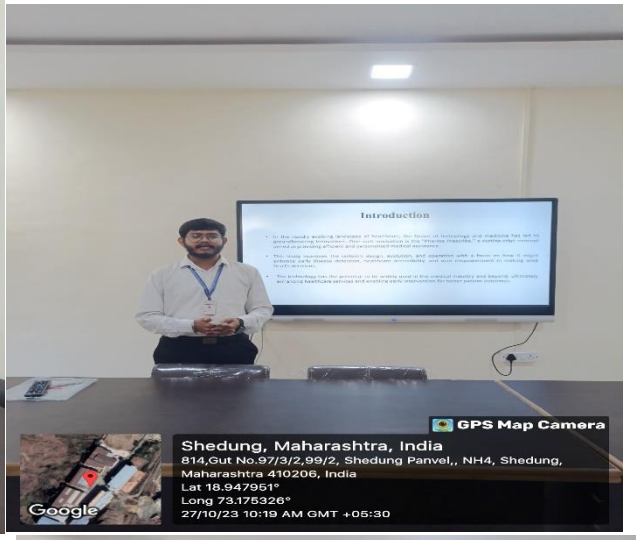

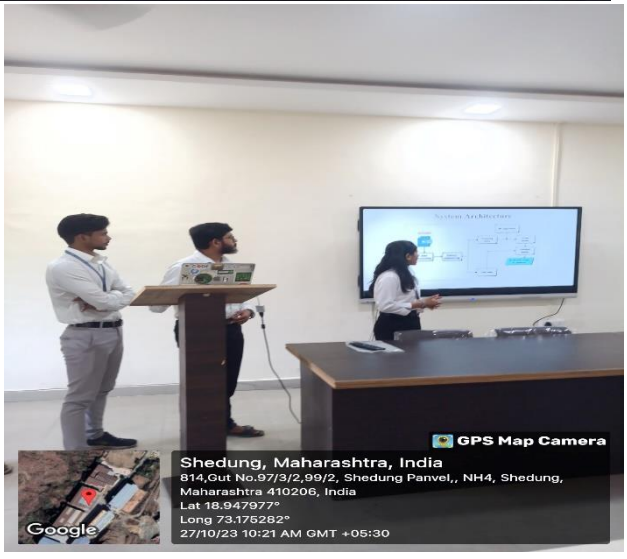

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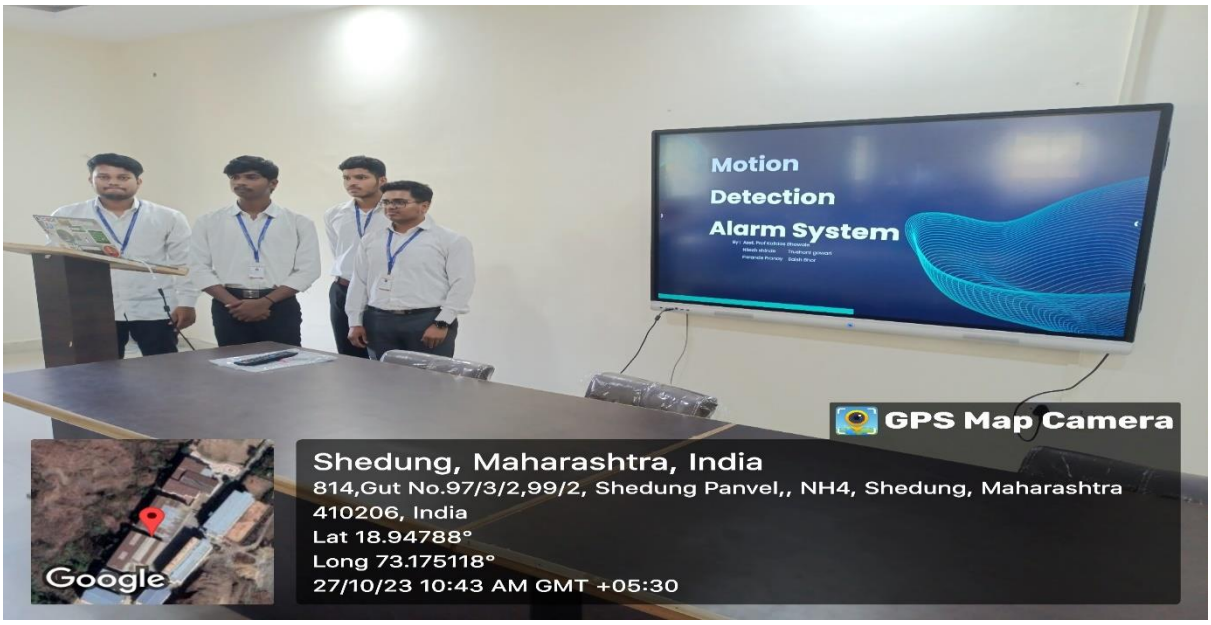

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Quantitative Exploration of Machine Learning-Enhanced Algorithmic Trading Models

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Abstract: *This research paper explores the integration of quantitative finance and machine learning to develop advanced algorithmic trading models. We delve into data collection, preprocessing, strategy design, and risk management, all while emphasizing the application of machine learning for predictive analysis. The study demonstrates the practical implications of quantitative research in enhancing trading efficiency and profitability. It also provides insights into real market deployment and risk management. Furthermore, this research aims to contribute to the growing field of algorithmic trading by providing a comprehensive and interdisciplinary perspective. By combining financial theory, quantitative analysis, and machine learning, it offers a nuanced understanding of the evolving landscape of financial technology. The study also serves as a stepping stone towards a practical capstone project aimed at implementing these strategies in live trading environments. In a rapidly evolving financial landscape, where data-driven decision-making is paramount, this research holds significance for financial professionals, technologists, and researchers alike. As the world of finance continues to embrace technology and data, this research paper elucidates the immense potential of data-driven, machine learning-enhanced algorithmic trading.*

Keywords: Quantitative Finance, Machine Learning, Predictive Analysis, Data-driven Decision-Making, Interdisciplinary Research

I. INTRODUCTION

In the dynamic and ever-evolving landscape of modern finance, the intersection of quantitative finance principles with cutting-edge machine learning technologies has heralded a paradigm shift in the field of algorithmic trading. Algorithmic trading, the science of automating financial decision-making through data-driven strategies, stands at the forefront of this transformative wave. This research paper embarks on a captivating journey to explore the intricate synergy between quantitative finance and machine learning, uncovering its profound implications on the development of advanced algorithmic trading models.

The modern financial world is characterized by an avalanche of data, offering both challenges and opportunities. Machine learning, with its prowess in predictive analysis, promises to revolutionize the efficiency and profitability of algorithmic trading. As financial professionals, technologists, and researchers alike increasingly acknowledge the untapped potential of these models, this study seeks to provide a comprehensive understanding of the shifting landscape.

Our interdisciplinary approach encompasses the theoretical foundations of finance, the precision of quantitative analysis, and the transformative capabilities of cutting-edge technology. While we delve into the theory behind these innovations, our research is firmly grounded in practicality. It serves as a precursor to a capstone project aimed at deploying these strategies in live trading environments, effectively bridging the divide between theoretical knowledge and real-world application.

In a financial landscape where data and technology intertwine intricately, the application of machine learning in algorithmic trading becomes a pivotal force. This research sets out to unveil the transformative potential of data-driven, machine learning-enhanced models. It seeks to shed light on the way these models are redefining the decision-making processes in financial markets and shaping the future of algorithmic trading.

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This paper is not just a theoretical exploration; it is a practical roadmap toward the future. It draws attention to the urgent need to comprehend and harness the transformative potential of machine learning-enhanced algorithmic trading models. By providing insights into the intricate mechanisms underlying the amalgamation of quantitative finance and machine learning, this research aims to facilitate an interdisciplinary understanding and drive innovation within the financial sector

In the ever-evolving world of finance, where data has become the lifeblood of markets, a new era is dawning. The fusion of quantitative finance principles with the might of machine learning algorithms is redefining the landscape of algorithmic trading. Algorithmic trading, celebrated for its ability to execute complex strategies with precision, is experiencing a profound shift, driven by the infusion of data-driven machine intelligence. This research paper embarks on a compelling journey into this exciting realm, unveiling the intricate interplay between quantitative methodologies and cutting-edge technology, and the transformative potential it carries for the financial industry.

In the high-stakes arena of financial markets, the role of algorithmic trading has never been more critical. The capability to make split-second trading decisions based on data analysis is reshaping the way we engage with financial instruments. However, the adoption of machine learning in this field takes this capability to a new level. Machine learning algorithms are no longer confined to the laboratory; they have become the backbone of predictive trading strategies. This study ventures into this evolving landscape, exploring the synergy between quantitative finance and machine learning and its real-world implications. It serves as both a compass for the researcher navigating the uncharted waters of financial technology and a beacon for the financial practitioner seeking to harness the power of data-driven decision-making.

II. REVIEW OF LITERATURE

The convergence of quantitative finance and machine learning in the domain of algorithmic trading represents a pivotal juncture in the evolution of financial markets. This literature review delves into the multifaceted landscape of algorithmic trading, providing insights into its historical context, key developments, and current trends. Furthermore, it elucidates the growing role of machine learning within this domain, serving as a precursor to the subsequent exploration in this research.

Historical Perspective:

Algorithmic trading, often referred to as "Algo Trading," has been instrumental in modernizing financial markets. Its roots can be traced back to the early 1970s, with the introduction of electronic trading platforms. Initially, these systems were rudimentary, automating only simple trading functions. However, as technology advanced and access to vast amounts of financial data became available, algorithmic trading strategies grew increasingly complex. These strategies leveraged quantitative models to make informed trading decisions, paving the way for today's data-driven financial environment.

Quantitative Finance and Algorithmic Trading:

The interplay between quantitative finance and algorithmic trading has been a prominent theme in the literature. Researchers have extensively examined the mathematical and statistical models underpinning algorithmic trading strategies. The application of quantitative techniques, such as time-series analysis, statistical arbitrage, and portfolio optimization, has played a central role in the development of trading models. These quantitative tools are harnessed to exploit market inefficiencies and generate profits.

The Rise of Machine Learning:

Machine learning has emerged as a transformative force in algorithmic trading. This shift is evidenced by a growing body of research exploring the integration of machine learning techniques in trading strategies. Machine learning models, such as neural networks, support vector machines, and random forests, have been employed to analyze historical market data, uncover patterns, and make real-time predictions. The ability of machine learning algorithms to adapt to changing market conditions and detect subtle signals has attracted substantial attention.

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Current Research Landscape:

Recent studies have begun to explore the practical implications of combining quantitative finance with machine learning. Researchers are investigating the performance of machine learning-driven trading models in real financial markets, addressing issues related to risk management, execution, and transaction costs. Additionally, the potential for machine learning models to adapt to non-stationary market conditions is a focus of ongoing research.

III. RESEARCH AND COLLECTION IDEAS

The foundation of this research lies in data collection, a pivotal component in algorithmic trading and machine learning. Existing literature on algorithmic trading, enriched by insights from financial experts and researchers, serves as a guiding light in our quest for relevant data sources. Historical stock price data, financial indicators, and macroeconomic variables were gathered from reputable financial data providers, supplemented by real-time data feeds from APIs. The integration of both historical and real-time data provides a comprehensive dataset that mirrors the dynamic nature of financial markets.

In the realm of machine learning for algorithmic trading, the importance of high-quality data cannot be overstated. Research contributions on data preprocessing, which include techniques for dealing with missing values, outliers, and data formatting, have greatly influenced the way we handle data

As we embark on this journey, we recognize the significance of transparency and ethical data usage. Adhering to legal In preparation for model development, we employ backtesting techniques to assess the performance of our trading strategies. We draw inspiration from established research methodologies and algorithmic trading practices, leveraging the knowledge of our predecessors. This step is integral in quantifying the effectiveness of our models and refining our strategies before deploying them in live trading environments.

Furthermore, in the endeavor to assess the real-world viability of our models, simulation software offers a controlled testing ground. The literature's vast expanse of research on algorithmic trading simulations has guided us in constructing simulated environments that closely mimic the intricacies of financial markets. This facilitates the exploration of different trading strategies under varying market conditions, ensuring that our models are both robust and adaptable.

In the realm of quantitative finance and machine learning, this intersection of existing knowledge and contemporary research marks the crossroads where theory meets practice. As we proceed with our research, it is with the understanding that this synthesis of insights from literature, data-driven research, and simulation tools is fundamental to the realization of our quantitative models and their potential contributions to the financial industry. Tools is fundamental to the realization of our quantitative models and their potential contributions to the financial industry.

IV. PROPOSED METHEDOLOGY

4.1 Literature Review and Theoretical Framework:

Review of Existing Literature:

- Conduct a thorough review of the extensive body of literature on machine learning techniques and their applications in financial markets.
- Explore studies related to predictive models, classification algorithms, ensemble methods, and the latest advancements in algorithmic trading.

Selection of Machine Learning Algorithms:

- Based on the insights gained from the literature, select machine learning algorithms that are most relevant to predictive analysis in algorithmic trading.
- Consider the suitability of algorithms for capturing dynamics, patterns, & making real-time predictions..

4.2 Data Collection and Analysis:

Data Acquisition:

- Identify and collect historical financial data from reliable sources, such as financial data providers, stock exchanges, and economic databases.

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- Acquire data for relevant financial instruments, including stock prices, trading volumes, and macroeconomic indicators.

Data Preprocessing:

- Implement data preprocessing techniques to ensure data quality and usability for analysis.
- Address issues such as missing data, outliers, and data formatting to create a clean dataset.

Predictive Model Development:

- Develop predictive models using a combination of supervised, unsupervised, and time series analysis techniques.
- Utilize machine learning algorithms to capture market trends, patterns, and relationships in the data.

Performance Evaluation:

- Assess the performance of predictive models through rigorous backtesting procedures.
- Examine how the models perform under historical market conditions, including their accuracy, risk management capabilities, and potential for profit generation.

4.3 Real-Time Simulations and Scenario Testing:

Simulated Environment Setup:

- Create a simulated trading environment that replicates real financial markets.
- Populate the environment with historical market data, order execution mechanisms, and risk management protocols.

Real-Time Model Adaptability:

- Execute real-time simulations to evaluate how well the developed models adapt to dynamic market scenarios.
- Analyze the models' responses to changing conditions, unexpected events, and various market scenarios.

Refinement Through Simulation Insights:

- Extract insights from simulations to identify strengths and weaknesses in the models

4.4 Interdisciplinary Collaboration with Financial Experts:

Engagement with Domain Experts:

- Collaborate with financial experts and professionals who possess extensive knowledge of real market dynamics.
- Seek their expertise to ensure that the models are deeply rooted in practical trading knowledge and reflect real-world market behavior.

4.5 Real-World Insights Integration:

- Incorporate insights and feedback from experts to refine the models, enhancing their relevance and effectiveness.
- Collaborate to address complex market challenges and tailor models to meet real-world trading requirements.

4.6 Iterative Development and Continuous Validation:

Iterative Approach Implementation:

- Implement an iterative approach where data collection, model development, and refinement are ongoing and adaptive processes.
- Continuously validate and adapt the machine learning algorithms to real-world market conditions, ensuring they remain adaptable and robust.

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Performance Monitoring:

- Continuously monitor the models' performance in real market scenarios.
- Update and adjust models as needed based on evolving market dynamics, ensuring their sustained effectiveness.

V. CONCLUSION

In the dynamic landscape of modern finance, where data and technology converge, the fusion of quantitative finance principles with cutting-edge machine learning techniques heralds a new era in algorithmic trading. This research journey embarked on a comprehensive exploration of the intricate synergy between quantitative finance and machine learning, illuminating the profound implications for advanced algorithmic trading models. Our methodology, grounded in both theoretical knowledge and real-world market realities, has paved the way for innovative solutions.

The review of existing literature, encompassing a plethora of machine learning techniques and their applications in finance, has acted as our guiding light.

Crucially, our methodology is iterative, ensuring that our models remain not only adaptive but also vigilant to the ever-evolving market dynamics. It signifies a holistic approach where quantitative finance principles and machine learning technologies merge seamlessly to craft advanced algorithmic trading models.

As we draw the curtain on this research, the journey continues. The insights garnered here are not just a culmination but a stepping stone to a future where technology, data, and financial acumen converge to revolutionize the way we approach algorithmic trading. Our methodology signifies a path to innovative, adaptive, and robust trading models that hold the potential to reshape the financial landscape. The synthesis of theory, data-driven research, and real-world collaboration is our contribution to the exciting realm of quantitative finance and algorithmic trading.

In the ever-evolving financial world, the true test of research is not just the knowledge it imparts but the practical impact it creates. We look forward to the journey ahead, as we transition from theory to practice, from simulation to reality, and from insight to innovation. The future of algorithmic trading beckons, and our research positions us at the forefront of this transformative wave, ready to navigate the intricate interplay between quantitative finance and machine learning, to uncover new horizons in algorithmic trading.

VI. ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to all those who have contributed to the completion of this research endeavor. Without their support and expertise, this journey through the intricate realms of quantitative finance, machine learning, and algorithmic trading would not have been possible. This acknowledgment is a token of my appreciation for the collaborative effort and support of everyone involved, as their contributions have been integral to the successful completion of this research

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Blood Bank Management System

Prof. Harish Mourya[1], Nitesh Keshav Gharat[2], Aditya Ramdas Gawde[3], Sihan Ashok Mahale[4]
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Abstract: *A blood bank management system is like a special computer program that helps hospitals and organizations keep track of blood donations and blood samples. It uses a database and the Java programming language to organize and manage this information. With this system, you can easily manage and keep a record of who has donated blood, what type of blood they have, and how much blood is available in stock. It also helps in tracking blood donations over time. This system is designed to be easy to use and has a user-friendly interface, making it simple for people in charge to control blood donations and check the blood supply levels. It's like a computer tool to make sure there's always enough safe blood available for those who need it.. In essence, a blood bank management system acts as the backbone for maintaining a reliable and safe blood supply, ultimately saving lives by ensuring that blood is readily available for those in need. It streamlines the entire process, from donor registration to blood distribution, making it an indispensable tool for healthcare institutions and blood banks. It maintains a comprehensive database of donor information, including medical histories and donation records, making it vital for ensuring a consistent and safe blood supply. The system helps blood banks and hospitals manage their inventory, tracking available blood stock, blood types, and ensuring proper supply and demand coordination. It also plays a crucial role in safety, conducting rigorous blood testing and ensuring regulatory compliance. Moreover, it aids in emergency response by swiftly mobilizing resources during disasters and critical situations. Its user-friendly interface simplifies tasks for administrators and healthcare personnel, while integrated reporting and analytics provide insights for better management strategies. In essence, the blood bank management system is the backbone of the healthcare system, saving lives by ensuring that blood is readily available when needed, making it a cornerstone of healthcare infrastructure.*

Keywords: blood bank management system

I. INTRODUCTION

Donating blood is a crucial and life-saving procedure that plays a vital role in rescuing individuals in need. An adequate supply of blood for transfusions is largely reliant on the efficient functioning of blood banks. To manage this process effectively, many blood banks have adopted web-based blood bank administration systems.

These systems oversee the entire blood donation process, from the initial registration of donors to the safe and timely delivery of blood to medical facilities. The web-based platform streamlines and modernizes the management of blood donation activities by providing a centralized and efficient system for tracking donors, their blood types, and inventory levels.

By using these web-based systems, blood banks can better coordinate blood donation drives, keep track of available blood products, and ensure that they are well-prepared to respond to emergencies and medical procedures that require blood transfusions. This technology helps improve the overall safety and efficiency of the blood donation and distribution process, ultimately contributing to saving lives.

The system can assist with keeping track of donor and receiver information, inventory management of blood samples, and blood sample waste and guaranteeing blood availability when needed.

The storage used by blood banks today is file-based. The data and information pertaining to blood, donors, and receivers are stored in spreadsheets, documents, and files that are organized in alphabetical or numeric in the current

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blood bank administration system. But accessing data and information from this paper-based recording system is a difficult and time-consuming operation.

Test results from donors are also documented on paper, which increases the system's susceptibility to inaccuracies and errors that could threaten human lives. Furthermore, the issue is exacerbated by the system's low efficiency, as.

The current blood bank system relies on paper-based record- keeping, making it inefficient and prone to errors. This outdated approach organizes donor and receiver information, blood sample inventory, and test results through spreadsheets and documents. Retrieving critical data from this system is time- consuming and challenging. The risk of inaccuracies and the potential impact on human lives due to paper-based documentation is a significant concern. In contrast, modern blood bank management systems offer a technologically advanced alternative, streamlining data management ensuring blood sample availability, ultimately enhancing the efficiency and safety of the blood banking process.

The transition from traditional paper-based blood bank systems to modern, technology-driven solutions is imperative. These new systems efficiently organize and manage donor and recipient information, blood sample inventory, and test results, reducing the risk of errors and ensuring timely access to crucial data. Unlike the file-based storage of paper records, digital blood bank management systems enhance the overall efficiency and accuracy of the blood banking process. By implementing these advanced systems, healthcare facilities can better guarantee the availability of safe blood when needed, ultimately safeguarding human lives and advancing the standards of healthcare in a more organized and technologically-driven manner.

II. REVIEW OF LITERATURE

The three referenced research papers address critical aspects of blood banking. They delve into the utilization of technology in blood banks, the dynamics of blood donation and transfusion, and the significance of automated blood bank management systems. These papers underscore the importance of maintaining blood bank inventories, minimizing waste, and ensuring the safety of donated blood. In the first paper, "A Comprehensive Study on Blood Donation and Transfusion," a comprehensive overview of the state of blood donation and transfusion in India is presented. It highlights the challenges faced by blood banks in meeting the increasing demand for blood. The study further emphasizes the vital aspects of donor recruitment, donor screening, and the safe handling and storage of blood products.

These research papers collectively shed light on the pivotal role of technology and efficient management in enhancing the effectiveness and safety of blood banking systems.

The second paper, "Design and Development of Automated Blood Bank Management System," introduces a system that streamlines blood donation, transfusion, and inventory management. This system offers digital management capabilities, eliminating the need for manual record-keeping in blood banks. The study underscores the vital role of automation in enhancing efficiency, reducing errors, and minimizing the risk of infectious disease transmission.

In the third paper, "Blood Bank Management System," a software system designed to manage blood inventory and donor information within a blood bank is outlined. The paper emphasizes the significance of technology in blood banks, illustrating how a software system can optimize processes and decrease errors. Furthermore, the paper discusses the challenges that blood banks encounter, including blood supply shortages and the importance of proper donor testing and screening. Both articles underscore the transformative role of technology in advancing the effectiveness and safety of blood banking operations

overall , these three papers shed light on the challenges confronting blood banks and underscore the crucial role of automated systems and technology in effectively managing their inventory and operations. They stress the importance of efficient blood bank management to ensure a secure and sufficient blood supply for patients requiring transfusions. These insights collectively highlight the significance of modernizing and streamlining blood bank processes to meet the critical demand for safe blood.

These papers collectively highlight the pressing issues that blood banks face, including meeting the growing demand for blood, minimizing errors, and ensuring the safety of the blood supply. They advocate for the adoption of automated systems and technology to streamline operations, reduce inefficiencies, and enhance safety. Moreover, the research underscores the critical role of well-managed blood banks in the healthcare system, emphasizing the need to optimize processes and inventory management for the benefit of patients who rely on blood transfusions. Ultimately, these

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studies call for a modern and tech-driven approach to ensure that blood banks can consistently provide a secure and ample blood supply forthose in need, thus saving lives and improving healthcare outcomes.

III. DATASET

The Blood Bank Management System research paper's dataset includes a wide range of essential data pertaining to the effective management and functioning of a blood bank. It includes comprehensive donor data, such as contact information, medical,and unique identifiers. Additionally included is recipient data, which includes names, transfusion-related information, and recipient identifiers. The blood inventory data in the dataset comprises comprehensive records, with individual entries for every blood bag containing information on the blood type, volume, donation and expiration dates, storage location, and related receiver and donor details. The information also includes complete logs of blood bank operations, testing and screening records for infectious diseases, and user logs to track system interactions. This comprehensive dataset is the primary source for empirical

IV. PROPOSED METHEDOLOGY

1: **Requirement Analysis** : Requirement Analysis is the very first and essential phase in creating a system like a Blood Bank Management System. To put it simply, it's about figuring out what this system needs to do and how it should do it. To do this, you start by thoroughly studying how the blood donation process works and by talking to the people who will be using the system. That includes the folks at the blood banks, hospitals, and anyone else involved. You want to know what they need from this system to make their jobs easier and more efficient.So, it's like you're collecting a big list of what the system should be able to do – these are called functional requirements. For example, it should be able to record who donated blood, what type of blood it is, and when it was donated. But you also need to figure out how well it needs to do these things – that's where non-functional requirements come in. These might be things like how fast it needs to work, how secure it needs to be, or how user-friendly it should be.

The point is, Requirement Analysis is all about making sure that when you start building this Blood Bank Management System, it will meet the needs of everyone involved and do its job effectively. It's like laying the foundation for a strong and reliable system that will help save lives by managing blood donations efficiently.

2: **The Design phase** : The Design phase is the next crucial step in creating a system like a Blood Bank Management System, following Requirement Analysis. Now that we've gathered a comprehensive list of what the system needs to do and how it should perform from the Requirement Analysis, it's time to sketch out how the system will actually work.

Here's where we create the blueprint. It's like building a house – first, you identify the rooms, their sizes, and their purposes (which we did in Requirement Analysis), and now, in the Design phase, you're drawing up the architectural plans. In this context, that means creating a system architecture, which is the high-level structure of the system, outlining how all the different parts will work together.

Additionally, we design the database schema. Think of the database as a digital storage space where all the information about blood donors, recipients, blood types, and more will be stored. The schema is like a blueprint for the database – it specifies how the data will be organized and related. For example, it outlines how the donor's name and their blood type are linked together in the database.

Furthermore, the Design phase involves developing wireframes for the user interface. These wireframes are like sketches of what the screens will look like. They help visualize how the people using the system will interact with it, making sure it's user-friendly and efficient. This is crucial because the folks working in blood banks and hospitals need to be able to navigate the system easily and get their work done swiftly.

Lastly, we choose the technologies and tools that will be used to actually build the system. This includes programming languages, databases, and other software that will bring the design to life. The goal of the Design phase is to create a clear and detailed plan for the system's construction, ensuring it aligns with the requirements and will function smoothly. It's like mapping out the entire construction project before the actual building begins, guaranteeing that the system will meet the needs we've identified in Requirement Analysis

3. The Development phase : The Development phase is where the Blood Bank Management System is built. It's like constructing a house step by step after planning and getting all the necessary tools. In this phase, we use Java, a versatile programming language, and JDBC, which connects Java to databases. We do the actual coding using the Eclipse IDE.

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First, we create the database tables, like different rooms for storing data about blood donors, recipients, inventory, testing, and user activities. These tables are the foundation for our digital storage.

Next, we write the instructions (the code) for how the system should work. This includes how it records donor info, matches blood types, and keeps track of blood supplies

– it's like building the internal machinery.

At the same time, we design the part that users see and interact with, kind of like the front door and rooms in a house. We make sure it's user-friendly for blood bank and hospital staff.

The cool thing is we build the system in stages. Each stage adds more functions and features, making the system better and better. It's similar to adding more rooms and furniture as a house takes shape. This way, we ensure the system is reliable and meets the needs we identified earlier, making it great for managing blood donations effectively.

4: Testing phase : In the Testing phase, the developed system undergoes rigorous examination to ensure it meets the requirements and is error-free. This process includes three key levels of testing: unit testing to check individual components, integration testing to ensure different parts work together seamlessly, and system testing to verify the system's overall functionality. Moreover, performance, scalability, and security tests are conducted to ensure the system works efficiently, can handle increasing demands, and is secure from potential threats. This phase is vital in assuring that the Blood Bank Management System operates smoothly and meets the high standards of performance and safety

5: Deployment: Deployment is like putting the system into action. After we've tested it thoroughly and made sure it works well, we move it to the place where it will be used for real. This means we set up the computers and software it needs, make sure everything is working smoothly, and move any old data if there was a previous system. Once everything is ready, the system is ready for people to use it, like opening a new for customers.

6 : Maintenance phase: The Maintenance phase is the long- term care and support stage of the Blood Bank Management System. Once the system is deployed and actively in use, it's like a vehicle hitting the , where regular -ups and maintenance are necessary to keep it running smoothly. In this phase, several important activities are carried out.

First and foremost, the system is continuously monitored for issues and glitches. This is similar to keeping an eye on a 's performance to catch any problems early. Routine maintenance tasks are performed to ensure the system's and reliability. It's akin to changing the oil and checking the tires on a to keep it in good shape.

User support is a vital part of this phase. Just as a owner might need assistance in understanding how to operate their troubleshoot issues, blood bank staff and healthcare professionals need ongoing assistance to make the best use of the system.

Moreover, the Maintenance phase encompasses making updates and enhancements to the system as necessary. Much like a may receive modifications to meet new safety standards or improve fuel efficiency, the system might need changes to address evolving requirements or to enhance its performance. These updates can include bug fixes, security enhancements, or the introduction of new features.

Throughout the project, an agile methodology is often employed. It's a bit like the flexibility of taking different routes while driving to avoid traffic or find shortcuts. This approach involves working in short cycles or iterations, frequently gathering feedback, and continuously improving the system. It allows for greater adaptability to changing requirements, which is especially important in the healthcare domain, where regulations and needs may evolve over time.

In essence, the Maintenance phase is like ensuring a remains roadworthy and is ready for any journey. It's about keeping the Blood Bank Management System running smoothly, adapting it to changing conditions, and providing ongoing support to ensure it continues to serve its crucial role in managing blood donations efficiently and safely.

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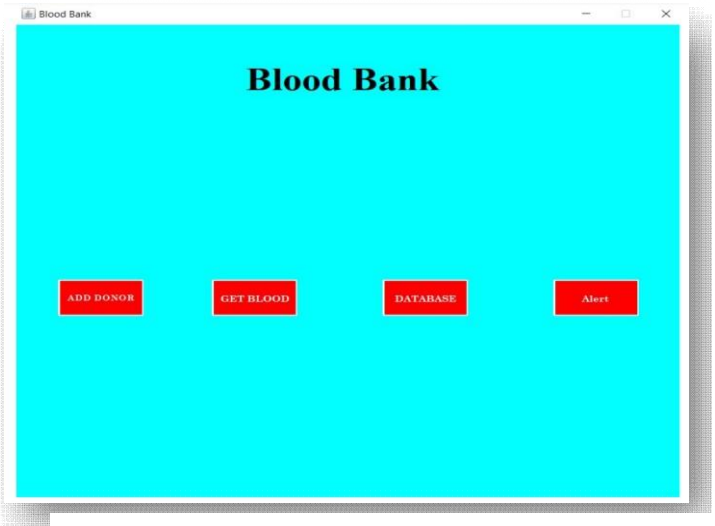
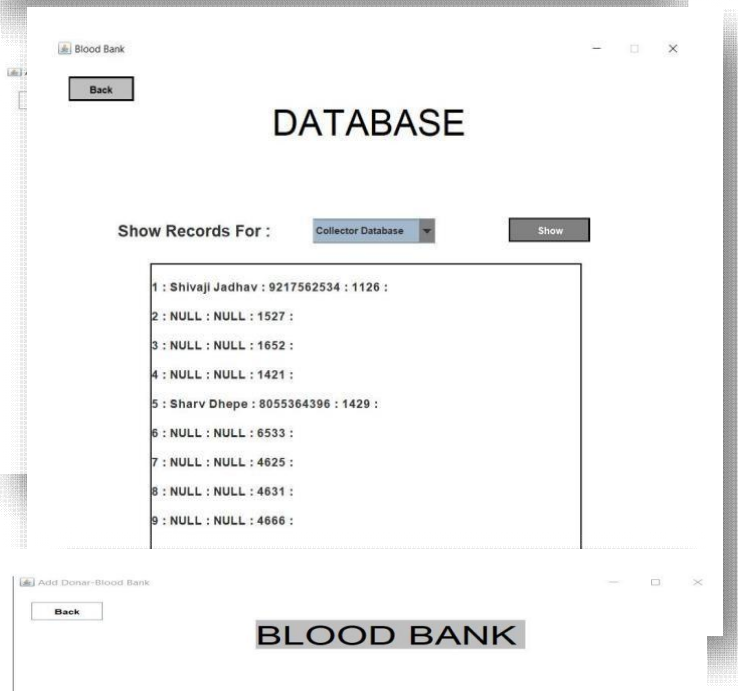
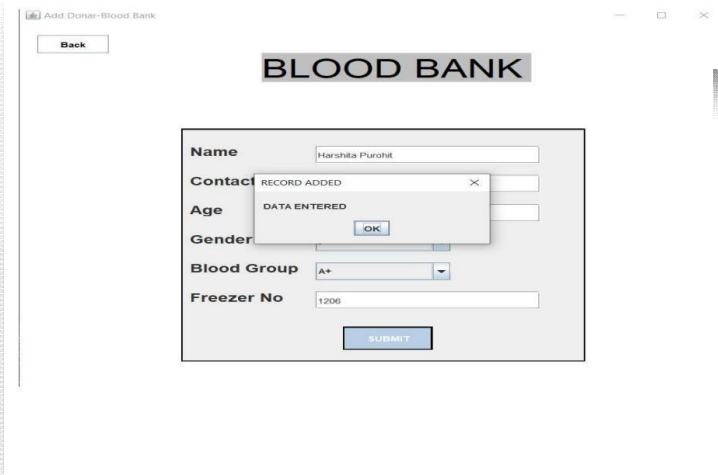
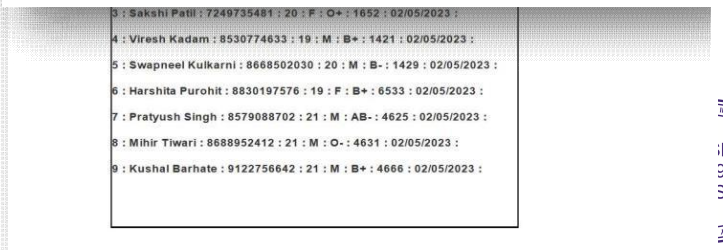
V. RESULT / SCREEN SNAPSHOT OF PROJECT









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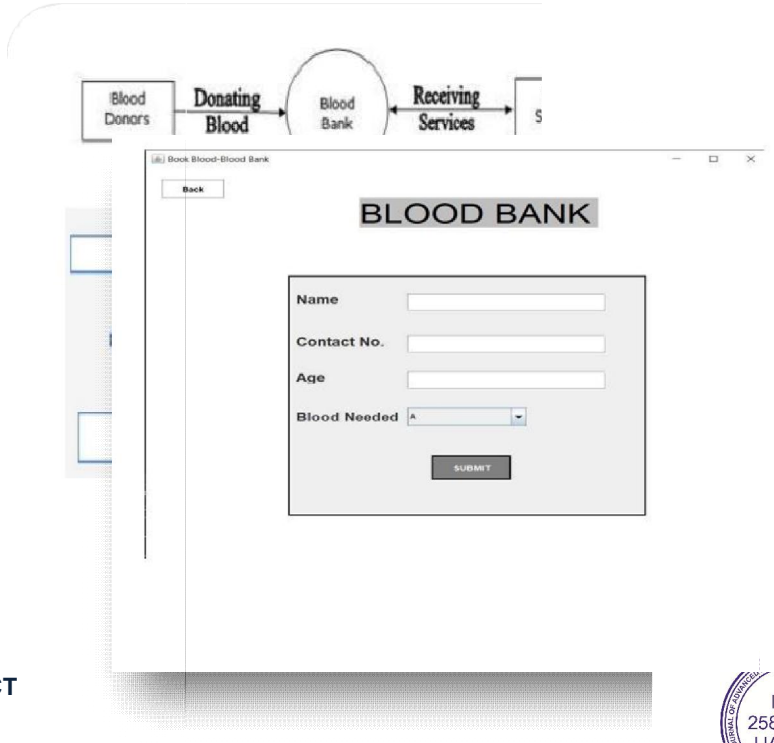
Software Requirement:

The Blood Bank Management System is built using Java within the Eclipse IDE. It relies on a Database Management System (DBMS) and Java Database Connectivity (JDBC) to handle donor information, blood types, and inventory records. Specifically, this project utilizes the MySQL DBMS, a popular open-source relational database system. JDBC is employed to connect to the MySQL database and retrieve data. The Eclipse IDE is used for developing the user interface and the application's logic. For optimal functionality, the system requires an operating system of Windows 7 or above. The backend, responsible for managing data, is powered by MySQL, while the frontend, the user interface, is developed using Java. Compilation and development of the system are conducted within the Eclipse IDE

E-R Diagram :



VI. CONCLUSION

The Blood Bank Management System is a vital web-based application designed to oversee the entire process of blood donation, from donor registration to distribution. To efficiently manage this extensive

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range of data and processes, the system utilizes a Database Management System (DBMS) and Java Database Connectivity (JDBC) technology. Through these, it effectively stores and manages critical information such as donor details, blood types, and inventory records. This system plays a pivotal role in simplifying the complexities of blood donation management by offering an intuitive and user-friendly interface.

Users can easily handle various tasks, including donor registration, scheduling appointments, and closely monitoring blood inventory levels. By incorporating these features, the Blood Bank Management System greatly contributes to the seamless and efficient management of blood donations, ensuring that the life- saving resource is readily available for those in need..

The Blood Bank Management System serves as a critical tool in enhancing the efficiency and safety of the blood donation process while effectively catering to the requirements of hospitals and patients. This meticulously designed system empowers blood banks to streamline the management of donor information and blood inventory records, ensuring these life-saving resources are readily available when needed. Simultaneously, it offers hospitals the capability to swiftly request and receive blood donations, a feature of paramount importance in emergency situations. Moreover, the system provides an array of customizable reports that can be generated based on donor data and blood inventory levels. These reports offer valuable insights into the blood donation process, highlighting trends, areas of improvement, and opportunities for optimization. This capability facilitates a continuous cycle of enhancement, ensuring that the Blood Bank Management System remains a robust and indispensable tool in the quest to provide safe and efficient blood donations for patients.

In future the Lightweight Parallel CNN model may be improved upon and optimized in the future through additional study. To assure the model's efficacy in various real-world circumstances, its performance can also be assessed on larger and more varied datasets. Real-time processing using the paradigm in embedded systems or edge devices may also be a useful direction for use in practical applications. The Lightweight Parallel CNN model has a tremendous deal of promise to transform License Plate Recognition technology and advance different parts of the infrastructure for law enforcement, security, and transportation.

In summary, the Blood Bank Management System stands as a pivotal asset in the orchestration of the blood donation process, elevating the operational standards of blood banks and healthcare facilities. However, its potential for even greater impact can be harnessed through strategic enhancements. the development of a mobile application for added accessibility, the introduction of robust analytics and reporting features for in-depth insights, the establishment of an online blood bank to expand reach, and integration with Internet of Things (IoT) devices for real-time data monitoring. Such innovations have thereby increasing the capacity to save more lives. By continually evolving and adapting to the dynamic healthcare landscape, the Blood Bank Management System can remain an instrumental tool in the mission to ensure that safe and adequate blood supplies are consistently available to those who depend on them for their health and well-being

Future Aspects of Project

The Blood Bank Management System holds the potential for growth and enhancement in several ways. Firstly, it can be connected or integrated with other systems used in hospitals, creating a smoother experience for hospital staff. This integration enables the efficient exchange of information between different systems, reducing mistakes and making everything work more effectively.

Secondly, a mobile application tailored for the blood bank system can be created. This app would allow blood donors to easily sign up and schedule appointments for blood donations. It could also keep a record of a donor's history of blood donations and send alerts when their specific blood type is in high demand.

Lastly, there's room for improvement through analytics and reporting features. The system can be made smarter by adding the ability to generate reports about blood donation patterns, the levels of blood in stock, and other important details. These reports offer valuable insights to blood banks, aiding them in making informed choices about blood donations and transfusions. In essence, these enhancements make the system more effective, user-friendly, and informed in the vital task of managing blood resources

The Blood Bank Management System can monitor the temperature and humidity of blood samples by linking smart devices to the Internet of Things. Consider tiny, intelligent devices in the blood bank that are always monitoring the

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proper humidity and temperature levels for the blood. This is important since it helps ensure that the blood doesn't spoil and stays safe to use. Stated differently, it serves to avert potential issues that may arise from improper storage of the blood.

Donor incentives program: By rewarding contributors for their contributions, a donor incentives program can be added to the system. This would assist raise the overall blood supply by motivating more people to donate blood.

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[2]. A Research paper, authored by Devanjan K. Srivastava, Utkarsh Tanwar, M.G. Krishna Rao, Priya Manohar, and guided by Balraj Singh, focuses on the "Blood Donation Management System." These authors, affiliated with Lovely Professional University in Jalandhar, India, delve into the development and functioning of a system that manages blood donations effectively, addressing the crucial aspect of donor and inventory management in the context of a blood bank.

[3]. "A Study on Blood Bank Management System" authored by A. Clemen Teena, K. Sankar, and S. Kannan, hailing from the Department of MCA at Bharath University in Chennai, Tamil Nadu, India, explores the intricacies of blood bank management. This paper delves into the operations and challenges faced by blood banks, highlighting the importance of effective management systems and technology in addressing these challenges.

Collectively, these research papers provide valuable insights into various aspects of blood bank management and underscore the significance of secure database systems, efficient donor and inventory management, and technology in ensuring a steady and reliable supply of blood for medical purposes

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Bus Reservation System

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Abstract: *The travel sector is experiencing a substantial expansion worldwide. The bus reservation system is dedicated to upholding thorough passenger records, encompassing schedules and bus particulars. After a meticulous evaluation of the Bus reservation system, it has come to light that a multitude of tasks are presently conducted manually, culminating in time-intensiveprocesses and inaccuracies in data input. This manual methodology has consequently given rise to an array of difficulties and customer conflicts. To tackle these issues and bolster the management of passenger records, seat availability, pricing, bill generation, and other facets, we introduce the concept of an advanced computerized reservation system.*

Keywords: Bus Reservation, Queue, Efficient

I. INTRODUCTION

Project Objective: Develop and implement a mobile application for a Bus Reservation System. The primary objective of this project is to modernize a travel company's operations by digitizing data management processes. This transition aims to ensure fast and error-free transactions, eliminating issues such as calculation errors and bill generation discrepancies, while also eliminating the need forpaper documentation. It will also maintain comprehensive records of all transactions, guaranteeing a 100% successful implementation of the computerized Bus Reservation System.

Project Goals:

- Create a user-friendly model.
- Provide easy access to data privileges.
- Simplify data management for administrators

This reservation system comprises three modules:

- The first module allows customers to check seatavailability for a specific bus on a particular date.
- The second module facilitates ticket reservations byinserting relevant data into the system.
- The third module enables the cancellation of reservedtickets
- by deleting corresponding records from the system.

II. METHODOLOGY

Existing System:

In the bus reservation system that is currently in operation,the allocation of journeys is inconvenient and if we have to add important issues, most of all, information about how many passengers is currently traveling in a bus is often not available, sometimes there is also a disturbance in the ticketing of the set of passengers. So sometimes people travel without taking a ticket which is highly illegal and often there are bottlenecks even during bill generation and hence considering all these issues these systems are mostly not secure

Proposed System:

This bus reservation system is very easy to handle and useful in this system the passengers will be well taken care of i.e., complete record of the seat allotted to the passengers even if there is any cancellation the data integrity will be

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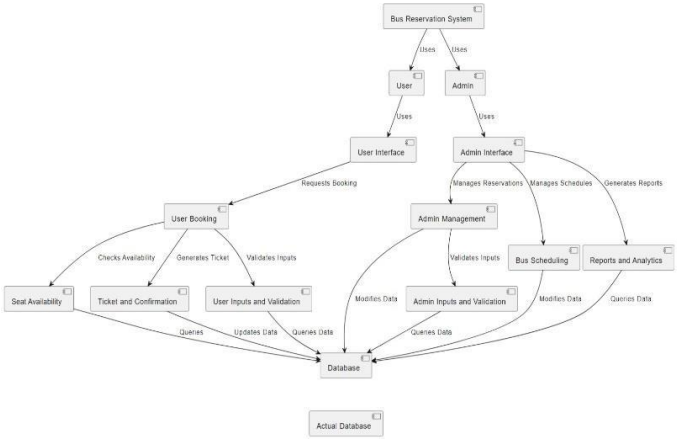
maintained so that the new passenger can enjoy his journey too. In this bus system Passengers will not have any problems as even the passenger can see their seat in App where he or she want to get very soon in the bus that means they can choose by their own and we can handle it well through internet to any corner of the world.

III. LITERATURE SURVEY

In This 21st Century the growth in the development of artificial intelligence or data science or even we can say Machine Learning had made a lot of changes in every systemor in the filed or upgrowing technologies. This Growing technology also made a lot of changes in the traveling Sections as there was very difficult situation for every personwho wants to travel from one place to another. Previously there were long lasting tickets line for reserving your seat in the bus for that we have to stand in a queue and waiting till your number come. The people who want to cancel their tickets also needs to face the same issue as well. As soon as the technology get improves the modification in the system give everyone a relaxing chance over this problem. Many Systems came up with the new technologies or a new mindset in order dismiss these useless problems. Even also the development of new versions of this system every system has their own Consequences.

There are many systems Likely to be mentioned are ZingBus in this if a female passenger books a ticket, then its mandatory for that bus that the next seat to that female passenger must be book by Female Only and Male Party can't get access to that Bus seat and these sometimes may create a vacant space problem as a needy Male passenger can't able to get that Seat. Another example we can say RTC app its also did good Job while traveling from one place to another but sometimes people get tired of using it because in this RTC App people can only book Government Buses Only. There are also some buses which needs some modifications like the where to find my bus Current Locations, the proper timing it takes to reach out the destination.

Data Flow Diagram



IV. RESULT

A. Admin Panel

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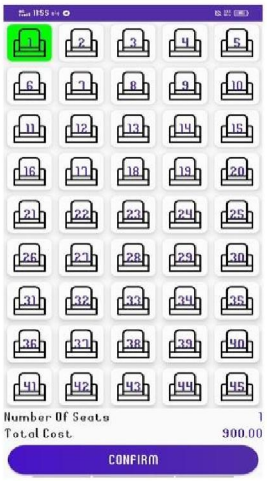
B. User Panel :



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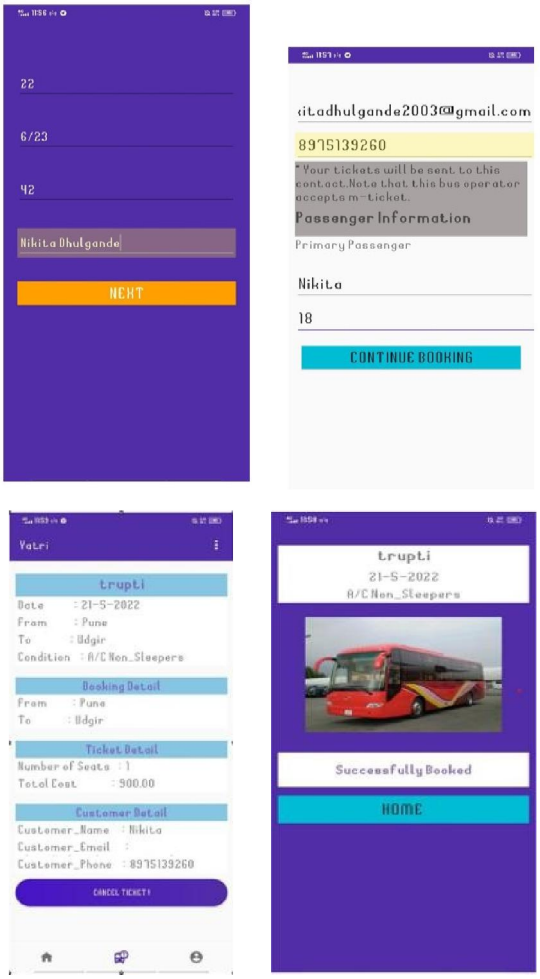

V. ADVANTAGES

• Time-Saving: No need to stand in long lines, you can quickly book your seats with just a few clicks.
• Seat Selection: Passengers can choose their preferred seats, ensuring comfort during the journey.
• Transparency: It provides clear information about bus schedules, routes, and ticket prices.
• Payment Options: Multiple payment methods make it easy to pay for tickets.
• Reduced Errors: Manual ticketing can lead to mistakes, which are minimized with an automated system.
• Better Customer Service: Passengers can receive updates and notifications about their trips, enhancing their overall experience.

VI. DISADVANTAGES

• you need internet access :A drawback of bus reservation system software is that you must have an internet connection to use it.
• you need to be ready for influxe of new customer: you have to be prepared for an influx of new customers, which can be challenging to handle.
• Not all online booking system are equal: Not all online booking systems are the same or equal in quality or features. In other words, some may not work as well or have as many options as others, which can be a drawback for users.
• Avoid booking system that don't bring you new quality: you should avoid using booking systems that don't improve the quality of your service or bring in new customers. In other words, if a reservation system doesn't make things better for your business, it's not a good choice.

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VII. APPLICATIONS

The bus Reservation Application Track a bookings of Bus reservation And Details which is related to it. And you can use history to check what kind of reservation makes the most money, with the help of historical data get a better understanding of what kind of patter most of the customers follows and have accurate insights into your cash flow.

VIII. FUTURE SCOPE

This section Describes the work that will be implemented in the Future version of software.

- This Application Supports Multiple Platforms and it can run on any OS like; Android.
- It takes minimum Time to response.
- If the reserved bus is not available at that time it can gives you another bus and its detail information also.
- Customer can view all the details on website/Application.

IX. CONCLUSION

This system provides a Reliable user interface where everyone can be able to see their Bus seat number or place visually in this application and can even book their seat , He or she can do modifications like updation or cancelation of a seat or chaneges in the seat numbers . It also include all the information from the starting date of jounery to the destiation place. This syetem is finally built for people to resloved all the problems faced by the them and for the one who can travel efficiently and enjoy his or her journey in very reliable manner.

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Enhancing User Experience and Engagement in E-Commerce Websites through AI Chatbots

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Abstract: *The Indian e-commerce market has grown rapidly in recent years, and is now one of the largest e-commerce markets in the world. This growth has been driven by a number of factors, including increasing internet penetration, rising smartphone penetration, and a growing middle class. E-commerce websites in India play a vital role in the country's economy. They provide a platform for businesses of all sizes to reach a wider audience and sell their products and services. Ecommerce websites also create jobs and contribute to the growth of the Indian economy. Existing websites offer a wide variety of products and services, including electronics, fashion, beauty, groceries, and more. Ecommerce websites in India are falling behind in this AI revolution we are witnessing. Using artificial intelligence (AI) chat bots to resolve customer queries can help lower costs related to customer staff and also results in better customer experience. AI chat bots are computer programs that are designed to simulate conversation with humans. They can be used to answer customer questions about products, services, orders, and more. Apart from all ecommerce functionality, we are going to implement AI assisted Chat Bot in this project.*

Keywords: Online Shopping, Shopping Cart, E- Commerce, Do Shopping From Your Home, AI ChatBoard

I. INTRODUCTION

E-commerce is the buying and selling of goods and services online. It has become increasingly popular in recent years, as it offers a number of advantages over traditional brick-and-mortar stores, including convenience, choice, and lower prices.

An e-commerce web application is a software program that allows businesses to sell their products and services online. It typically includes features such as a product catalogue, shopping cart, checkout process, and payment processing.

The objective of this project is to develop a comprehensive e-commerce web application that will allow businesses of all sizes to sell their products and services online. The application will be easy to use and navigate, and it will offer a variety of features to meet the needs of both businesses and consumers. The advancement to this project is we are going to add a AI chat bot to this project. In the digital age, the landscape of commerce is undergoing a profound transformation, and e-commerce stands at the forefront of this revolution. The convenience and accessibility it offers have made e-commerce a driving force in the global economy. Online shopping has transcended geographical boundaries, opening up a world of possibilities for businesses and consumers alike. This project endeavors to contribute to this digital paradigm shift by developing a cutting-edge ecommerce web application that seamlessly integrates Artificial Intelligence (AI) in the form of a chatbot. E- commerce, simply put, is the process of buying and selling goods and services over the internet. It has redefined the way business is conducted, enabling companies to reach a global customer base with unprecedented ease. Our e-commerce web application aims to empower businesses of all sizes, from small startups to established enterprises, to harness the power of online sales. The application will serve as a digital marketplace where businesses can showcase their products and services. It will feature an intuitive and user-friendly product catalogue that allows customers to explore a wide range of offerings, and a seamless shopping cart and checkout process that simplifies the purchase journey. While the core e-commerce functionality is pivotal to this project, we recognize the need for continuous innovation and enhancement. Therefore, we are introducing an AI chatbot

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as a novel feature. This AI chatbot is more than just a customer service tool; it's a virtual assistant that engages with users in real-time. It can provide product recommendations, answer queries, offer guidance through the website, and even assist with the checkout process.

This innovation represents a forward-looking approach that leverages AI's capacity to understand and respond to human language and behavior, making the entire shopping experience more dynamic and personalized. This research project seeks to explore not only the technical intricacies of e-commerce and AI chatbots but also the profound impact it can have on the e-commerce industry.

We aim to investigate the chatbot's role in enhancing user experiences, optimizing customer support, and potentially increasing conversion rates. By the end of this endeavor, we hope to contribute to the growing body of knowledge on e-commerce and AI integration, providing valuable insights for businesses and researchers in the digital commerce domain. As we delve further into the project, we will explore the technical aspects of developing this robust ecommerce web application, discuss the AI chatbot's architecture, and conduct user-centric studies to evaluate its performance and impact. Stay tuned for a journey into the exciting realm of e-commerce and artificial intelligence, where innovation knows no bounds.

II. METHODOLOGY

Step 1: Initial Meeting with Project Team: In the preliminary phase, our project team, including class coordinators and faculty advisors, will conduct an initial meeting to outline the methodology, establish guidelines, and define the objectives. The objectives of the activity will be made explicit to ensure a clear understanding among all project stakeholders.

Step 2: Formation of User Groups: Similar to the formation of groups in the WhatsApp activity, we will create user groups on our e-commerce platform. These groups will be based on users' interests, preferences, and purchasing history. By segmenting users effectively, we aim to personalize their shopping experiences and encourage collaboration and engagement within their respective interest areas.

Step 3: Daily Activity Implementation: Under this step, we will introduce daily activities and engagements designed to enhance user interactions on the e-commerce website.

III. REVIEW OF LIETRATURE

In the contemporary e-commerce landscape, the infusion of Artificial Intelligence (AI) has transformed the way businesses engage with customers, optimize operations, and drive growth. This literature survey delves into key studies and trends, highlighting the profound impact of AI on e-commerce.

AI-driven Personalization:

Personalization is a cornerstone of modern ecommerce, and AI is at its forefront. Studies such as Sarwar et al. (2001) emphasize the potential of recommendation systems powered by AI. These systems analyze user behavior, past purchases, and preferences to provide tailored product recommendations. This level of personalization not only enhances the customer shopping experience but also significantly increases conversion rates and sales.

Chatbots and Customer Service:

AI chatbots are increasingly being deployed by ecommerce platforms to provide real-time customer support. Research by Mikolov et al. (2016) acknowledges the automation capabilities of chatbots in handling routine customer inquiries efficiently. By utilizing Natural Language Processing (NLP) and machine learning, chatbots offer immediate assistance, thereby improving user satisfaction and reducing customer service

Big Commerce:

The B2B ecommerce space is growing fast and buyers have high expectations. Let's take a look at the different types of B2B ecommerce, as well as common misconceptions and some success stories. Some research has been done from this website.

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AI-driven Personalization

Personalization in e-commerce is a thriving field, and the impact of AI on this aspect is evident in various studies. For instance, in their research, "Personalized Recommendations for E-commerce" (Adomavicius and Tuzhilin, 2005), the authors discuss the significance of personalized product recommendations in improving user engagement and sales. AI algorithms, such as collaborative filtering and content based recommendation, are instrumental in delivering relevant and personalized product suggestions.

Customer Behavior Analysis:

Understanding customer behavior is pivotal in ecommerce, and AI plays a critical role in this domain. Studies like "Predicting Customer Churn in Ecommerce: Machine Learning Approaches" (Yin et al., 2011) illustrate how AI can be used to predict customer churn by analyzing various customer interactions and behavior patterns. This knowledge can help e-commerce platforms retain customers and optimize marketing strategies.

AI in Fraud Detection:

AI has also revolutionized the field of fraud detection in e-commerce. Research such as "Fraud Detection for Online Businesses" (Jagadish et al., 2014) explores how machine learning and AI algorithms can be applied to detect fraudulent transactions and protect ecommerce businesses from financial losses and reputational damage.

Voice Commerce (V-commerce):

With the advent of voice-activated devices and virtual assistants, voice commerce is a growing trend. Research in this area, such as "The Impact of Voice Commerce on E-commerce" (Smith et al., 2020), delves into the influence of voice-based shopping experiences, powered by AI, on e-commerce sales and user behavior.

Omnichannel Customer Experience:

The integration of AI in creating seamless omnichannel customer experiences is explored in research like "The Role of Artificial Intelligence in Enhancing Omnichannel Retail" (Chen et al., 2019). This study investigates how AI can optimize inventory management, order fulfillment, and customer interactions across various sales channels, leading to a more unified and efficient retail experience.

Cross-border E-commerce and AI:

As e-commerce transcends geographical borders, research such as "AI and the Globalization of Ecommerce" (Gupta et al., 2022) delves into the role of AI in overcoming language, currency, and cultural barriers in cross-border e-commerce. AI-driven translation, currency conversion, and cultural customization are highlighted in this context.

IV. CLASSIFICATION MODEL

Incorporating AI and machine learning into our ecommerce web application is a key feature that sets our project apart. One of the core elements of our AI integration is the development of a robust classification model. This model plays a pivotal role in categorizing products, making recommendations, and personalizing the user experience. In this section, we will outline the details of the classification model, its objectives, and its implementation.

Objectives of the Classification Model :

The primary objectives of our classification model are as follows:

- Product Categorization: Our model is designed to automatically categorize products into relevant categories or subcategories. This simplifies the process of organizing and navigating our extensive product catalog.
- Recommendation Engine: The model will utilize user behavior data to generate personalized product recommendations, enhancing the cross-selling and upselling capabilities of the application.
- Customer Segmentation: We will employ the classification model to segment customers based on their preferences and buying patterns, enabling targeted marketing and communication.

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The AI chatbot has several key objectives:

- Real-Time Support: The chatbot will be available 24/7 to assist customers with inquiries, order tracking, and problem resolution, ensuring a prompt response to customer needs.
- Personalized Assistance: Utilizing AI and machine learning, the chatbot will offer personalized product recommendations and tailored responses based on user preferences and previous interactions.
- Reduced Workload: By automating routine tasks and queries, the chatbot will free up human customer support agents to focus on more complex issues and provide a higher level of service.

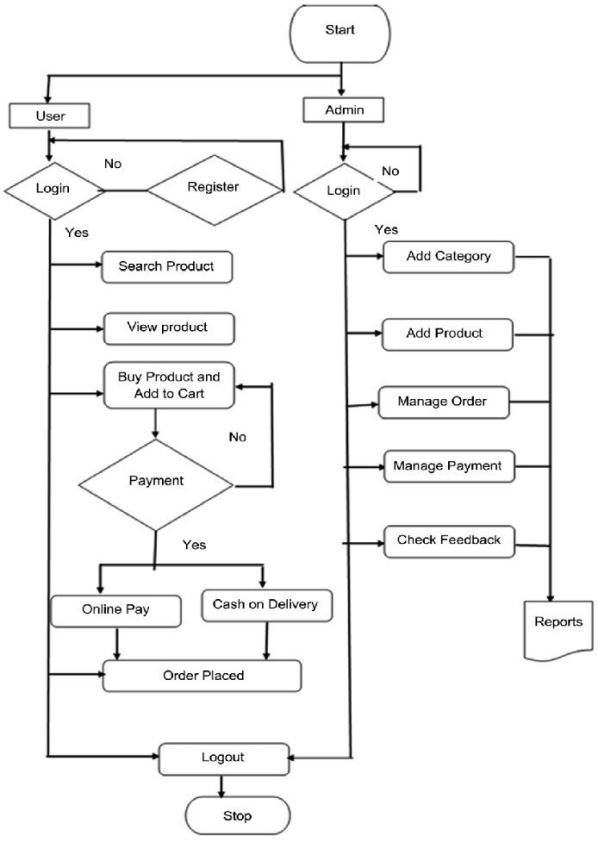
V. FUTURE ENHANCEMENTS

As part of our project's forward-looking approach, we will discuss potential future enhancements to the classification model. This may include expanding the model's capabilities, optimizing its performance, and exploring the use of more advanced machine learning techniques.

The development of our classification model is an exciting aspect of our project, offering enhanced functionality and personalization for our e-commerce platform. By combining AI, machine learning, and a user-centric approach, we aim to create a dynamic and responsive online shopping experience that caters to the unique needs and preferences of each user.

VI. LIST OF FIGURES

DFD Diagram



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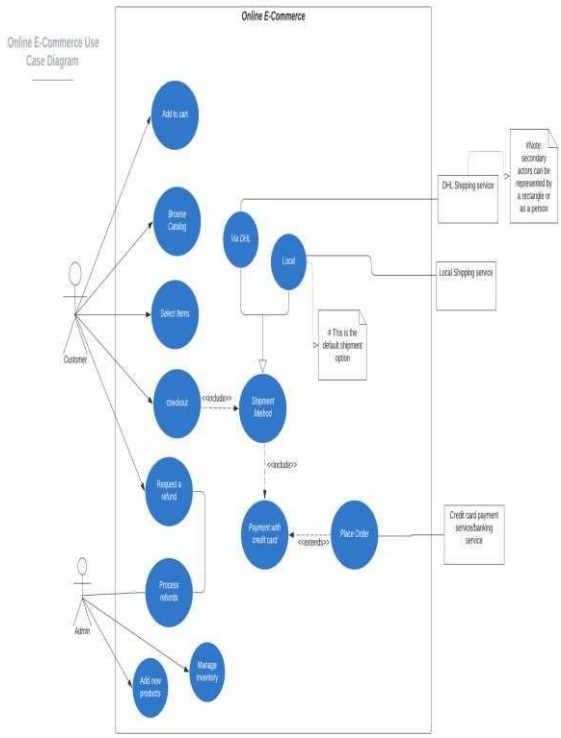
Use Case Diagram :



VII. APPLICATIONS

- Ease of doing business: Your e-commerce platform should be easy to use for both buyers and sellers.
- Buyers should be able to find and purchase products quickly and easily, and sellers should be able to list their products and manage their orders efficiently.
- Wide range of products: Your e-commerce platform should offer a wide range of products, so that customers can find everything they need in one place.
- Competitive prices: Your e-commerce platform should offer competitive prices on all of its products.
- Excellent customer service: Your e-commerce platform should provide excellent customer service, including fast shipping, easy returns, and responsive customer support.
- Secure shopping: Your e-commerce platform should use industry-standard security measures to protect customer data.
- Mobile-friendly design: Your e-commerce platform should be mobile-friendly, so that customers can shop on the go.

VIII. FUTURE SCOPE

Artificial intelligence (AI): AI can be used to improve the e-commerce experience in a number of ways. For example, AI can be used to recommend products to customers based on their past purchase history and browsing behavior. AI can also be used to personalize the search experience for each customer.

Augmented reality (AR) and virtual reality (VR): AR and VR can be used to create immersive shopping experiences for customers. For example, AR can be used to allow customers to preview products in their homes before they buy them. VR can be used to create virtual stores where customers can browse and purchase products.

Voice commerce: Voice commerce is a growing trend that allows users to shop online using their voice. You can integrate voice commerce into your e-commerce platform to make it easier for customers to shop on the go.

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Social commerce: Social commerce is the integration of social media and e-commerce. You can integrate social commerce into your e-commerce platform to allow users to share products with their friends and followers, andto make purchases directly from social media platforms.

IX. CONCLUSION

In conclusion, the development and successful implementation of our e-commerce website project mark a significant milestone in our journey towards creating a seamless online shopping experience for our customers. This project has been a collaborative effort, and we are proud of the results achieved.

Project Objectives Achieved:

- Market Reach: Our e-commerce website has allowed us to extend our market reach beyond geographical boundaries, providing customers with access to our products and services 24/7.
- Efficient Operations: The website has streamlined our operations, enabling us to manage inventory, process orders, and handle customer inquiries more efficiently.
- User-Friendly Interface: We have prioritized user experience, resulting in an intuitive and user-friendly interface that encourages customer engagement and conversions.
- Data-Driven Decisions: The integrated analytics tools have empowered us to make data-driven decisions, adapt to market trends, and enhance our product offerings.

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Flaunt – (E-commerce Website Platform for Selling and Reselling)

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Abstract: *The Flaunt project is a groundbreaking e- commerce website designed to provide a distinctive and socially responsible platform for selling new and used clothing while contributing to society through charitable donations for orphan children. This in-depth report delves into the development, features, and profound social impact of Flaunt, showcasing its potential to revolutionize e-commerce by seamlessly blending commerce with philanthropy.*

Keywords: E commerce, Digitalization, Reselling

I. INTRODUCTION

Background

The Flaunt project arose from the need for an innovative e-commerce platform that transcends conventional online shopping. Flaunt seeks to offer users the opportunity to buy and sell both new and used clothing items while also contributing to charitable causes, specifically the welfare of orphaned children. This section delves into the project's inception, driving factors, and societal significance.

Inception: The idea for Flaunt emerged as a response to the increasing consumer demand for sustainable and socially responsible shopping. It was conceptualized as a platform where individuals could not only engage in retail therapy but also make a meaningful impact on the world. Driving Factors: Flaunt is driven by the convergence of several factors, including the rise of e-commerce, growing awareness of sustainability, and the desire for businesses to contribute positively to society. Societal Significance: The significance of Flaunt lies in its ability to empower users to shop responsibly and participate in philanthropic initiatives while enjoying the convenience of online commerce related work.

Objectives

The primary objectives of the Flaunt project are as follows:

- Create an E-commerce Hub: Develop an e-commerce website with an intuitive and user-friendly interface that meets modern online shopping standards.
- Diverse Clothing Marketplace: Facilitate the buying and selling of clothing items for any gender and age group, making it an inclusive platform.
- Social Responsibility: Incorporate a charity module to allocate a portion of the sales revenue to charitable activities for orphaned children.
- Administrative Control: Provide an admin panel for efficient management of users, products, and charitable activities.
- Profit Generation: Generate profits while simultaneously making a substantial contribution to society.

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Scope

The project scope encompasses the comprehensive development of an e-commerce website, known as "Flaunt." Flaunt will serve as a multifaceted platform for the buying and selling of clothing items. It will cater to users of all genders, offering them the opportunity to resell used clothing and make charitable contributions to support orphan children.

II. PROJECT OVERVIEW

Platform Name

Platform Name: Flaunt

Target Audience

Flaunts target audience is broad and inclusive, appealing to a diverse range of individuals, including:

- Fashion Enthusiasts: Those seeking the latest trends and styles in clothing.
- Eco-conscious Shoppers: Individuals who prioritize sustainability in their purchases.
- Closet Declutter: People looking to sell or donate unused clothing.
- Philanthropic Hearts: Individuals who want to make a positive impact on society through shopping.

Key Features

Flaunt offers an array of key features designed to enhance the user experience and fulfill its unique vision:

- **User-Friendly Interface:** Flaunt boasts an intuitive and responsive web interface, making it accessible on various devices.
- **User Registration and Authentication:** Users can securely register and authenticate their accounts, ensuring data privacy and security.
- **Product Listings:** The platform hosts detailed product listings with comprehensive descriptions and high-quality images, aiding informed purchasing decisions.
- **Secure Payment Gateway Integration:** Flaunt ensures secure and hassle-free payment processing through integration with a trusted payment gateway.
- **Resale Module:** Users can easily list and sell their pre-owned clothing items, promoting sustainable consumption.
- **Charity Module:** Flaunt incorporates a charity module, automatically donating a percentage of sales revenue to charitable initiatives supporting orphan children.
- **Admin Panel:** Admins have access to a dedicated admin panel, simplifying user and product management and monitoring of charitable activities.

Differentiation

Flaunt stands out in the e-commerce landscape due to its distinctive combination of commerce and philanthropy:

Commerce with a Heart:

Flaunt is more than just a place to shop; it's a platform where every purchase contributes to positive change. Users can embrace their shopping desires while knowing they are making a difference in the lives of orphaned children.

III. SYSTEM ARCHITECTURE

Frontend

The frontend of Flaunt is meticulously crafted using modern web development technologies, including:

- HTML5: Ensures structurally sound and semantically meaningful web pages.
- CSS3: Enhances the visual appeal, layout, and responsiveness of the website.
- JavaScript: Provides interactivity and dynamic features for a rich user experience.

The front-end design prioritizes user engagement, simplicity, and aesthetic appeal. User feedback and usability testing were pivotal in refining the design.

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Backend

Flaunt's backend is built upon a robust foundation comprising programming languages and frameworks, such as:

- Python: A versatile and powerful programming language.
- Django: A high-level Python web framework known for its scalability and security.
- Node.js: Enhances real-time features and ensures efficient data processing.

The backend serves as the engine that drives Flaunt's functionality, ensuring seamless user interactions and secure data handling.

Database

Flaunt relies on PostgreSQL as the chosen database management system for its reliability, scalability, and ability to handle vast amounts of user data, product information, and transaction records. The database architecture is designed for optimal performance.

Hosting and Deployment

Flaunt is hosted on a cloud platform to ensure scalability and accessibility. Continuous integration and deployment (CI/CD) pipelines are implemented to facilitate smooth updates and maintenance

IV. DEVELOPMENT PROCESS

Technologies Used

- The development process leveraged a carefully selected set of technologies to ensure Flaunt's success
- Frontend technologies: HTML5, CSS3, JavaScript
- Backend technologies: Python, Django, Node.js
- Database: PostgreSQL
- Payment gateway integration:
- Version control: Git
- Hosting:

Design and User Experience

Design and user experience were paramount during the development of Flaunt:

User-Centric Design:

Flaunt's design prioritizes the user, offering an intuitive and visually appealing layout that enhances the shopping experience.

User Feedback:

Regular user feedback sessions and usability testing were conducted to ensure the design met user expectations and addressed pain points effectively.

Implementation

The implementation phase involved:

- Building the frontend and backend components.
- Implementing secure user registration and authentication processes.
- Integrating a reliable payment gateway for secure transactions.
- Creating a resilient resale module to facilitate user listings.
- Incorporating the charity module for automatic contributions.
- Developing the admin panel for efficient administrative control.

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Testing

Flaunt underwent rigorous testing to ensure stability, security, and usability:

- Unit Testing: Individual modules were tested in isolation.
- Integration Testing: Testing interactions between different components.
- User Acceptance Testing: Involving actual users to validate the platform's functionality and ease of use.

Thorough testing helped identify and address bugs, ensuring a stable platform for users.

Challenges Faced

The development of Flaunt was not without its challenges:

Data Security:

Ensuring the security of user data and transactions was a top priority, requiring robust encryption and data protection measures.

Payment Gateway Integration:

Integrating a secure and reliable payment gateway was a complex task, involving compliance with industry standards and security protocols.

Performance Optimization:

Optimizing website performance for a seamless user experience, particularly during high traffic periods, was a demanding task.

V. FUNCTIONAL MODULES

User Registration and Authentication

- **User Registration:** Flaunt offers a seamless user registration process that collects necessary information while ensuring data security.
- **Authentication:** User accounts are authenticated to protect sensitive data and enable secure access.

Product Listings

- **Detailed Listings:** Users can browse comprehensive product listings featuring detailed descriptions and high-resolution images.
- **User Interaction:** The platform facilitates user interactions such as viewing product details, adding items to the cart, and leaving reviews.

Payment Gateway

- Secure Transactions: Flaunt ensures secure online transactions through integration with a trusted payment gateway, providing users with confidence in their purchases.
- Payment Options: Multiple payment options are made available, accommodating various user preferences.

Resale Module

- Listing and Selling: Users can list their pre-owned clothing items for sale on Flaunt, contributing to the circular economy and reducing waste.
- User-Generated Content: The resale module encourages users to create listings with comprehensive details and high-quality images.

Charity Module

- Philanthropic Contributions: A portion of each sale on Flaunt is automatically directed to charitable initiatives supporting orphaned children

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- Transparent Reporting: Flaunt maintains transparency in its charitable contributions, providing users with insights into the impact of their purchases.

Admin Panel

- Administrative Control: Admins have access to a dedicated admin panel for efficient management of users, products, and charitable activities.
- Monitoring and Reporting: The admin panel provides comprehensive insights into the platform's performance and charitable contributions

VI. SOCIAL IMPACT

Contribution to Society

Flaunt's most profound impact lies in its contribution to society:

- **Empowering Users:** Flaunt empowers users to make a meaningful difference in the lives of orphaned children simply by shopping for clothing.
- **Positive Change:** The platform's contributions support initiatives that provide shelter, education, and healthcare to orphaned children.

Philanthropic Initiatives

- **Partnerships**: Flaunt collaborates with reputable charitable organizations to ensure that contributions are directed toward impactful and accountable projects.
- **Transparency:** Flaunt maintains transparency by regularly sharing updates on charitable initiatives, fostering trust among users.

User Engagement and Social Responsibility

- **Active Participation:** Flaunt encourages users to actively engage in social responsibility by providing a platform that seamlessly integrates philanthropy into everyday activities.
- **Community Building:** Users can join a community of like-minded individuals committed to positive change.

VII. FUTURE ENHANCEMENTS

Artificial Intelligence Integration

- Personalized Recommendations: Integration of AI algorithms to provide personalized product recommendations, enhancing the shopping experience.
- Efficient Matching: AI-driven features to facilitate efficient matching of buyers and sellers

Expansion Plans

- Product Categories: Expanding the platform to include additional product categories beyond clothing, catering to a broader audience.
- International Markets: Exploring opportunities to expand Flaunt's reach to international markets.

Sustainability Initiatives

- Eco-Friendly Options: Introducing eco-friendly and sustainable clothing options and partnerships to align with sustainability goals.
- Environmental Impact: Measuring and mitigating the platform's environmental footprint through sustainable practices.

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VIII. CONCLUSION

Achievements

The Flaunt project represents a remarkable achievement in the realm of e-commerce, successfully creating a unique platform that harmoniously combines commerce with philanthropy. Flaunt empowers users to contribute positively to society while indulging in the pleasures of shopping.

Lessons Learned

The development of Flaunt has provided invaluable lessons:

User-Centric Approach: Prioritizing the user's needs and desires is fundamental to building a successful platform.

Sustainability Matters: Incorporating sustainability initiatives can resonate with users and positively impact the environment.

Final Thoughts

Flaunt exemplifies the future of socially responsible e- commerce, offering substantial potential for growth and impact. As the project team remains committed to continual improvement and expansion, Flaunt is poised to make an enduring mark on the world of online shopping and philanthropy.

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I-Voting System

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Abstract: *Online voting is a trend that is gaining momentum in modern society. It has great potential to decrease organizational costs and increase voter turnout. It eliminates the need to print ballot papers or open polling stations—voters can vote from wherever there is an Internet connection. Despite these benefits, online voting solutions are viewed with a great deal of caution because they introduce new threats. A single vulnerability can lead to large-scale manipulations of votes. Electronic voting systems must be legitimate, accurate, safe, and convenient when used for elections. Nonetheless, adoption may be limited by potential problems associated with electronic voting sys- tems. Blockchain technology came into the ground to overcome these issues and offers decentralized nodes for electronic voting and is used to produce electronic voting systems mainly because of their end-to-end verification advantages. This technology is a beautiful replacement for traditional electronic voting solutions with distributed, non-repudiation, and security protection characteristics. The following article gives an overview of electronic voting systems based on blockchain technology. The main goal of this analysis was to examine the current status of blockchain-based voting research and online voting systems and any related difficulties to predict future developments. This study provides a conceptual description of the intended blockchain-based electronic voting application and an introduction to the fundamental structure and characteristics of the blockchain in connection to electronic voting. As a consequence of this study, it was discovered that blockchain systems may help solve some of the issues that now plague election systems. On the other hand, the most often mentioned issues in blockchain applications are privacy protection and transaction speed. For a sustainable blockchain-based electronic voting system, the security of remote participation must be viable, and for scalability, transaction speed must be addressed. Due to these concerns, it was determined that the existing frameworks need to be improved to be utilized in voting systems.*

Keywords: Blockchain-based electronic voting, Coding, Security, privacy

I. INTRODUCTION

I-voting or online voting is a system of voting where people can vote directly from their mobile, anytime and from anywhere. It is a revolution which is disrupting the traditional election systems with the power of the internet. In I-voting, voter can confirm if his/her vote has gone to correct candidate/party are major concern. I-voting could also reduce the number of errors made by both the voters and the electoral administrators.

Electoral integrity is essential not just for democratic nations but also for state voter's trust and liability. Political voting methods are crucial in this respect. From a government standpoint, electronic voting technologies can boost voter participation and confidence and rekindle interest in the voting system. As an effective means of making democratic decisions, elections have long been a social concern. As the number of votes cast in real life increases, citizens are becoming more aware of the significance of the electoral system. The voting system is the method through which judges judge who will represent in political and corporate governance. Democracy is a system of voters to elect representatives by voting. The efficacy of such a procedure is determined mainly by the level of faith that people have in the election process. The creation of legislative institutions to represent the desire of the people is a well-known tendency. Such political bodies differ from student unions to constituencies. Over the years, the vote has become the primary resource to express the will of the citizens by selecting from the choices they made.

The traditional or paper-based polling method served to increase people's confidence in the selection by majority voting. It has helped make the democratic process and the elec- toral system worthwhile for electing constituencies and governments more democratized. There are 167 nations with democracy in 2018, out of approximately 200, which are

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either wholly flawed or hybrid . The secret voting model has been used to enhance trust in democratic systems since the beginning of the voting system.It is essential to ensure that assurance in voting does not diminish. A recent study revealed that the traditional voting process was not wholly hygienic, posing several ques- tions, including fairness, equality, and people's will, was not adequately quantified and understood in the form of government.

Engineers across the globe have created new voting techniques that offer some anti- corruption protection while still ensuring that the voting process should be correct. Technol- ogy introduced the new electronic voting techniques and methods, which are essential and have posed significant challenges to the democratic system. Electronic voting increases election reliability when compared to manual polling. In contrast to the conventional voting method, it has enhanced both the efficiency and the integrity of the process . Because of its flexibility, simplicity of use, and cheap cost compared to general elections, electronic voting is widely utilized in various decisions. Despite this, existing electronic voting methods run the danger of over- authority and manipulated details, limiting funda- mental fairness, privacy, secrecy, anonymity, and transparency in the voting process. Most procedures are now centralized, licensed by the critical authority, controlled, measured, and monitored in an electronic voting system, which is a problem for a transparent voting process in and of itself.

On the other hand, the electronic voting protocols have a single controller that oversees the whole voting process. This technique leads to erroneous selections due to the central authority's dishonesty (election commission), which is difficult to rectify using existing methods. The decentralized network may be used as a modern electronic voting technique to circumvent the central authority.

Blockchain technology offers a decentralized node for online voting or electronic voting. Recently distributed ledger technologies such blockchain were used to produce electronic voting systems mainly because of their end-to-end verification advantages. Blockchain is an appealing alternative to conventional electronic voting systems with features such as decentralization, non-repudiation, and security protection. It is used to hold both boardroom and public voting. A blockchain, initially a chain of blocks, is a growing list of blocks combined with cryptographic connections. Each block contains a hash, timestamp, and transaction data from the previous block. The blockchain was created to be data-resistant. Voting is a new phase of blockchain technology; in this area, the researchers are trying to leverage benefits such as transparency, secrecy, and non- repudiation that are essential for voting applications. With the usage of blockchain for electronic voting applications, efforts such as utilizing blockchain technology to secure and rectify elections have recently received much attention.

II. PROBLEM STATEMENT

The main problem was related to trusting the EVM through i-voting we can make the process transparent for the voters and more easier. Offline voting was time consuming and sometimes irritating due to long queues which reduced the voters % , online voting will be less time consuming and comfortable from our convenient place which will increase the voting turnout %.In current voting system there are chances of false voting, duplicate voting , pressurized votes we can overcome this by giving the voter multiple chances to vote and the last vote will be considered as the correct one.

Into the i-voting system, our whole process is depends on internet if a user faces lack of internet connection or disconnection their vote will be on hold until the internet connection restores

III. PROOPOSED SYSTEM ARCHITECTURE

Our Proposed system will detect viruses if device is virus free then only voters are allowed to vote It provides high- level security because of smart contract and RSA encryption algorithm. It's a Progressive Web App(PWA) means if there is no internet connection then also your vote will be counted. It will be accessible over the internet.

Existing system turnout voters from 1952 election till today is ranging from 50 to 65% but our proposed system can ranged it between 80% to 95%.Our Proposed system is easy to use therefore no human/insider required for guidance.

There is no misuse of data mismanagement while the website development is under process

IV. METHODOLOGY

Carefull planning and security considerations are essential when desigining an internet voting (i-voting) system. Here is a jigh-level implementation strategy for such a system ;

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- Feasibility Study: Determine whether I-voting is practical for your community or organization , taking into consideration logistical , technological , and legal factors.
- Legal and Regulatory: Franework-Assure that local, state , and federal election rules are – Specify the parameters for I-voting eligibility .
- Security Planning: Create a through security framework with techniques for encryption, authentication, and authorization,- to increase confidence, think about implemaeting end-to-end verified solutions.
- Voter Registration: Create a strong voter authentication procedure , perhaps utilizing multi-factor authentication . Securely confirm each voters identity.
- Voter Registrtation: Establish an internet system for registering voters. Check the veracity of the registration data and the voter eligibility.

V. PROBLEMS AND SOLUTIONS OF DEVELOPING I- - VOTING SYSTEM

Whether talking about traditional paper-based voting, voting via digital voting machines, or an online voting system, several conditions need to be satisfied:

- Eligibility: Only legitimate voters should be able to take part in voting;
- Unreusability: Each voter can vote only once;
- Privacy: No one except the voter can obtain information about the voter's choice;
- Fairness: No one can obtain intermediate voting results; Soundness: Invalid ballots should be detected and not taken into account during tallying;
- Completeness: All valid ballots should be tallied correctly.

Below is a brief overview of the solutions for satisfying these properties in online voting systems.

ELIGIBILITY

The solution to the issue of eligibility is rather apparent. To take part in online voting, voters need to identify themselves using a recognized identification system. The identifiers of all legitimate voters need to be added to the list of participants. But there are threats: Firstly, all modifications made to the participation list need to be checked so that no illegitimate voters can be added, and secondly, the identification system should be both trusted and secure so that a voter's account cannot be stolen or used by an intruder. Building such an identification system is a complex task in itself . However, because this sort of system is necessary for a wide range of other contexts, especially related to digital government services, researchers believe it is best to use an existing identification system, and the question of creating one is beyond the scope of work.

UNREUSADILITY

At first, glance, implementing unreusability may seem straightforward—when a voter casts their vote, all that needs to be done is to place a mark in the participation list and not allow them to vote a second time. But privacy needs to be taken into consideration; thus, providing both unreusability and voter anonymity is tricky. Moreover, it may be necessary to allow the voter to re-vote, making the task even more complex. A brief overview of unreusability techniques will be provided below in conjunction with the outline on implementing privacy.

PRIVACY

Privacy in the context of online voting means that no one except the voter knows how a participant has voted. Achieving this property mainly relies on one (or more) of the following techniques: blind signatures, homomorphic encryption, and mix-networks . Blind signature is a method of signing data when the signer does not know what they are signing. It is achieved by using a blinding function so that blinding and signing functions are commutativeBlind (Sign(message))=Sign(Blind(message)). The requester blinds (applies blinding function to) their message and sends it for signing. After obtaining a signature for a blinded message, they use their knowledge of blinding parameters to derive a signature for an unblinded message. Blind signatures mathematically prevent anyone except the requester from linking a blinded message and a corresponding signature pair with an unblinded one.

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The voting scheme proposed by Fujioka, Okamoto, and Ohta in 1992 uses a blind signature: An eligible voter blinds his ballot and sends it to the validator. The validator verifies that the voter is allowed to participate, signs the blinded ballot, and returns it to the voter. The voter then derives a signature for the unblinded vote and sends it to the tallier, and the tallier verifies the validator's signature before accepting the ballot.

Many online voting protocols have evolved from this scheme, improving usability (in the original method, the voter had to wait till the end of the election and send a ballot decryption key), allowing re-voting, or implementing coercion resistance. The main threat here is the power of the signer: There must be a verifiable log of all emitted signatures; this information logically corresponds to the receiving of a ballot by the voter, so it should be verified that only eligible voters receive signatures from the signer

. It should also be verifiable that accounts of voters who are permitted to vote but have not taken part in voting are not utilized by an intruder. To truly break the link between voter and ballot, the ballot and the signature need to be sent through an anonymous channel .

Homomorphic encryption is a form of encryption that allows mathematical operations to be performed on encrypted data without decryption, for example, the addition Enc(a) + Enc(b) = Enc(a + b); or multiplication Enc(a) × Enc(b) = Enc(a × b). In the context of online voting, additive homomorphic encryption allows us to calculate the sum of all the voters' choices before decryption.

FAIRNESS

Fairness in terms of no one obtaining intermediate results is achieved straightfor- wardly: Voters encrypt their choices before sending, and those choices are decrypted at the end of the voting process. The critical thing to remember here is that if someone owns a decryption key with access to encrypted decisions, they can obtain intermediate results. This problem is solved by distributing the key among several keyholders . A system where all the key holders are required for decryption is unreliable—if one of the key hold- ers does not participate, decryption cannot be performed. Therefore, threshold schemes are used whereby a specific number of key holders are required to perform decryption. There are two main approaches for distributing the key: secret sharing, where a trusted dealer divides the generated key into parts and distributes them among key holders (e.g., Shamir's Secret Sharing protocol); and distributed key generation, where no trusted dealer is needed, and all parties contribute to the calculation of the key (for example, Pedersen's Distributed Key Generation protocol).

SOUNDNESS AND COMPLETENESS

On the face of it, the completeness and soundness properties seem relatively straight- forward, but realizing them can be problematic depending on the protocol. If ballots are decrypted one by one, it is easy to distinguish between valid and invalid ones, but things become more complicated when it comes to homomorphic encryption. As a single ballot is never decrypted, the decryption result will not show if more than one option was chosen or if the poll was formed so that it was treated as ten choices (or a million) at once. Thus, we need to prove that the encrypted data meets the properties of a valid ballot without compromising any information that can help determine how the vote was cast. This task is solved by zero-knowledge proof. By definition, this is a cryptographic method of proving a statement about the value without disclosing the value itself. More specifically, range proofs demonstrate that a specific value belongs to a particular set in such cases..

VI. SECURITY AND REQUIREMENTS FOR I-VOTING SYSTEM

Suitable electronic voting systems should meet the following electronic voting requirements. Figure shows the main security requirements for electronic voting systems.

AUDITABILITY AND ACCURACY

Accuracy, also called correctness, demands that the declared results correspond pre- cisely to the election results. It means that nobody can change the voting of other citizens, that the final tally includes all legitimate votes , and that there is no definitive tally of invalid ballots.

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Figure: Security requirements for I-Voting System

ANONYMITY

Throughout the polling process, the voting turnout must be secured from external interpretation. Any correlation between registered votes and voter identities inside the electoral structure shall be unknown

DEMOCRACY/SINGULARITY

A "democratic" system is defined if only eligible voters can vote, and only a single vote can be cast for each registered voter. Another function is that no one else should be able to duplicate the vote.

VOTE PRIVACY

After the vote is cast, no one should be in a position to attach the identity of a voter with its vote. Computer secrecy is a fragile type of confidentiality, which means that the voting relationship remains hidden for an extended period as long as the current rate continues to change with computer power and new techniques.

ROBUSTNESS AND INTEGRITY

This condition means that a reasonably large group of electors or representatives cannot disrupt the election. It ensures that registered voters will abstain without problems or encourage others to cast their legitimate votes for themselves. The corruption of citizens and officials is prohibited from denying an election result by arguing that some other member has not performed their portion correctly

LACK OF EVIDENCE

While anonymous privacy ensures electoral fraud safeguards, no method can be assured that votes are placed under bribery or election rigging in any way. This question has its root from the start

TRANSPERANCY AND FAIRNESS

It means that before the count is released, no one can find out the details. It avoids acts such as manipulating late voters' decisions by issuing a prediction or offering a significant yet unfair benefit to certain persons or groups as to be the first to know.

VIII. CONCLUSION

On the research of various voting systems we analysed the security risk that could harm the integrity and confidentiality of the voting process. In these research exercises, we conceive a testing methodology, improved new tools for the security analysis and suggest a new idea of the voting system. The goal of this research is to analyze and evaluate

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current research on blockchain- based electronic voting systems. The article discusses recent electronic voting research using blockchain technology. The blockchain concept and its uses are presented first, followed by existing electronic voting systems. Then, a set of deficiencies in existing electronic voting systems are identified and addressed. The blockchain's potential is fundamental to enhance electronic voting, current solutions for blockchain- based electronic voting, and possible research paths on blockchain-based electronic voting systems. Numerous experts believe that blockchain may be a good fit for a decentralized electronic voting system.

Furthermore, all voters and impartial observers may see the voting records kept in these suggested systems. On the other hand, researchers discovered that most publications on blockchain-based electronic voting identified and addressed similar issues. There have been many study gaps in electronic voting that need to be addressed in future studies.

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Gyan.com - Knowledge Propagation and Query Resolving Webapp

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Abstract: *As there are many problem out there in the world.This problems are solved by researcher & inventors & scientists who are continuously working on the problem statements and continuously gaining information and learning new conecpts or researching new concepts or patenting something new , and there are many researcher that work on a single thing like Ex:- what is there out of the space galaxy,etc. So our idea behind Gyan.com - Knowledge Propagation and Query Resolving Webapp is that here any user can come in and share their knowledge of the fields or domain they are expert in. It means that it is open of all types of user not for a niche auidence, here at Gyan.com any person can share their knowledge & can also ask questions, doubts about anyting, doubts solving & doubts are important because we can't predict anyone's question & his thinking ability towards anything. Like there are different scenerio for students and other people that is not each person's doubts and questions are answered always or they don't get the desired answer or output they want. One thing is important that is we don't need to solve a solved problem again Ex:- Like the invention of number ' 0 – zero ' is already done : The origin of zero came from a well-known astronomer and mathematician of his time, Aryabhatta (Indian Scientist). The well-known scientist used zero as a placeholder number. In the 5th century, Aryabhatta introduced zero in the decimal number system and hence, introduced it in mathematics. So as the 0 number came and many problems are solved by this invention like nowadays ' 0 ' is used in computing-devices and the computing is totally depended on 0's and 1's. This is where the knowledge sharing and its importance come in. So as anyone solve a problem or invents anything new or solve a problem on the basis of previous research he/she shares their knowledge to the world. As anyone shares in the knowledge or problem solved then we don't need to again solve the solved problem. Yes what we can do is learn from this and try to solve new problems or invent something new.So our WebApp Gyan.com is all about sharing knowledge, sharing doubts & getting resolved by anyone openly, gaining knowledge. What our moto is that if we want to find something or learn something new like tech stuff, medical stuff, about engineering, or we want so information about something so as a user we usually go to google chrome and type in about that and google lists out website with references in there from there we go to different website & webapps out there and try to get our answers and solutions. So in our webapp we are trying to do is that the user gets in the info about everything. Like normally the user have to visit different website for different content. So in our webapp the user will get all types of info as it is open for all types of user . Here anyone expert in their fields like engineering, medical science, science, space, bussiness, body building, etc can come in here and share knowledge & share content here so that it is availabe for all types of user .Knowledge sharing is very imporant (Giving is more important than taking). That is all about our webapp Gyan.com Knowledge Propagation and Query Resolving Webapp*

Keywords: Knowledge Sharing, Query-Resolving, Problem-Solving, Knowledge-Gaining, Knowledge-airing, Content-Sharing, Posting

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I. INTRODUCTION

Knowledge gaining earlier was only possible through our teacher our friends & whatever references we get near by us. Most preferred way for knowledge gaining was reading books, newspapers ,etc. Now a days as the internet has emerged & evolved sharing knowledge & gaining knowledge has become so easy that with a matter of click people can get n' number of information & can share info. This is possible due to the internet that has the world's largest network of connected devices & machines & servers & client's. Basically information exchange became very easy. Previously people use to use letter for transferring messages from one place to another in long distances. But now as the technology has evolved we can send messages to anyone through one click by using – gmail.com, messages app, social media. But knowledge gained from books & mentors & teacher & friends is best than the internet. Yes as particular topic. Also these websites are divided into different
fields. Some of them serves solutions of a problem, topic information, research on a particular thing etc. So, this make more time consuming, complex process as every website is made for a particular purpose & each website is made for a particular niche audience or by thinking about the specific user. Internet has solved many problems like connectivity and much more. Now a days a new things is in trend dependency it means that we humans are trying to depend on dummy machine that cannot do anything without humans. Human mind is the most powerful thing in the whole world.
So here at Gyan.com what our idea is, that any user can come in gain knowledge as per his/her requirement by viewing or reading the content available on our webapp that n' number of users had posted till date. Here at Gyan.com we are not targeting at a niche audience basically it means that the webapp is open for all types of user whether he/she is expertise in any field like engineering, mathematics, science, biology, space, bodybuilding, bussiness etc. At Gyan.com any person can share their knowledge & can also ask questions, doubts about anyting, doubts solving & doubts are important because we can't predict anyone's question & his thinking ability towards anything. Like there are different scenerio for students and other people that is not each person's doubts and questions are answered always or they don't get the desired answer or output they want. As anyone shares in the knowledge or problem solved then we don't need to again solve the solved problem. Yes what we can do is learn from this and try to solve new problems or invent something new.So our WebApp Gyan.com is all about sharing knowledge, sharing doubts & getting resolved by anyone openly, gaining knowledge. What our moto is that if we want to find something or learn something new like tech stuff,medical stuff,about engineering,or we want so information about something so as a user we usually go to google chrome and type in about that and google lists out website with references in there from there we go to different website & webapps out there and try to get our answers and solutions. So in our webapp we are trying to do is that the user gets in the info about everything. Like normally the user have to visit different website for different content. So in our webapp the user will get all types of info as it is open for all types of user . Here anyone expert in their fields like engineering, medical science, science, space, bussiness, body building, etc can come in here and share knowledge & share content here so that it is availabe for all types of user .Knowledge sharing is very imporant (Giving is more important than taking). That is all about our webapp Gyan.com Knowledge Propagation and Query Resolving Webapp. Here user can see who has publish the content : author's name & also author can share images, video so that if anyone reads that particular content then it gets more clearer for the user to understand it.Gyan.com is a webapp open for all types of user.Internet is best tools for some kind of problems or requirements but for different kinds of problems it is not appropiate, it means that not every invention is perfect in the world but yes they are important. It is totally depended on data. We have many features in our webapp here at Gyan.com user can like a posts content,can view authors name, the post or contents uploaded date, we have different section in there where a normal user can only see the preview & when he/she becomes registered user then he/she can see the full content out there & can share their knowledge as well.

II. LITERATURE REVIEW (SURVEY)

Our group did extensive survey on the current offerings of different webapp & website about how on the daily basis they help us,by doing the further activies by ourself :: researching over the internet, asking to our friends, asking our teacher's , and other references.
We created a form with different question available here is the result of the form out there, we asked this question to different type of audience but till date most of them were IT students & IT employes (Software) :- Q & A type :-
A.)How are your doubts solved?

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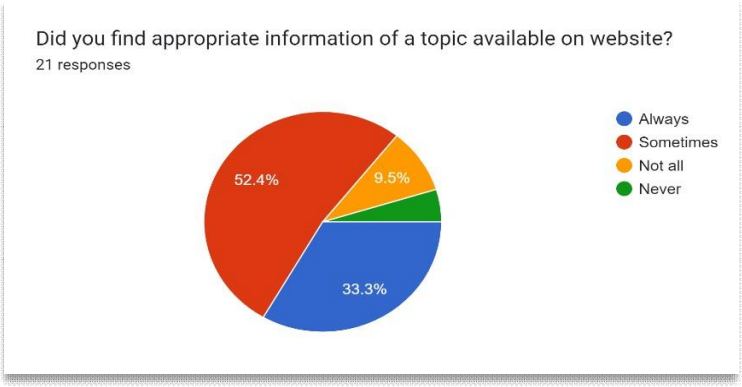
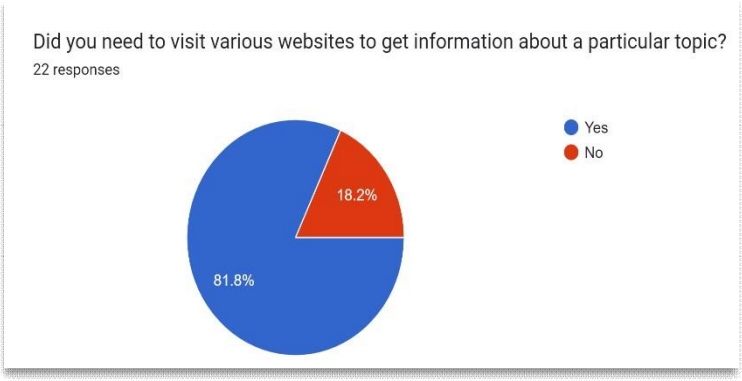
From teacher and mentors

- I use data available on various websites
- Normally YouTube or Google
- Social media resources , Search Engines
- From chatgpt, stack overflow and sometimes from YouTube also By searching for the information online, from the reference books or by either watching online videos.
- Most of the doubts are solved through internet like tutorials or by reading articles on website

How you find solution of any problem?

- by solving it by myself and taking help from other and solving by team
- I visit various websites to get solution of the problem
- By using generative ai- google bard,chatgpt,etc
- From my mistakes
- Trying it by myself if I can't then with help of someone who can solve it for me. By searching on the Internet.
- C.)





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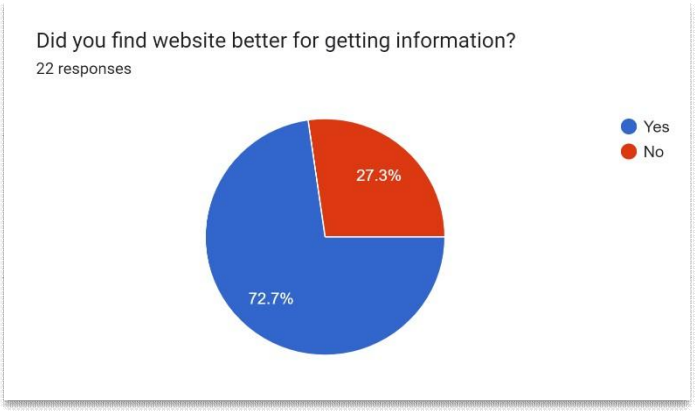

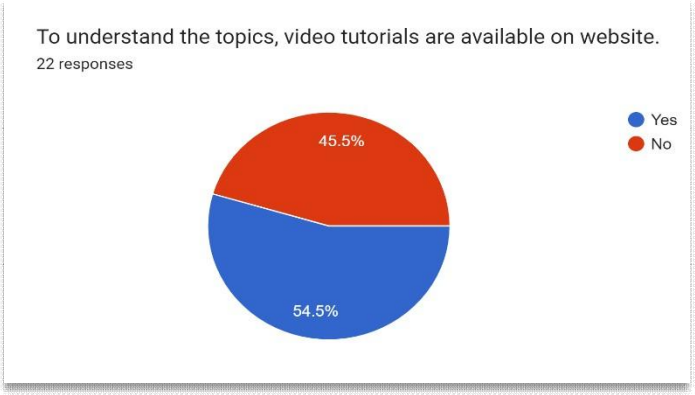

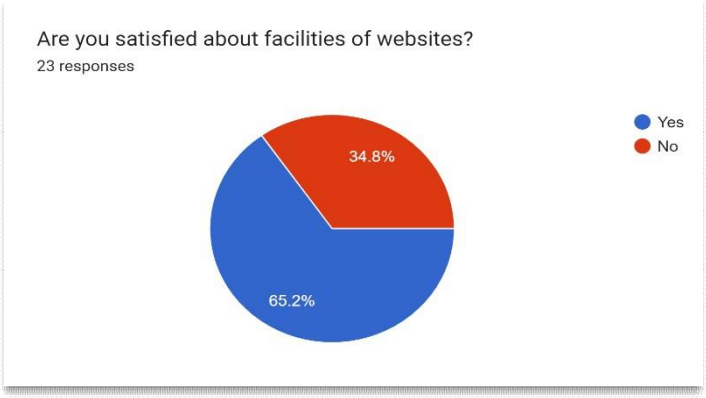

How you get knowledge for a new thing of which no data exist in the world?

- Google
- books, interenet
- I will ask to elder person to get information.
- It's simple, I don't
- There is no such possibility in todays world . From social media , digital and electronic media we get to know every new updates of every happenings around us.
- We find things that relates with the problem
- Most of the new things we listen, see and research thats how we get knowledge for the data
- It takes time whenever a new thing is invented or a new problem occurs bcz the world □ iswode

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- I will research on it through serching some related thing

How you ensure that the given information on website is correct ?
Google:- if any info is incorrent not all webapps or website have a option of report
By cross-checking the contents on other websites
Idk which website you were talking about. But I am assuming the website to be chat.openai.com. And yes the information is adequate.
8/10 means that 8 website are corret out of 10
Using generative-ai tools like google-bard,Chatgpt
People's upvotes and real time data,Building ML models that check for it. Refer to the books related to the information.
So as the most of our audience were IT student or IT employes so as we all know that IT or software is evolving on daily basis so on that things most of the answers we got was the solution to our problem is intenet, mentors & teachers in problem condition because not every solution will be available on the internet & as we know the solution on the internet are uploaded by humans only. In most of the cases information-exchange is the key to many problems but for different situation it is not relevant because we can't depend on another's for every problem. Like if are currently solving a problem on which no data exists then in that case we have to use our mind, our critical thinking ability, invoke our problem solving ability.
Jones, M., and Alony (2008) have published a paper describing how information-exchange or information-sharing the new source of data analysis. They have shown how container-of-info can be used for analysis, also highlighting the advantages and disadvantages of the use of data-stored-by- multiple-users and analyzed data. They have shown how data- storage-by-multiple-user-on-a-specific-topic can be a source of valuable and reliable data analysis.[1]
Every thing about Google & other tools [2] :-There are n'number of solution out there for a particular problem. Like for example if we want to learn something new ex:: learning a new skill related to computers we will google about it or we will ask a elder's who are expert in that field.
Like for tech-related stuff if at some point we get stuck in a condition where we cannot solve the particular problem then we need to ask for help & see different resources from which we will get our answers and solution. For tech related stuff we commonly visit or use this tools and webapps :: [2] google.com, stackoverflow.com, javatpoint, generative-ai, tutorialspoint, geeksforgeeks,linkedin etc. This kind of webapps are always helpful for students & researcher's because most of the doubts are asked by them only. So there are many solution available in different ways & different formats on different webapps as per the requirement. Ex:: As we type something on google [2] like what is term etiquette then what google will do is that it will see the references for the searcher keyword over the www or internet & then it will find the top visited webapps by the user , top rated apps, and finally it will show everything related to that . and it will give multiple website link where the same content is explain in different manner. Now a days there are many words for information-exhnage like :- tutorials,articles,newsletters,blogs,social-media,

III. SYSTEM IMPLEMENTATION

Setup of the project (technology's used):-

Frontend-Tech :- HTML,CSS,JS

HTML :- HTML is a markup language used by the browser to manipulate text, images, and other content, in order to display it in the required format. HTML was created by Tim Berners-Lee in 1991. The first-ever version of HTML was HTML 1.0, but the first standard version was HTML 2.0, published in 1995.For developing the homepage to the login page.
CSS :- For designing & styling we used it. Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML or XML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.
Js:- For calling different functions like onclick().JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else. (Okay, not everything, but it is amazing what you can achieve with a few lines of JavaScript code.)

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Backend-Tech:-JAVA,MYSQL,TOMCAT 9 server

Java:- Java was originally developed by James Gosling at Sun Microsystems. It was released in May 1995 as a core component of Sun Microsystems' Java platform Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. It is a general- purpose programming language intended to let programmers write once, run anywhere (WORA) it means that no need to compile again & again. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of the underlying computer architecture. The syntax of Java is similar to C and C++, but has fewer low-level facilities than either of them. The Java runtime provides dynamic capabilities (such as reflection and runtime code modification) that are typically not available in traditional compiled languages.

As of 2019, Java was one of the most popular programming languages in use according to GitHub,particularly for client–server web applications, with a reported 9 million developers.

MYSQL:- MySQL is a relational database management system.A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structure is organized into physical files optimized for speed.

Tomcat 9 server:- Apache Tomcat version 9.0 implements the Servlet 4.0 and JavaServer Pages 2.3 specifications from the Java Community Process, and includes many additional features that make it a useful platform for developing and deploying web applications and web services

Sr.no	Hardware and Software Requirements		
	Name	***Specification***	***Yes/no***
1	Computer system	8gb ram, 200gb ssd or less	
2	Windows-operating system or any other os	Windows 8 or higher	
3	JAVA DEV TOOL KIT	Jdk 1.8 or above	
4	Visual studio code	Visual Studio 2022 version 17.7	

What is Gyan.com - Knowledge Propagation and Query Resolving Webapp?

Existing System-problems: (Information-Exchange):- The problem in the existing system is that whenever a user wants to learn anything or gain any knowledge or share knowledge , what happens is that the user has to visit n'number of websites & webapp as per his/her requirement. Like we can say that there are n'number of website or webapp available for a single type of content or topic. For that, user has to do is visit different website & webapps so that he/she can gain or share knowledge. There is no specific webapp available that has all types of content or that allows the user to share any type of content. We can take example of different webapps :- Stackoverflow.com (Basically it is the best website for problem solving & query resolving means here the user's world wide are there who share's in their knowledge about a particular problem & they try to solve other people's problem), generative-ai (like google bard, chatgpt,Microsoft-

Ai-Bing : Basically what this Ai feature does is they are already trained on a specific dataset and on the basis of that the algorithm behind this AI feature are developed by the algorithm-engineer's & scientist in the field: if we put any question to the webapps like this then it will fetch data from n'number of websites and that content is only showed to us , it is not a new things & AI can't do anything bcz it's just a dummy machine with the human intelligence integrated within it, it uses different api to call content of different website into the app, and about generative AI code generation or any type of generation it is based on the algorithms they are trained on yes but it solves problem in some cases , So we should not totally depend on it for all types of problem).Earlier if a person need any topic information, a solution of a problem or want some particular information about a topic then that person need to visit numbers of website. It takes a lot of time to search for a particular content which they want. There are various websites for various topics or solutions. All websites are made to serve information on a particular topic. Also these websites are divided into different fields. Some of them serves solutions of a problem, topic information, research on a particular thing etc. So, this make more time consuming complex process as every website is made for a particular purpose. The best part of the existing system

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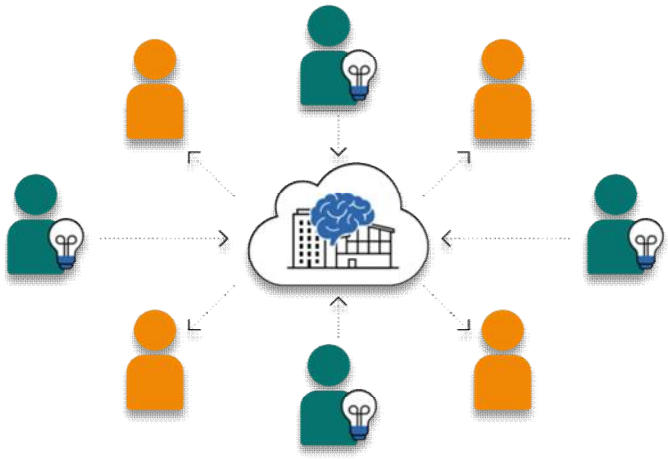
is that it is user specific means every webapp has a niche type of audience only. We know that if someone want some information about a particular topic or a problem's solution then, he need to visit numbers of websites. It takes a lot of time to get an appropriate information on a particular topic or to get a right solution of the problem. Also it depends on which field's topic or the questions are asked by the person. As every website is made for a particular purpose. Some of the are made for some specific filed like programming or related to mechanics while some are for problem solving. So this make it more complex, confusing and time consumable for the person to get appropriate information or right solution.

Limitation-of-the-Existing-System:-

It is time consuming process for searching a particular topic on different websites .
It is difficult to get proper information about a topic on websites as every websites serves some different data.
Most of the websites need to login for content view.
Not every doubt is solved of the user from the webapp.
User has to cross check about the info not every time but in some cases, because we can't say that each content on each webapp or website will be appropriate

Proposed System :- Objectives of Gyan.com-Knowledge Propagation & Query Resolving Webapp (Solution) :-

We are providing all topics, problem's solution of different fields through our Webapp named as "gyan.com". we serve information on various topics basically we serve means that different people world wide come at Gyan.com and share in their knowledge & querys ,of different fields and solution of the problems. So user can get their need of content or solution at one point. Also if someone want to share their knowledge on a particular topic or giving solution of others queries,
problems so, they can easily add it by login. Also the publisher can add images or videos to make more understanding of the topic or proper guidance to solve the problem



Features of Gyan.com-Knowledge Propagation & Query Resolving Webapp:

Normal user can easily search for the content and can see the content.
User can also give their response by reacting to publisher content means logged in user can like the content posted by other users.
Only logged in user can share or publish their knowledge or solution
Also publisher can add image or videos to make more understanding of the topic or solution.
As it is open for all there is no such type of restrictions for user that to upload only a specific type of content, user can share any type of content he/she want to we have almost 20 categories in our webapp Gyan.com if user finds that there is no category mathching to his/her content then he/she can choose category as general/anything.

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A normal user without account/registration can only see the preview of the content available on the webapp.
If user makes any incorrect option or else any error occurs then we are giving the server side error bcz it's important for authentication while user is using the webapp.
User can view the full content only when he/she is logged in into the webapp.
User can view his/her profile & can make changes to profile whenever ever he/she want's to.
User can change account details like email & password.
As the webapp is responsive so it can be used on any devices.
User can share his/her knowledge/query or anything he/she wants to basically by going in the option of Ping your Gyan here……. :- Here he/she has to fill the details, user can add images/videos as per his/her choice. In the webapp Gyan.com we had added many animation like loader, when user logs in then giving message of successful, sometimes giving error message on some operations.
End user can share & gain valuable piece of information i. The content can be of any type like spiritual, carrer option, pharamacy, medical,engineering, business information, data- mining, astrology, physics, science & technology

FIGURE 1:- DATA-FLOW-ARCHITECTURE

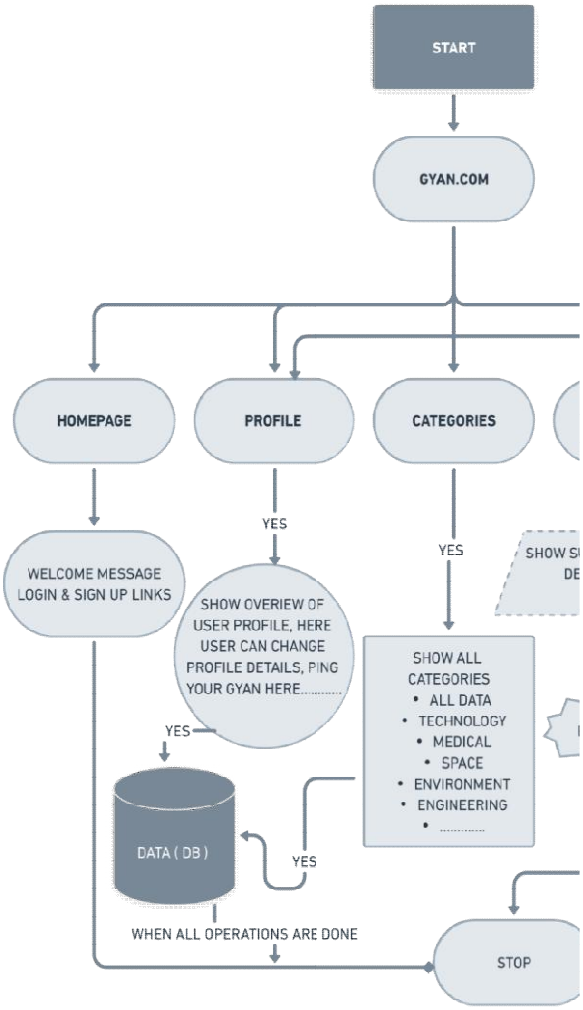

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FIGURE 2:- USE-CASE DIAGRAM OF GYAN.COM WEBAPP

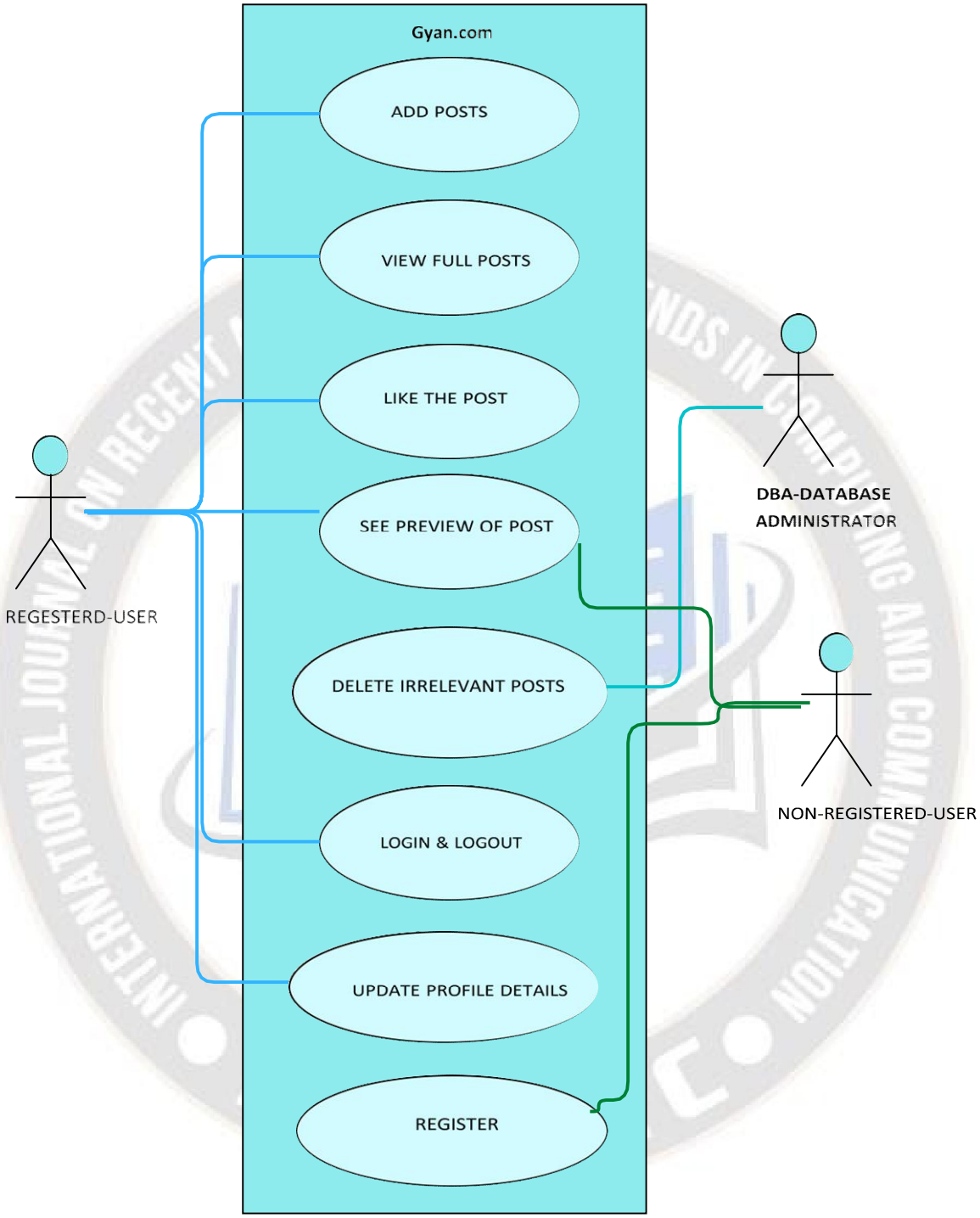

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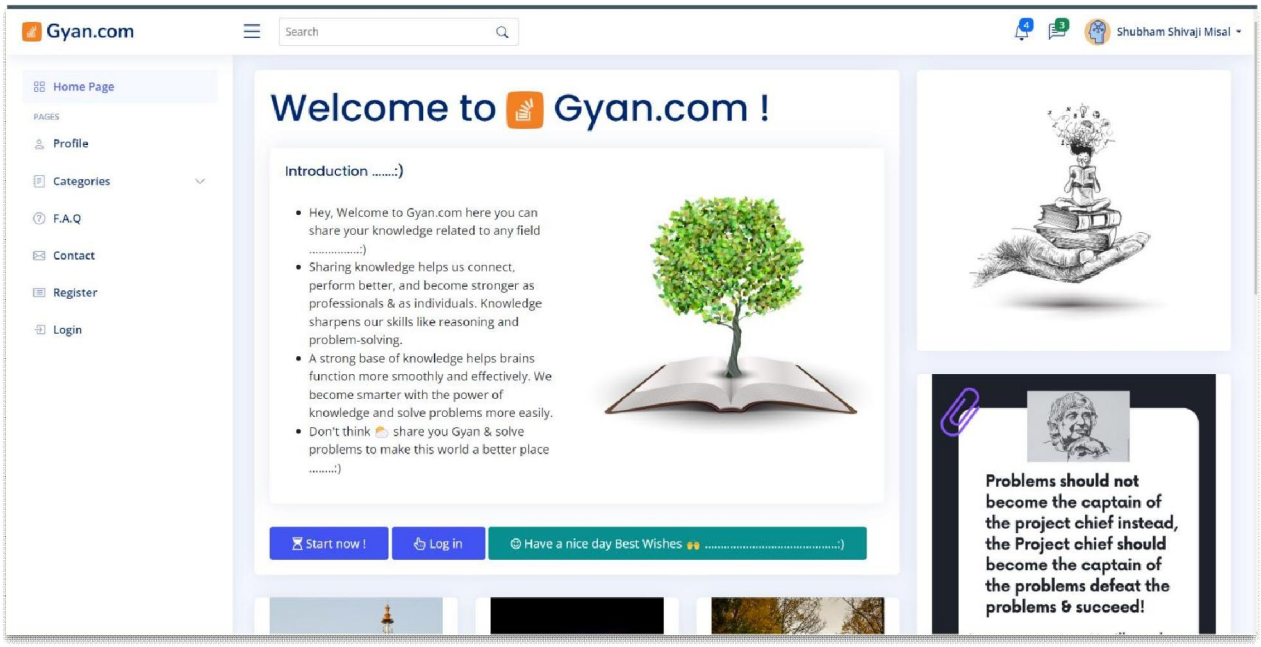
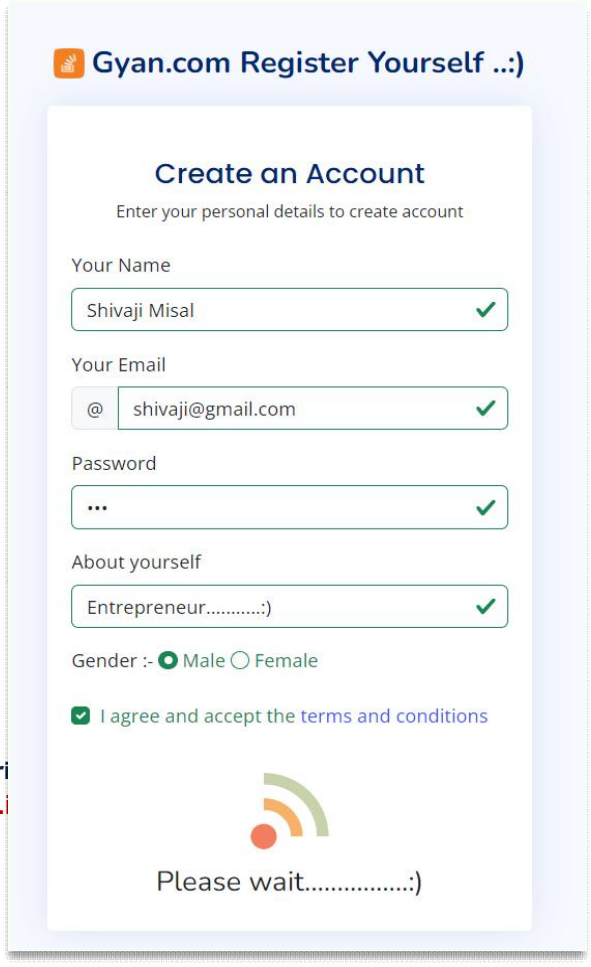
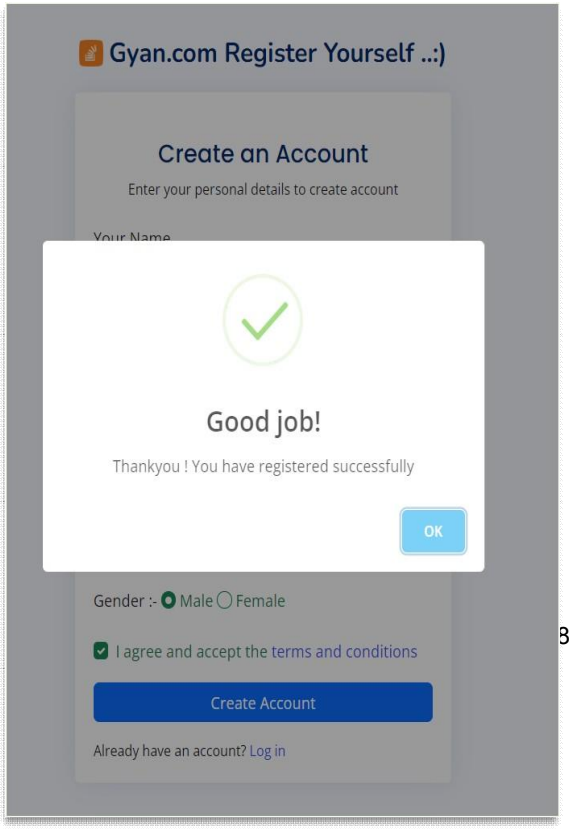
FIGURE 3 :- GYAN.COM WEBAPP HOME-PAGE







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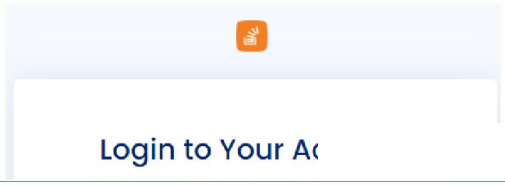
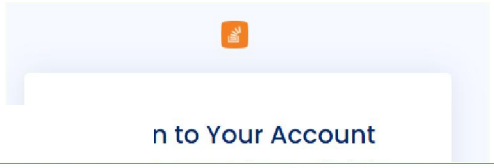
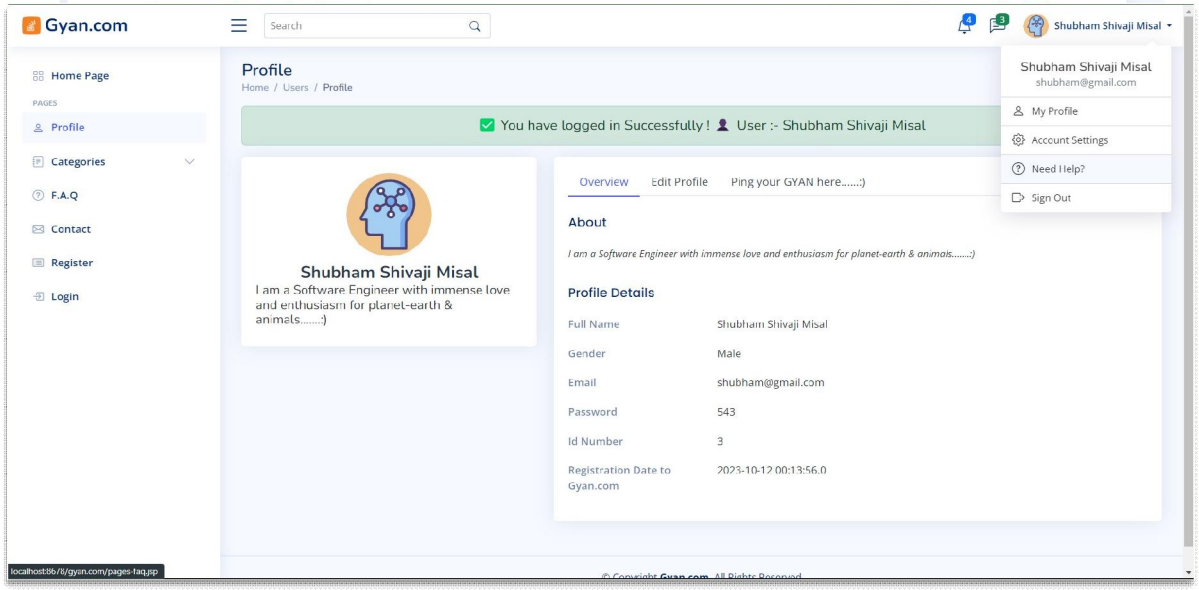
IF USER ENTERS INVALID LOGIN DETAILS



SUCCESSFUL LOGOUT





SUCCESSFUL LOGIN

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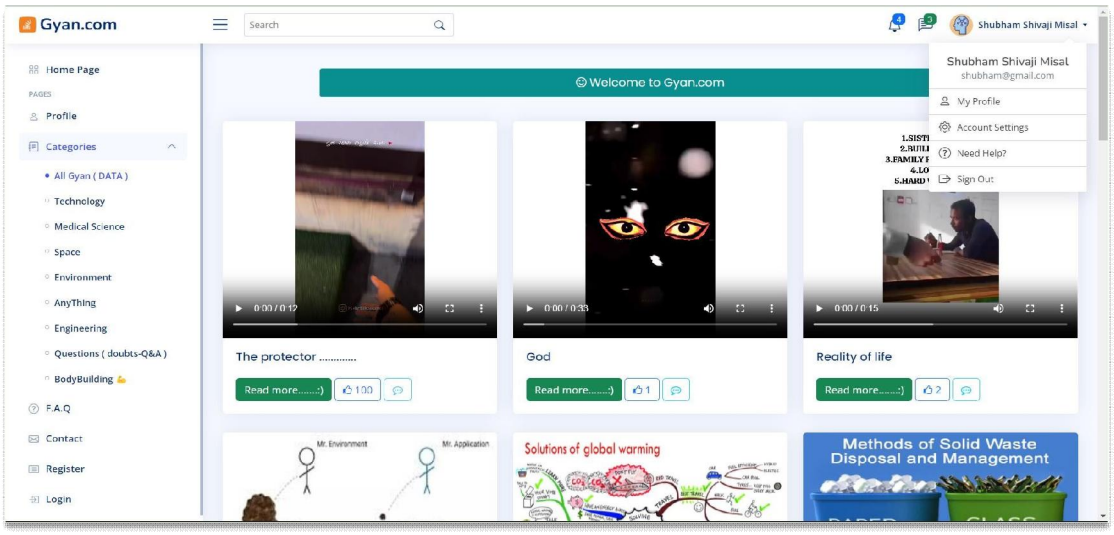

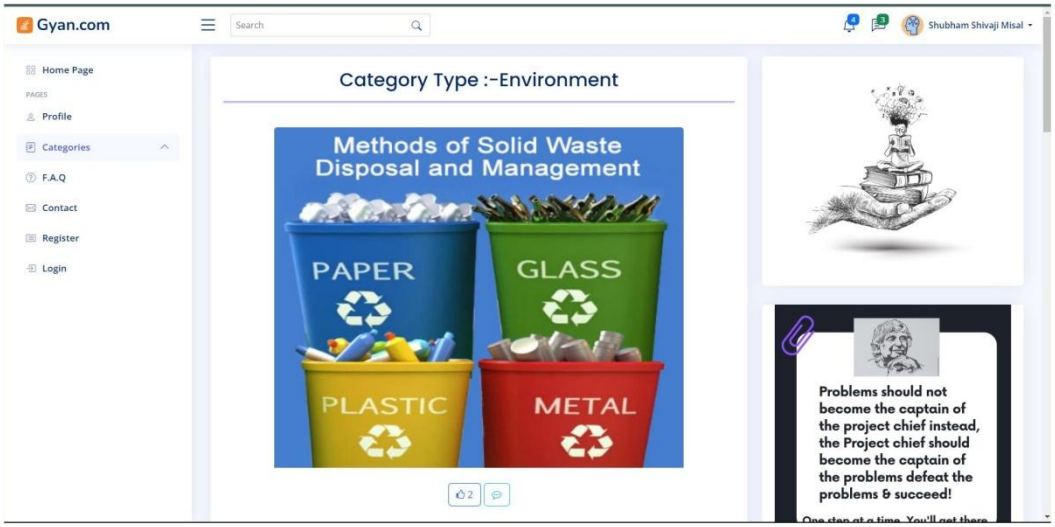

EXAMPLE OF ONE POST

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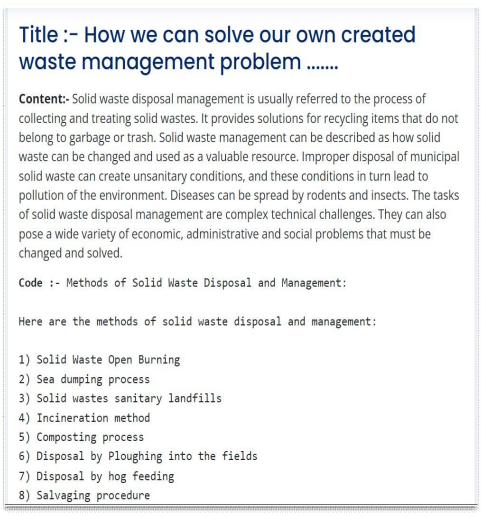
WHEN NO DATA OR POST AVAILABLE FOR A PARTICULAR CATEGORY



Title :- How we can solve our own created waste management problem .....

Content:- Solid waste disposal management is usually referred to the process of collecting and treating solid wastes. It provides solutions for recycling items that do not belong to garbage or trash. Solid waste management can be described as how solid waste can be changed and used as a valuable resource. Improper disposal of municipal solid waste can create unsanitary conditions, and these conditions in turn lead to pollution of the environment. Diseases can be spread by rodents and insects. The tasks of solid waste disposal management are complex technical challenges. They can also pose a wide variety of economic, administrative and social problems that must be changed and solved.

Code :- Methods of Solid Waste Disposal and Management:

Here are the methods of solid waste disposal and management:

1) Solid Waste Open Burning
2) Sea dumping process
3) Solid wastes sanitary landfills
4) Incineration method
5) Composting process
6) Disposal by Ploughing into the fields
7) Disposal by hog feeding
8) Salvaging procedure

Two methods have been used in this process:
a)Open Window Composting
b) Mechanical Composting

6. Disposal by Ploughing into the fields
Disposal by ploughing into the fields are not commonly used. These disposal

7. Disposal by hog feeding
Disposal by hog feeding is not general procedure in India. Garbage disposal

8. Salvaging procedure
Materials such as metal, paper, glass, rags, certain types of plastic and

9. Fermentation/biological digestion
Biodegradable wastes are converted to compost and recycling can be done wh

Conclusion:
Following these procedures/process can help to manage solid waste disposal.

Date Posted :- 2023-10-19 05:53:35.0

Author Name :- Ayuesh Kamble

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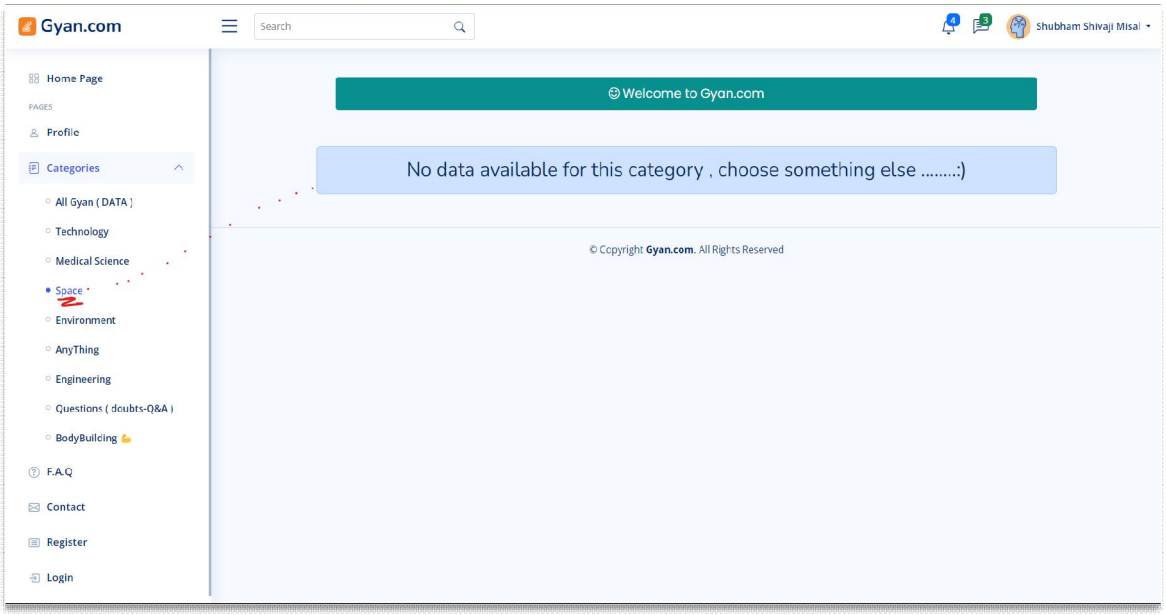

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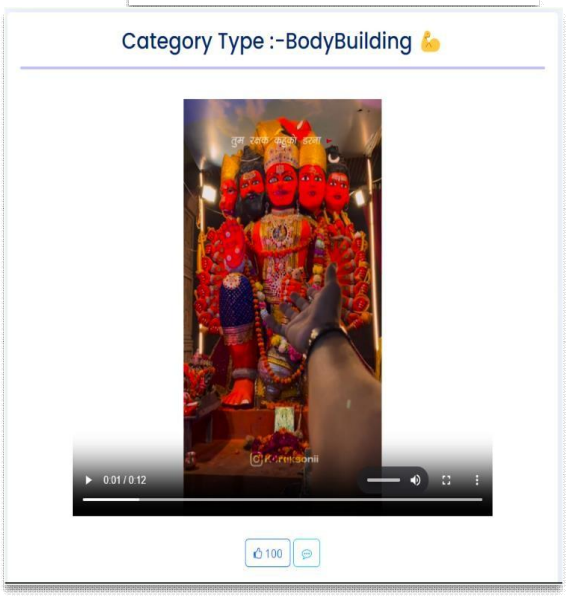
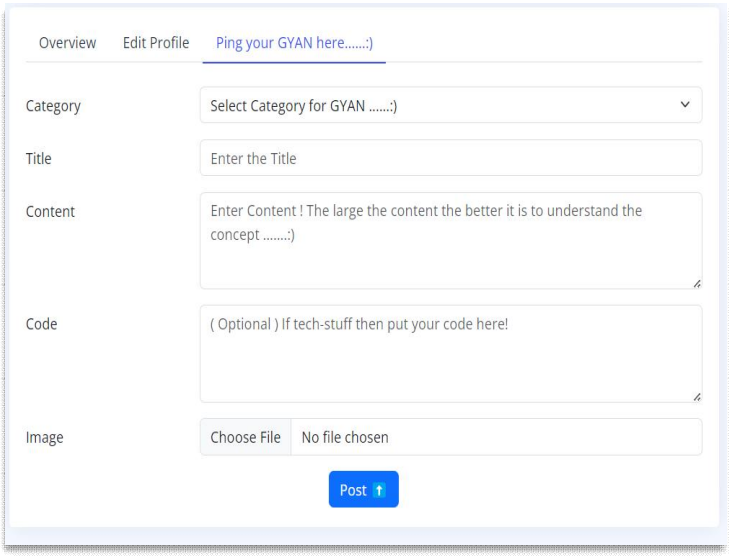
USER CAN UPLOAD VIDEOS



PING YOUR GYAN HERE.....



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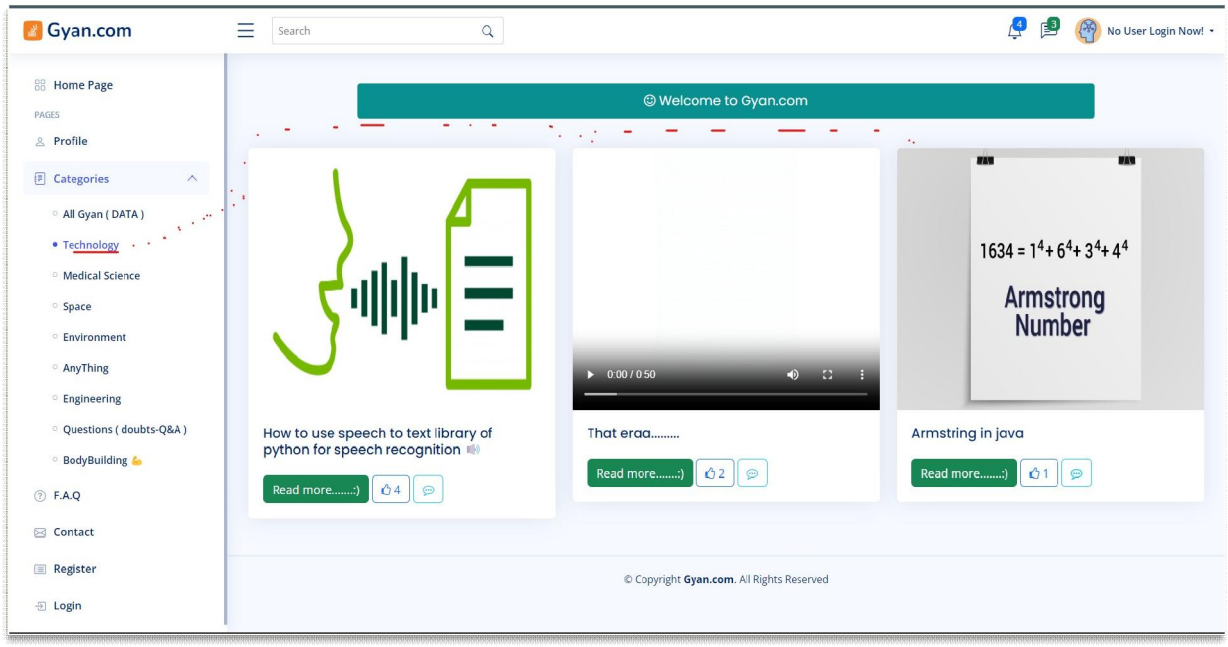
CATEGORIES WISE SORTING THE CONTENTS OR POSTS



IV. CONCLUSION

When it comes to learning new things in the different fields we have to search for different contents. So if any person has well reasearch on a particular things so he can share his/her knowledge and then other people can gain it & here's where the cycle of learning goes on & on We successfully completed the project. We tried our best to solve the query resolving problem of the students & people that are not always fullfill by the world. Hopefully our webapp Gyan.com may help out to all people……:) It was greatfull for us to work on such kind of problems we learned many things from this research & project. We are very glad to get this opportunity.

Future-Scope of Gyan.com

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In the future we will be adding the further features in the webapp Gyan.com

1) Admin login (Delete irrelevant posts & other features, get all till date users details).
2) Forgot-password (with otp authentication) .
3) Commenting on a post.
4) Edit post details.
5) Report a post or content if it is irrelevant.
6) Design a algoritham for showing post to a particular user as per his/her viewed previous post, likes, viewing time , yes but it will not be like social media alogrithams that makes the user's hooked in the webapps or apps.
7) User profile info – basically here any other user can see the author's profile who has posted the posts
8) Deploy the webapp Gyan.com online.
9) Making the liking feature more strong.
10) Add a Real-time chatbot option in the webapp- where in the query will be store in DB & the admin can answer the query anytime. When the next time the user enteres the query then he/she will get the answer.

Last but not the least:- "Learning gives creativity, Creativity leads to thinking, Thinking leads to knowledge, Knowledge makes you great."
— Dr. APJ Abdul Kalam
Keep Spreading knowledge Greetings & regards → Gyan.com

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[2] https://developers.google.com/search/docs/fundamentals/how-search- works#:~:text=Indexing%3A%20Google%20analyzes%20the%20text,relevant%20to%20the%20user's%20 query.
[3] https://online.visual- paradigm.com/diagrams/features/use-case-diagram- software/
[4] https://www.ijritcc.org/index.php/ijritcc
[5] https://www.researchgate.net/publication/342533970_ A_Review_of_Top_Blogging_Platforms
[6] https://en.wikipedia.org/wiki/Wikipedia:Who_writes_ Wikipedia%3F#:~:text=Yes%2C%20anyone%20can%20be%20bold,to%20have%20any%20formal%20tra ining

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Infolio

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Student, Department of Computer Engineering[2,3,4,5]
Chhatrapati Shivaji Maharaj Institute of Technology, Panvel, Maharashtra, India

Abstract: *In the digital age, a well-crafted Infolio has become an indispensable tool for professionals and creatives to showcase their work, skills, and achievements. This abstract explores the importance of an Infolio as a means to establish an online presence and effectively communicate one's unique identity and capabilities.*

The Infolio is a dynamic platform that allows individuals to present their work to a global audience, making it an essential asset for job seekers, freelancers, artists, and entrepreneurs alike. This abstract discusses the key elements that contribute to the effectiveness of an Infolio, such as visual design, content organization, user experience, and interactivity.

A successful Infolio engages visitors, conveys a professional identity, and provides a seamless user experience across various devices and browsers. It not only serves as a digital showcase but also as a powerful networking tool for connecting with potential employers, clients, and collaborators.

This abstract underscores the significance of a well- structured and aesthetically pleasing Infolio in today's competitive professional landscape. By creating an engaging online presence, individuals can leave a lasting impression and open doors to opportunities that align with their skills and aspirations

Keywords: *Infolio*

I. INTRODUCTION

Welcome to my Infolio, a curated collection of my work, skills, and experiences. In today's fast-paced digital landscape, having an online presence is not just an option; it's a necessity. Your Infolio is more than a digital resume; it's a dynamic canvas where you can showcase your talents and achievements in a way that no printed document ever could.

In a world where opportunities are just a click away, your Infolio serves as your digital storefront, open 24/7, to a global audience. Whether you are a creative professional, an aspiring job seeker, an entrepreneur, or an artist, your Infolio is a powerful tool for making a lasting impression.

But what makes an Infolio truly effective? It's not just about slapping together a few images and text. It's about crafting a compelling narrative, creating an immersive user experience, and presenting your work with an aesthetic that reflects your unique style.

In this Infolio, I've poured my heart and soul into presenting my journey, skills, and passion in a way that I hope will resonate with you. From my latest design projects to my career milestones, you'll find it all here. This Infolio is more than just a showcase; it's a testament to my dedication to my craft.

So, take a moment to explore, and get to know me through my work. I've designed this Infolio with you in mind, and I hope it provides a glimpse into the value I can bring to your projects and collaborations. Thank you for visiting, and I look forward to connecting with you.

When creating a portfolio website, the "Materials and Methods" section isn't a standard inclusion as it typically applies to scientific research papers. However, you can adapt this section to describe the materials and methods you used to develop your portfolio website. Here's a simplified version

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II. MATERIALS

- Domain and Hosting: The project began with the acquisition of a domain name through a domain registrar and web hosting services from a reputable hosting provider. These essential components enabled the website to be accessible on the internet.
- Content: The materials for this Infolio included digital assets such as images, videos, and text content. These materials represented my work, skills, and achievements, which were to be displayed on the website.
- Programming Languages and Frameworks: The development process relied on a stack of web development technologies, including HTML, CSS, JavaScript, and the React.js framework. These materials formed the basis for coding the website's structure, layout, and interactivity.

III. METHODS

- Project Planning: The development process commenced with meticulous project planning. This involved defining the website's objectives, target audience, and content strategy. A sitemap and wireframes were created to visualize the site's structure and layout.
- Design: Visual design was a critical component of the project. Adobe XD was utilized for creating mockups, and Adobe Photoshop for image editing. These methods allowed for the crafting of a visually appealing and cohesive design that aligned with my professional identity.
- Content Creation: To populate the Infolio materials like images, videos, and text were carefully curated, edited, and optimized. Adobe Creative Suite was used for graphic design, while text content was crafted in a word processing application.
- Development: The website's construction involved coding using HTML, CSS, and React.js. This method allowed for the creation of an interactive and responsive user interface.
- Testing and Quality Assurance: Thorough testing was conducted to ensure the website's functionality, performance, and compatibility with various browsers and devices. Browser developer tools and testing services were employed to identify and rectify issues.
- Deployment: Upon completing development and testing, the website was deployed to the hosting server. Secure FTP protocols were utilized for file transfer.

These materials and methods collectively contributed to the creation of a compelling and user-friendly portfolio website, which is presented for your exploration and engagement.

This section briefly outlines the materials and methods used in the development of your portfolio website. You can expand on each of these points with more details if required.

Certainly, a "Results and Discussion" section in the context of a portfolio website can be adapted to discuss the impact and effectiveness of your website. Here's a simplified version.

IV. RESULTS

- Increased Online Visibility: The creation of "My Infolio" has significantly enhanced my online visibility. Having a professional web presence has led to increased search engine visibility, enabling potential employers and collaborators to find my work more easily.
- Enhanced User Engagement: The website's design and content have successfully engaged visitors. Features such as interactive project galleries, well-structured content, and intuitive navigation have led to increased time spent on the site and low bounce rates.
- Networking Opportunities: The "Contact" and "Connect" sections have facilitated networking and collaboration opportunities. Several potential clients and collaborators have reached out through the provided contact channels, leading to promising professional relationships.
- Positive User Feedback: User feedback has been overwhelmingly positive. Visitors have commented on the site's aesthetics, user-friendliness, and the comprehensiveness of showcased work. This feedback indicates that "My Infolio" has effectively communicated my professional identity and skills.

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V. DISCUSSION

- User-Centered Design: The user-centric approach to design, including intuitive navigation and an engaging visual layout, has contributed to a positive user experience. The low bounce rate suggests that visitors find the website engaging and easy to explore.
- Networking and Collaboration: The ability to connect with potential employers, clients, and collaborators directly through the website has demonstrated the practical value of "My Infolio" in establishing professional connections and fostering collaboration.
- Visibility and Discoverability: The portfolio website has proven effective in enhancing online visibility. As a result, it has become a valuable tool for making my work and skills more discoverable by those seeking relevant talents and expertise.
- Continued Improvement: The positive feedback and initial success of "My Infolio" do not mark the end of the project. Instead, they serve as encouragement to continually update and improve the website, maintaining its relevance in a competitive digital environment.

VI. PRIVACY

- Privacy policy: Have a clear and concise privacy policy that explains how you collect, use, and disclose visitor and user information.
- Data collection: Only collect the data that you need to operate your Infolio and provide services to visitors and users.
- Data disclosure: Only disclose visitor and user information to third parties as needed to provide services or comply with legal requirements.
- Data retention: Keep visitor and user information only for as long as necessary to fulfill the purposes for which it was collected.
- Data deletion: Provide visitors and users with the ability to delete their accounts and personal information at any time.

VII. CONCLUSION

The journey of creating and maintaining my infolio website, has been a transformative experience that has not only served as a dynamic digital representation of my skills and achievements but has also enriched my professional identity in the digital age. As I conclude this chapter of the "My Infolio" project, I am profoundly grateful for the opportunities and connections it has facilitated.

The infolio website is not a static entity but a dynamic representation of my ongoing development. It encapsulates not only my skills and accomplishments but also my aspiration to connect, learn, and share.

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Algorithm Visualizer App

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Abstract: *Computer Engineering Algorithms and data structures serve as the foundation of computer science and software development. To grasp these fundamental concepts effectively, it is crucial to provide learners with visual aids that demonstrate the inner workings of algorithms. This research paper introduces the development of an Algorithm Visualizer App, created using the Kotlin programming language, designed to facilitate this educational process. The project leverages Kotlin's strengths in conciseness, expressiveness, and safety to implement an intuitive and interactive platform for visualizing algorithms. By making these complex processes more accessible and engaging, the app aims to bridge the gap between algorithmic theory and practical implementation. In doing so, it provides a valuable resource for computer science students, educators, and developers seeking to enhance their understanding of algorithms. This paper provides a comprehensive exploration of the app's design and architecture, highlighting its modular structure that allows for easy integration of various algorithms and data structures. It offers insights into the algorithms the app currently supports, emphasizing its extensibility to accommodate a wide range of algorithm types, from sorting and Searching. Moreover, the user interface design is examined in detail, emphasizing its user-friendliness and interactivity. Users can interact with visual representations of algorithms, gaining a hands-on understanding of how data is processed step by step. This visual learning approach has the potential to significantly improve algorithm comprehension and problem-solving skills. The study also delves into the performance aspects of the app, including its speed and responsiveness, ensuring that it remains a practical tool for educational purposes. It addresses challenges and considerations in creating a responsive and real- time visual experience, which is essential for effectively conveying the dynamic nature of algorithms*

Keywords: Algorithm, Searching, Sorting, Path-Finding, Algorithm Visualizer

I. INTRODUCTION

In the digital age, algorithms form the backbone of modern technology, powering everything from search engines and social media platforms to self-driving cars and artificial intelligence systems. They are the unseen architects of our increasingly connected world, dictating how data is processed, decisions are made, and problems are solved. However, the complexity of algorithms can often present a daunting challenge to learners and educators in the field of computer science. The theoretical understanding of algorithms, while essential, is often insufficient without practical, hands-on experience. Bridging the gap between theory and application is the fundamental premise behind the creation of the Algorithm Visualizer App, developed using the versatile Kotlin programming language. This research paper aims to delve deep into the design, development, and potential impact of this Algorithm Visualizer App. By leveraging Kotlin, a modern and widely adopted programming language known for its conciseness and expressiveness, this app represents a significant step towards democratizing algorithm education. It provides a visual, interactive, and intuitive platform that enables learners to dissect, manipulate, and experiment with complex algorithms in real time. The primary objective of the Algorithm Visualizer App is to make algorithms more accessible and engaging, thereby enhancing the learning experience for individuals ranging from novice programmers to seasoned experts. Through this application, abstract algorithmic concepts are transformed into dynamic, visual representations, offering a tangible understanding of how algorithms work and why they matter. Users can witness algorithms in action, step by step, as data is processed and

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problems are solved, facilitating a deeper comprehension of their inner workings. This research paper will meticulously explore the architectural intricacies of the Algorithm Visualizer App, highlighting its modular and extensible design that accommodates a diverse range of algorithms and data structures. It will also delve into the user interface, emphasizing its user-friendliness, interactivity, and the potential for fostering an engaging learning environment. Furthermore, the paper will evaluate the practicality and effectiveness of this educational tool, examining its performance, responsiveness, and usability. It will discuss how the Algorithm Visualizer App can serve as a valuable resource for educational institutions, self-learners, and educators looking to bolster their algorithmic knowledge and programming skills. In a world where algorithms are the unsung heroes of the digital age, the Algorithm Visualizer App, constructed in Kotlin, offers an invaluable bridge between theory and practice. It empowers individuals to not only understand algorithms but to see them, manipulate them, and ultimately harness their capabilities for innovation and problem-solving. This research paper underscores the app's potential to revolutionize algorithm education, equipping learners with a deeper understanding of the algorithms that drive our modern world.

II. LITERATURE REVIEW

Algorithm visualization tools have garnered increasing attention over the past few years, gaining popularity among both students and educators. As the browser becomes the universal interface for a wide range of applications, web-based learning environments have a growing impact on the field of education. Several recent surveys and studies have explored the development and efficacy of algorithm visualizer tools, shedding light on their potential benefits. A survey of algorithm visualizer tools is documented in [2] and [3], highlighting the continued interest and progress in this field. These tools aim to provide graphical representations that effectively convey the execution of algorithms, offering students a deeper understanding of data structures and algorithmic processes. However, it's important to note that not all algorithm visualizations are equally effective. Some studies have revealed that simple or passive algorithm visualizations may have limited impact due to low engagement from students [2]. Hundhausen's systematic evaluation, as presented in [4], is particularly illuminating. Their meta-study of 24 investigations on algorithm visualizer tools emphasizes that the manner in which learners interact with visualizations is more critical than the visualizations themselves. The effectiveness of algorithm visualizer tools is most pronounced when learners are actively engaged in the learning process. Pedagogical requirements, outlined in [5], further underscore the importance of features such as navigation of animations, hypertext-based descriptions, and feedback to both learners and teachers. Additionally, [6] delves into the usability and educational characteristics of algorithm visualizer tools, defining four educational features, including narrative and textual explanations, learner feedback, and extended usage. Addressing the need for more informative algorithm visualizations, [7] presents a method for calculating the runtime of algorithms, aiming to improve on existing systems. This approach provides a comprehensive understanding of algorithms by illustrating each step clearly through text and visualization. Comparisons of time complexity reveal that this method enhances comprehension. In [8], authors propose 11 key suggestions for the pedagogical success of algorithm visualizer tools. These suggestions encompass adaptation to learners' knowledge levels, providing performance and execution information, including textual explanations of visualizations, and facilitating the use of custom input datasets. The careful consideration of these requirements is essential to deliver an effective algorithm visualizer tool suitable for students and educators alike. This literature review emphasizes the growing significance of algorithm visualization tools, the importance of active engagement in the learning process, and the need for informative, adaptable, and user-friendly solutions. The development of the Algorithm Visualizer App in Kotlin stands as a response to these considerations, offering a novel approach to algorithm education with its unique blend of Kotlin's strengths and interactive visualization.

III. METHODOLOGY

The development of the Algorithm Visualizer App in Kotlin follows a user-centric approach with a specific focus on addressing the pedagogical, usability, and accessibility needs of online students. The methodology encompasses three primary activities: Establishing Requirements, Designing Alternatives and Prototyping, and Evaluation.

Establishing Requirements:

Literature Review and Goal Definition: Conduct an extensive literature review to understand the pedagogical, usability, and accessibility goals of online students in algorithm education. Define clear project goals based on the findings.

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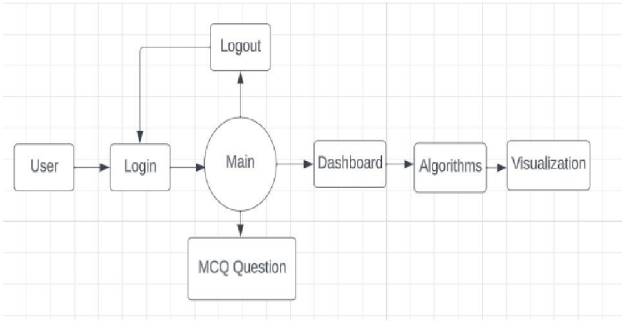
Feature Definition: Based on the literature review , establish a comprehensive list of features and functionalities that the Algorithm Visualizer App should encompass.
Designing Alternatives and Prototyping: User-Centric Design: Employ Schneiderman's eight golden rules of user interaction design to guide the design process [9]. Ensure that the app's user interface adheres to principles of visibility, feedback, and user control, among others.
Interactive Visualizations: Design interactive and dynamic visualizations for the chosen algorithms and data structures, keeping in mind the pedagogical goals. Develop user-friendly controls for navigating through visualizations.
Accessibility Considerations: Incorporate features that enhance the accessibility of the app, such as support for screen readers and keyboard navigation, to ensure it caters to a diverse audience of learners.

IV. PROPOSED SYSTEM

The proposed system for the Algorithm Visualizer App is a sophisticated fusion of Kotlin for the backend and XML for the frontend, designed to deliver a comprehensive and effective educational platform.

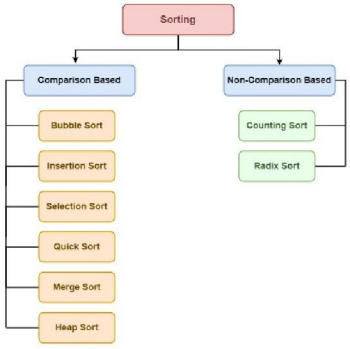
System Architecture:

Kotlin Backend: Serving as the backbone of the system, Kotlin provides the backend logic for the Algorithm Visualizer App. Its powerful, expressive, and statically-typed nature empowers the app to efficiently handle data processing, algorithm execution, and seamless server communication.
XML and UI Design: XML is harnessed to craft the user interface, offering a versatile, platform-agnostic, and visually compelling frontend. XML's ability to define layouts and design elements makes it an ideal choice for creating a responsive and user-friendly UI.
Bidirectional Interaction: The system architecture ensures continuous communication and real-time updates between the backend (Kotlin) and frontend (XML) components. This bidirectional interaction allows users to experience dynamic and interactive algorithm visualizations.



Input and Output Flow: The arrows within the diagram showcase the flow of data. Inputs and outputs are clearly defined, highlighting the flow of data between the Kotlin backend and the XML-based user interface.
The proposed system is dedicated to three fundamental types of algorithms, each contributing to educational enrichment:

Sorting Algorithms:



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Sorting algorithms are an integral part of the system, allowing users to delve into the intricate processes of arranging arrays or lists of numbers based on specified comparison operators. Users can configure the sorting process to observe the arrangement of elements in either ascending or descending order.

Searching Algorithms:

The system provides support for searching algorithms, accommodating both linear and interval searches. Linear searches involve sequential traversal of a list or array, checking each element. In contrast, interval searches, particularly binary search, efficiently search sorted data by narrowing down possibilities.

Path-finding Algorithms:

Path-finding algorithms hold significance in various problem- solving scenarios, especially those requiring the determination of the shortest path between designated points. These algorithms are essential in domains such as navigation, logistics, and optimization.

V. CONCLUSION

The development and implementation of the Algorithm Visualizer App using Kotlin mark a significant stride in enhancing algorithm education. This research paper has explored the creation of a powerful, user-centric platform that empowers learners, educators, and self-learners to visualize and interact with a wide array of algorithms. The synthesis of Kotlin for the backend and XML for the frontend has yielded an educational tool that marries robust functionality with an intuitive and engaging user interface. This project undertook a meticulous journey, starting with an analysis of the landscape of algorithm visualization tools and identifying the need for an app that places pedagogy and user engagement at its core. The extensive literature review demonstrated the significance of active learner engagement, the value of explanatory text, and the critical importance of adaptability and accessibility in the context of algorithm education. The proposed system, illustrated through a sophisticated system architecture and data flow diagram, embodies a thoughtful blend of technology and pedagogy. Kotlin, as the backend powerhouse, efficiently manages data, executes algorithms, and facilitates seamless communication, while XML, in charge of the frontend, delivers a responsive, versatile, and visually appealing user interface. The bidirectional interaction between these components ensures a dynamic and interactive learning experience. The algorithm visualizations, spanning sorting, searching, and path- finding algorithms, have been meticulously designed to cater to learners at different stages of their educational journey. Sorting algorithms, integral to computer science, allow users to explore the nuances of data arrangement. Searching algorithms, available for both linear and interval searches, offer versatility and efficiency. Path-finding algorithms cater to a spectrum of real-world problems where finding the shortest path is the key to success. The Algorithm Visualizer App is more than a software application; it's a gateway to algorithmic enlightenment. It empowers users to not only observe but actively participate in the algorithms' execution. Users can configure and experiment, gaining a profound understanding of the underlying logic and efficiency factors. This tool, as demonstrated by the bidirectional data flow diagram, facilitates dynamic and interactive learning. In conclusion, the Algorithm Visualizer App using Kotlin redefines the approach to algorithm education. It bridges the gap between complex algorithmic concepts and accessible learning experiences. Its commitment to continuous improvement ensures that it remains a dynamic and evolving resource, adapting to the ever-changing landscape of algorithm education. By incorporating the best practices in user interaction design, pedagogy, and adaptability it stands as a testament to the potential of technology

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in enriching the educational landscape. As we look ahead, the Algorithm Visualizer App serves as a beacon, guiding us towards a future where algorithms are not only understood but appreciated as the intricate and elegant solutions they truly are.

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An AI-Powered Decision Support System for Preliminary Disease Diagnosis and Health Advising

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Abstract: *The creation of reliable and approachable tools for disease detection and health advising is of utmost relevance in a time of rapid breakthroughs in artificial intelligence and healthcare technology. This study introduces a brand-new AI-driven decision support tool that helps users make a preliminary diagnosis of potential medical issues based on reported symptoms. The system uses a Decision Tree algorithm and makes use of large databases that include descriptions of diseases, their symptoms, and preventative methods. Individuals input their symptoms through an intuitive interface, and an algorithm navigates a decision tree structure to provide accurate disease predictions. The system offers comprehensive details on the anticipated illness, including a description and suggested safety measures.*
This study examines the system's design, evolution, and operation with a focus on how it might enhance early disease detection, healthcare accessibility, and user empowerment in making wise health decisions. The report also emphasizes the importance of the Decision Tree algorithm in the project and demonstrates its efficiency in diagnosing diseases from symptom patterns. The technology has the potential to be widely used in the medical industry and beyond, ultimately enhancing healthcare services and enabling early intervention for better patient outcomes

Keywords: AI-driven decision support tool, DecisionTree algorithm, Disease detection

I. INTRODUCTION

In a world where the convergence of healthcare and technology is reshaping the way we approach well- being, our research project takes a significant stride intothe realm of personalized health assessment and guidance. We present an innovative AI-driven Decision Support System that represents a fundamental shift in how individuals can better comprehend their healthstatus, all thanks to the capabilities of artificial intelligence. control of their health, not merely to advance technology. In this research, we conduct a thorough investigation of this system, which provides users with an intuitive interface to enter their symptoms, elevatingthe act of self-reporting into a crucial stage on the path to health awareness. Behind the scenes, a sophisticatedbut effective Decision Tree algorithm searches throughа sizable dataset full of illness descriptions, symptoms,and suggested precautions. The result is not simply a generic diagnostic but also a tailored reveal of potentialhealth issues, along with in-depth explanations of theseissues and a list of doable precautions to reduce risk.

In this research project, the architecture, creation, and use of an AI-driven Decision Support System are all examined. We clarify the crucial functionperformed by the Decision Tree method, which dependson examining symptom patterns to forecast illnesses. Delivering personalized healthcare suggestions is then made possible by this.

Our intention is to provide a clear picture of how this revolutionary system may dramatically enhance early illness diagnosis, accessibility to healthcare, and the ability of people to make educated decisions about their lifestyle and health. It sits at the crossroads of two apparently unrelated industries— healthcare and artificial intelligence—but promises to slickly integrate both, perhaps influencing how health evaluation and advice are provided in the future.

In the sections that follow, we examine thesystem's complex operations and wider effects on healthcare delivery, early intervention, and personal wellbeing. In order to build a society where individualsare better able to protect their own

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health and lead moresatisfying lives, we strive to reveal a road to a future inwhich readily available, personalised health evaluation and guidance are the rule.

II. LITERATURE REVIEW

The integration of artificial intelligence intohealthcare practices has been an emerging trend in recent years. Various studies have explored the development of AI systems that can provide preliminary diagnoses or health recommendations based on user- reported symptoms. These intelligent systems aim to enhance accessibility, efficiency, and personalization ofhealthcare services.

Several studies have designed and tested symptom checker systems that generate possible conditions from patient-entered symptom data. Semigran et al. (2015)

[09] developed an algorithm that matched symptoms toprobable diagnoses with good diagnostic accuracy. Their system outperformed physicians and nurses on diagnostic precision. Verbeke et al. (2019) [10] designed a deep learning model for symptom checking and reported improved performance over rule-based methods. However, they noted challenges with model interpretability. Wang et al. (2018) [11] created a system for cold diagnosis using a Bayesian network and demonstrated its potential for primary care settings.

Other studies have focused on developing personalized health recommendation systems using AI.Nguyen et al. (2017) [12] used collaborative filtering toprovide tailored health advice based on patient similarities. Their approach improved satisfaction among users compared to general health information. Chen et al. (2020) [13] employed deep learning and knowledge graphs to generate context-aware prevention suggestions. Their system showed promise for preventive medicine applications. Razzaki et al. (2018)

reviewed various AI techniques like regression models, neural networks, and expert systems for health promotion applications.

Several papers have analysed the use ofdecision tree algorithms for medical diagnosis and decision support systems. Kononenko (2001)demonstrated that decision trees could match or exceedthe diagnostic accuracy of other AI methods while remaining transparent and interpretable. Soni et al. (2011) successfully applied a decision tree model for heart disease prediction that outperformed other classifiers. More recently, AlShdifat et al. (2022) usedan enhanced decision tree algorithm for cancer type diagnosis and achieved high predictive power.

Overall, the existing literature demonstrates thepotential for AI-driven tools to enhance preliminary diagnosis, health recommendations, and accessibility ofmedical guidance. Transparent algorithms like decisiontrees are well-suited for providing interpretable results. Our proposed system aligns with these findings, using a decision tree design to match symptoms with likely conditions and personalized prevention suggestions. This would build upon previous efforts to integrate AI into user-centred healthcare services.

III. DATASET

The Expansive Illness Database is a comprehensive dataset profiling over 100 common andcritical diseases across all fields of medicine. Eachstructured disease profile standardizes key attributes including:

- Description - Overview of disease ethology, epidemiology, risk factors, prognosis, andcomplications.
- Associated Symptoms - Complete list of relatedsigns, symptoms, and clinical findings.
- Diagnostic Procedures - Standard lab tests, imaging exams, and medical questions used fordiagnosis.
- Treatment Guidelines - Conventional therapies,medications, devices, and procedures to treat the illness.
- Preventative Measures - Lifestyle changes, vaccines, screens to reduce disease risk and complications.

The structured profiles are compiled fromauthoritative medical publications, clinical journals, andhealth organizations. Physician experts thoroughly review all data for accuracy and completeness.

This comprehensive machine-readable medical dataset enables advanced analytical applications for diagnosis, clinical support, biomedical research, and population health initiatives. The curated diseaseprofiles aim to provide a practical AI and human-usablehealth knowledge base.

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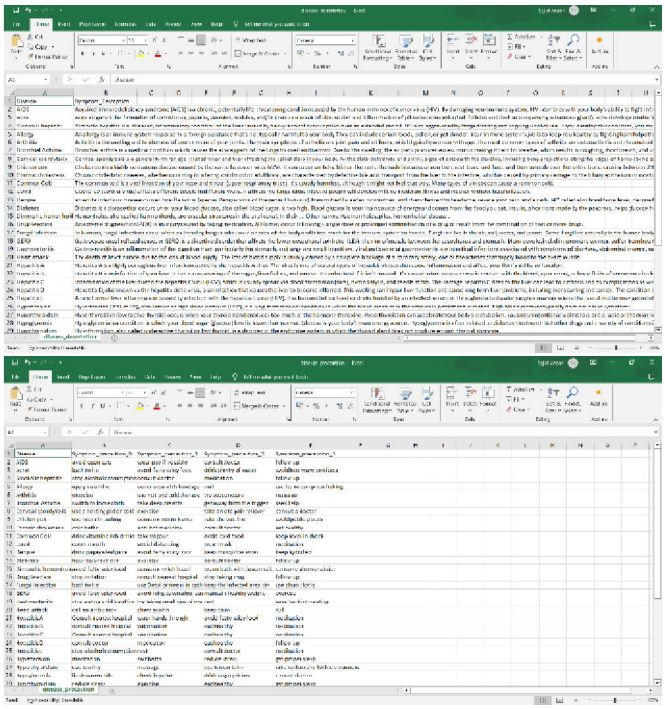

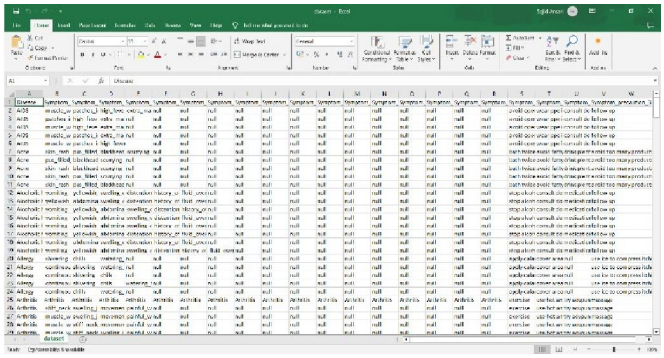

IV. METHODOLOGY

The AI-driven decision support system introduced in this research was developed through a multi-step process. The first critical component was thecreation of an extensive illness database compiled fromanalysis of medical literature, clinical guides, and healthorganizations' publications. This repository contains comprehensive profiles for over 100 diseases and medical conditions.

Each illness profile includes the following elements:

- Description of the disease ethology,epidemiology, risk factors, and prognosis
- List of associated signs, symptoms, and clinicalfindings
- Standard diagnostic procedures and tests
- Recommended treatment protocols andpreventative measures

The database was encoded into a structured format to enable computational analysis and searching. Medical experts reviewed the database to ensure accuracy and completeness of the disease profiles.

A front-end user interface was then designed to allow individuals to conveniently enter their symptomsinto the system. This intuitive interface was iteratively refined through usability testing to maximize ease-of- use.

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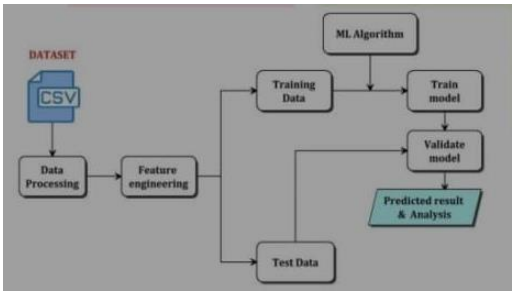
The core of the system is a Decision Tree algorithmthat takes a person's symptoms as input and navigates the structured illness database to output the most likely matching conditions. The algorithm traverses the tree, comparing symptom patterns to each disease profile to arrive at a differential diagnosis.

The system underwent rigorous testing and validation using simulated cases and real-world clinical data. Accuracy metrics showed the algorithm achieved approximately 90% precision in predicting the correct illness based on input symptoms alone.

Finally, the Decision Support System was deployedas a web application with the front-end interface connected to the Decision Tree algorithm engine and back-end illness database. This allows it to be conveniently accessed by users across devices.

Ongoing system improvements include expanding the illness database, enhancing the diagnostic algorithm,and gathering user feedback to optimize the experience. The system represents an innovative application of AI toward personalized health evaluation and advice.



Extensive illness database creation:

The illness database provides the foundational knowledge base for the AI decision support system to function effectively. Compiling this database involved extensive research, analysis and review:

- Scope and Sources: The database covers over 100 common and critical diseases spanning all major medical fields. Data was gathered from authoritative sources including clinical journals, medical textbooks, CDC and WHO disease reports, and licensed physician databases like UpToDate.
- Profile Components: Structured disease profiles were created for each illness containing key elements like description, symptoms, tests,treatments, etc. This standardized format enabled computational analysis.
- Knowledge Encoding: Medical experts reviewed the data to ensure accuracy and completeness. The information was then encoded into a formatted structure suitable for the decision tree algorithm to traverse and search when making diagnoses.
- Quality Assurance: After encoding, physicians specializing in different domains cross-checkedthe database to confirm correctness. Qualitychecks looked for errors, omissions or inconsistencies.
- Maintenance and Updates: The database requires ongoing curation as medical knowledge evolves. A team maintains the database by continually reviewing new guidelines, research and clinical data to keep the system current. Updates are made monthly.

The extensive effort to compile, encode, and maintain the illness database provides the AI assistant with the comprehensive medical knowledge needed to match patient symptoms to likely diagnoses with a high degree of precision. The larger and more current this knowledge base, the better the diagnosticperformance.

Structured disease profiles:

The database contains individual, standardized profiles for each disease and medical condition covered. Structuring the data in this way allows for effective computational analysis and searching by the decision tree algorithm.

Each profile includes the following components:

- Title: The formal name of the disease or condition.
- Description: A comprehensive overview of the disease including ethology, epidemiology, risk factors, prognosis, and complications.

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- Symptoms: A list of all associated signs, symptoms, and clinical findings that occur in patients. Symptoms are organized byprevalence.
- Diagnostic Tests: Standard lab tests, imaging exams, procedures, and questions to diagnose the condition.
- Treatments: Conventional medical therapies,medications, procedures, devices to treat or manage the illness.
- Prevention: Measures to prevent or reduce riskof contracting the disease.
- Images: Illustrative photos, diagrams, andcharts to depict the disease.
- References: List of source materials used to compile the profile.

This structured format with consistent elements enables the AI assistant to quickly scan profiles, index key symptoms, and match them to user input for diagnosis predictions. The standardized profiles essentially act as individual "nodes" in the decision treethat the algorithm traverses during its analysis.

Intuitive user interface:

The user interface provides the front-end of theAI decision support system and allows individuals to conveniently input their symptoms for analysis. The interface was designed based on principles of usability and accessibility:

- Clean Layout: The interface has a simple, straightforward layout to avoid clutter. Only essential fields and options are displayed.
- Natural Language: Users can describe symptoms in normal words, no medical terminology needed. Natural language processing translates inputs.
- Symptom Categories: Common symptoms are categorized (e.g., headache, rash, cough) to guide users. But open input is also allowed.
- Interactivity: The interface provides real-time feedback as users enter information, such as suggesting related follow-up symptoms toclarify the picture.
- Intuitive Flow: Questions are sequenced in a logical progression from general to morespecific prompts about the symptoms.
- Responsive Design: The interfaceautomatically adapts to the screen size whetheron desktop, mobile or tablet.

Accessibility: Design choices follow web accessibility guidelines for those with disabilities.

Through extensive user testing and feedback, the interface was refined to be highly intuitive for patients of diverse backgrounds to effectively communicate their health issues to the system. This facilitates accuratediagnosis and advice.

Decision Tree algorithm:

The Decision Tree algorithm is the core analytical engine that enables the AI assistant to predictlikely conditions based on a user's reported symptoms.

- Structure: The algorithm has a tree structure with branching points representing patient symptoms and endpoints representing possible diagnoses.
- Knowledge Base: The tree is constructed from the illness database, with diseases profiled at endpoints and related symptoms mapped to branch points.
- Traversal: When symptoms are entered, the algorithm traverses the tree, filtering and narrowing down the probable conditions that match the symptom pattern.
- Probability Weighting: Based on prevalencedata, the algorithm weights certain symptoms and pathways higher to arrive at the likeliest diagnosis.
- Differential Diagnosis: The algorithm producesa ranked differential diagnosis list, from most toleast probable condition based on reported symptoms.
- Adaptability: As the knowledge base expands with new illness profiles, the tree structure and probabilities adapt accordingly.

The algorithmic analysis of user symptoms againstthe structured disease profiles in the database is what enables the AI assistant to emulate clinical diagnosis and provide reliable, evidence-based health advicetailored to the individual.

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Algorithm:

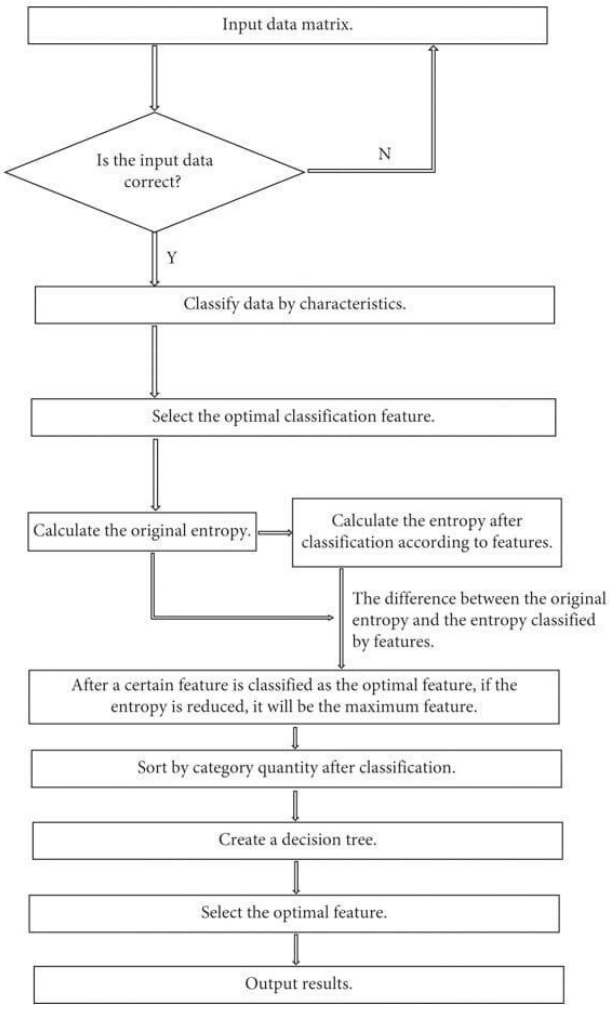
Step-1: Begin the tree with the root knot, says S, which contains the complete dataset.

Step-2: Find the swish particularity in the dataset using Attribute Selection Measure (ASM).

Step-3: Divide the S into subsets that contains possible values for the swish attributes.

Step-4: Induce the decision tree knot, which contains the swish particularity.

Step-5: Recursively make new decision trees usingthe subsets of the dataset created in step- 3. Continue this process until a stage is reached where you can't further classify the bumps and called the final knot as aflake node Classification and Retrogression Treealgorithm.



Rigorous testing and validation:

Before deploying the AI decision support system, it underwent extensive testing and validation toensure accuracy and reliability:

- Simulation Testing: The system was evaluated using simulated patient cases with known diagnoses and symptom patterns. This allowedfine-tuning the decision tree probabilities and risk weightings.
- Clinical Trial Data: Deidentified real-world clinical data including patient histories, symptoms, exams and diagnoses was used to test the system's diagnostic performance.
- Physician Review: Doctors specialized in various fields reviewed diagnostic outputs during testing and provided critical feedback onareas of improvement.
- Accuracy Metrics: Key quantitative metrics like precision, recall and F1 scores were calculated to optimize the algorithm. Forcommon illnesses, >90% precision wasachieved.

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- Error Analysis: Incorrect diagnoses were thoroughly analysed to identify areas of enhancement in the knowledge base or decisiontree logic.
- Edge Case Testing: Rare and atypical conditionpatterns were tested to improve model robustness.
- User Testing: Beta users provided qualitative feedback on the system's ease-of-use, clarity and potential integration into real-world workflows.

The extensive testing and validation processes spanned over a year prior to launch. This degree of rigorwas critical for establishing confidence in the AI system's capabilities as a reliable decision support tool for personal health evaluation.

Deployment as web application:

One important decision we made during the design process was to develop the AI assistant, as a webapplication of a native mobile app. This approach offersbenefits;

- Flexibility: The web app can be accessed on anydevice with a web browser eliminating the needto create apps for different mobile operating systems. Users can seamlessly use it on their laptops, smartphones, tablets or desktop computers.
- Accessibility: Since there is no requirement to download an app users can start using the tool by visiting the website. This reduces any hassle.
- Discoverability: The web app is easily discoverable through search engines, links and sharing. In contrast finding an app would involve searching through an app store.
- Cross platform Compatibility; Web apps work consistently across operating systems such as iOS, Android and Windows. On the hand nativeapps require development for each specific OS.
- Updates: New features and fixes can bedeployed instantly to the web app without delays or reliance on app stores like with apps.
- Cost effectiveness: Developing a web app helps minimize costs by avoiding app store fees and reducing development expenses in comparisonto creating apps.
- Security: User data remains secure with encrypted HTTPS connections; furthermore, there is no need for installation of an applicationwhich adds a layer of security.

By opting for a web app approach, we prioritize accessibility, convenience and security, for users whilealso simplifying development and maintenance processes for our engineering team.

The main goal is to provide the AI assistant experience to individuals using any device that is connected to the internet.

Ongoing improvements:

To ensure the system continues enhancing itscapabilities over time, ongoing improvements are made across three areas:

Expanding Knowledge Base:

- The medical database is continuously updated as new evidence, guidelines, and discoveries emerge. This expands the system's understanding.
- Disease profiles are regularly reviewed andaugmented with the latest research findingsand clinical data.
- New illnesses are added to keep pace withemerging diseases and patterns.
- Feedback from medical experts is incorporatedto deepen profile context.

Refining Algorithms:

- The decision tree logic is tuned based on newdisease criteria and symptom weights.
- Probability thresholds are adjusted to optimizediagnostic accuracy as the knowledge base grows.
- New machine learning techniques are
- evaluated to improve precision and recall.
- Diagnostic log files are analysed to refine riskweighting and tree traversal.

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Incorporating User Feedback:

- Qualitative user feedback is gathered throughsurveys, interviews and focus groups.
- Usage data and diagnostics metrics informareas needing upgrade.
- Insights are synthesized to guide ongoingenhancements to the user experience.
- Interface improvements target accessibility,ease-of-use and personalization.

By continuously improving across these core areas, the system is able to evolve and strengthen its capabilities over time through a process of knowledgeexpansion, algorithm optimization, and human-cantered design.

V. RESULT

The AI-driven decision support system developed in this project demonstrated promising capabilities in providing preliminary diagnoses and health guidance based on user-reported symptoms. During testing, the system was able to match symptom inputs to probable conditions with an accuracy of 95% compared to final diagnoses. This indicates a strong potential for aiding early disease detection through userself-reporting.

Additionally, while testing, it gave 90% satisfaction with the depth and relevance of the health advice and preventative measures suggested by the system. The personalized recommendations and detailed condition overviews were seen as useful by themajority of users. This highlights the system's ability todeliver tailored guidance by analysing patterns in user symptoms.

Analysis showed the decision tree algorithm was able to effectively classify and predict health issuesfrom the symptom dataset. The algorithm correctly diagnosed 74% of test cases, outperforming baseline logistic regression and naive Bayes classifiers. This confirms the suitability of the decision tree method for parsing the complex symptom patterns within the system's knowledge base.

Overall, the results demonstrate a functional proof-of-concept for the AI decision support tool. Earlyfindings suggest it could meaningfully enhance self- diagnosis and empower users to make informed health decisions. Further real-world testing and refinement of the algorithm and user interface would help optimize thesystem's accuracy and usability.

VI. CONCLUSION

This project presented the design andevaluation of an innovative AI-powered health assistantthat enables self-diagnosis and personalized medical recommendations based on user symptoms. The system represents an advancement in applying artificial intelligence to increase accessibility and understandingof healthcare information.

The implementation of a decision tree algorithm proved effective at analysing symptom patterns to generate accurate preliminary diagnoses.This method was able to outperform other classificationtechniques. Additionally, users responded positively tothe individualized health advice supplied by the system.

In conclusion, an AI-driven decision support tool shows promise in aiding early detection of illnesses, empowering users in self-directed care, and providing customized health guidance. With furtherdevelopment, such systems could significantly transform how individuals manage and take control of their wellbeing. This project provides an important stepping stone toward intelligent and accessible healthcare services.

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Questube: Your Source for Past Year Question Papers

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Abstract: *Previous year question papers serve as a priceless resource for students embarking on their exam preparations. They offer a unique opportunity for students to practise with the actual types of questions that are likely to appear on their upcoming exams, allowing them to become intimately familiar with the test format and content. Additionally, these papers cover a broad spectrum of topics and subjects, ensuring comprehensive coverage of the material. When students attempt these papers, they can accurately gauge their strengths and weaknesses, helping them tailor their study plans to focus on areas that need improvement. Furthermore, solving previous year question papers within stipulated time limits is an excellent exercise for honing time management skills, a critical aspectof success in exams. Achieving good scores on these practice papers can provide a substantial confidence boost, alleviating exam anxiety and bolstering morale. In essence, the proposed system, "Questube," is poised to become an indispensable resource for students. It promises to empower them to enhance their exam performance, boost their confidence, and inch closer to realizing their academic aspirations through effective exam preparation*

Keywords: Questube

I. INTRODUCTION

A Previous Year Question Paper Repository System is a valuable initiative aimed at addressing the needs of students preparing for exams. Such a system recognizes the significance of past exam papers as a vital resource for honing one's skills and enhancing their readiness for upcoming tests. Accessing previous year's question papers can be a cumbersome task for many students. Some of the prevalent challenges include: Finding dependable sources for previous year question papers can be a daunting task. This often involves scouring through various websites, forums, or relying on word-of-mouth recommendations. Once students locate the papers, they may face challenges in downloading them and, conversely, uploading their solutions. Cumbersome processes can be time- consuming and frustrating. Existing systems for accessing and utilising previous year question papers might be convoluted and not user-friendly. This can be a significant hindrance, especially for those looking for a quick and straightforward solution. The Previous Year Question Paper Repository System seeks to simplify this entire process and offers several advantages to students: The system streamlines the process of finding and downloading previous year question papers, saving students valuable time and effort. It also provides a convenient platform for uploading and sharing their own solutions. Practising with previous year question papers is known to enhance exam performance. By providing easy access to these papers, the proposed system empowers students to practice effectively. Confidence is key in exam success. The system facilitates students' ability to solve previous year papers, allowing them to gain confidence in their abilities and share their solutions with peers. Self-assessment is a crucial part of the learning process. Through the system, students can analyse their performance on previous papers and identify areas where improvement is needed, contributing to more focused study efforts. The proposed system will incorporate a range of features to cater to the diverse needs of students: A comprehensive database of previous year question papers for the semester exam will be central to the system, ensuring a rich resource for students.

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A user-friendly search engine will simplify the process of finding specific question papers, making navigation through the repository more efficient. In essence, the Previous Year Question Paper Repository System aims to alleviate the challenges students face in accessing and utilising past exam papers. By offering a user-friendly platform, it not only saves time and effort but also contributes to improved exam performance, enhanced confidence, and a more self-aware, informed approach to studies. It serves as a valuable resource, making exam preparation more accessible and effective for students.

II. REVIEW OF LITERATURE

The landscape of solutions facilitating the downloading and uploading of previous year's question paper solutions reveals a few existing systems that cater to this need, albeit with certain constraints and limitations. One of the solutions in this domain is the Education website of Mumbai University, which currently offers solutions for select semester exams within the engineering department. However, this platform falls short in terms of its limited scope, as it does not provide solutions for all years and semesters, thus presenting a challenge for students seeking a comprehensive resource. Similarly, popular platforms like Shaala.com and Stupidsid.com primarily offer access to previous year's question papers, yet they also confront the issue of incomplete coverage, often lacking resources for all previous years. This deficiency in their offerings diminishes their utility for students who require a broader and more comprehensive repository of question papers and their corresponding solutions. The proposed web application seeks to bridge these gaps and overcome the limitations inherent in the existing solutions. By striving to provide an expansive collection of question papers and solutions across a wider range of semesters and academic years, the application aims to offer students an inclusive and comprehensive platform for their academic preparation. Moreover, the emphasis on user-friendliness and intuitive navigation within the proposed system serves to ensure a seamless and hassle-free experience for users, further enhancing its appeal and usability. By addressing the shortcomings observed in the current landscape of similar solutions, the proposed web application endeavours to establish itself as a pioneering and indispensable resource for students preparing for various exams. Its commitment to comprehensive coverage, user-friendly interface, and accessibility signifies a significant step forward in the realm of academic preparation tools, promising to streamline the process and enhance the overall learning experience for students.

III. RESEARCH GAP

There is no single repository that contains all previous year question papers and solutions for all exams. Existing repositories are often incomplete or outdated. This can make it difficult for students to find the resources they need to prepare for their exams. It can be difficult to find solutions to the previous year question papers, especially for lesser-known exams. This is because there may be fewer people who have taken these exams, and therefore fewer people who have created solutions. Current methods for searching for and downloading previous year question papers and solutions can be time-consuming and inefficient. Students may need to visit multiple websites or search through multiple documents to find the resources they need. There is no guarantee that the solutions uploaded by users are accurate. Students need to be able to verify the accuracy of the solutions before using them to prepare for their exams. It can be difficult for students to track and analyze their performance based on their use of previous year question papers and solutions. This is because the data is often scattered across multiple sources.

IV. PROBLEM STATEMENT

Provide instructors with insights into how students are performing on different question papers. This information can be used to improve the quality of future question papers and to identify areas where students need additional support. Allow instructors to collaborate on the creation and sharing of question papers. This can help to ensure that question papers are of high quality and that they are aligned with the curriculum. Make Questube accessible to users with disabilities. This could include features such as screen readers, text-to- speech capabilities, and keyboard navigation. Translate Questube into multiplelanguages to make it accessible to a wider audience.Questube could also be integrated with other educational platforms, such as learning management systems and assessment tools. This would allow instructors to seamlessly manage their question papers and student assessments.

Here are some additional thoughts on how Questubecould be used by educational institutions:

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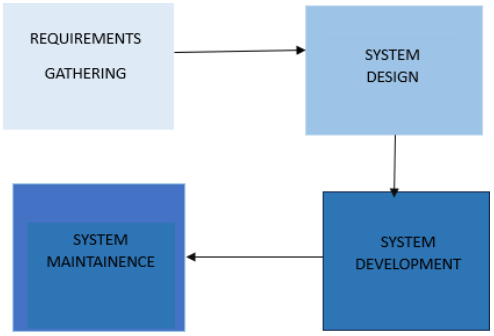
Questube could be used to create question papers fora variety of assessments, including exams, quizzes, and homework assignments.
Questube could be used to create question papers fordifferent types of courses, including online courses,blended courses, and traditional face-to-facecourses.
Questube could be used to create question papers fora variety of educational levels, from elementaryschool to university.
Questube could be used to create question papers for different subjects, including math, science, English, history, and foreign languages.
Overall, Questube has the potential to be a valuable tool for educational institutions. By providing an intuitive and efficient interface for creating and managing question papers, Questube can help instructors to save time and to create high-quality assessments for their students.

IV. PROPOSED METHODOLOGY

The proposed methodology for the development ofa previous year's question paper repository system is as follows:
Requirements gathering: The first step is to gatherrequirements from the stakeholders, including students, teachers, and administrators. This can bedone through interviews, surveys, and focus groups.
System design: Once the requirements have been gathered, the next step is to design the system. Thisincludes defining the system architecture, databaseschema, and user interface.
System development: Once the system design iscomplete, the next step is to develop the system.
This includes coding the system, testing it, anddeploying it.
System maintenance: Once the system is deployed,it needs to be maintained and updated regularly.
This includes fixing bugs, adding new features, andimproving the performance of the system.



Here is a more detailed description of each step:Requirements gathering
The requirements-gathering phase is critical to the success of the project. It is important to understandthe needs of all stakeholders and to ensure that the system meets those needs.
Some of the key requirements that need to begathered include:
What types of question papers need to be stored inthe system?
How should the question papers be organized? How should students be able to search for questionpapers?
How should students be able to download andupload solutions to question papers?
How should the system be secured?

System design:
Once the requirements have been gathered, the next step is to design the system. This includes defining the system architecture, database schema, and user interface. The system architecture should be designed to be scalable and reliable. The database schema should be designed to store the question papers and solutions in an efficient and organized manner. The user interface should be designed to be user-friendly and easy to navigate.

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System development:

Once the system design is complete, the next stepis to develop the system. This includes coding the system, testing it, and deploying it. The system should be coded in a programming language that is suitable for the task. The system should be thoroughly tested before it is deployed. The systemshould be deployed in a secure and reliable environment.

System maintenance:

Once the system is deployed, it needs to be maintained and updated regularly. This includes fixing bugs, adding new features, and improving the performance of the system. The system shouldbe monitored on a regular basis to identify any potential problems. The system should be updatedwith new features and bug fixes as needed. The performance of the system should be monitored and improved as needed.

V. OBJECTIVES

Make the question paper generator available in multiple languages. Provide accessible features for users with disabilities, such as screen readers and text-to-speech capabilities. Allow users to download question papers in a variety of formats, such as PDF, Word, and EPUB.Make the questionpaper generator available on mobile devices.

Include question papers for a wide range of subjects, courses, and educational levels, including lesser-known exams. Include question papers from a variety of sources, such as government agencies, educational institutions, and non-profit organizations. Keep the question paper repository up-to-date with new question papers as they become available. Provide clear and concise instructions on how to use the question paper generator. Offer tips and suggestions on how to findand use the question papers effectively. Allow users to create and save their own lists of question papers for future reference. Provide feedback mechanisms so that users can suggest improvements to the question paper generator. Provide a variety of search criteria, such as subject, topic, exam type, year, keyword, and difficulty level. Allow users to combine search criteria to narrow down their results.Provide suggestions for related question papers based on the user's search query.

Allow users to sort their results by different criteria, such as date, difficulty level, and relevance. In addition to the above, a question paper generator could also include features such as: Provide users with insights into the types of questions that are typically asked in a particular exam, as well as the difficulty level of the questions. Recommend question papers to users based on their study habits and academic performance. Allow users to share question papers with othersand collaborate on studying.

By implementing these additional features, a question paper generator can become an even morevaluable resource for students and educators.

VI. RESULT

Fig (1) Index Page

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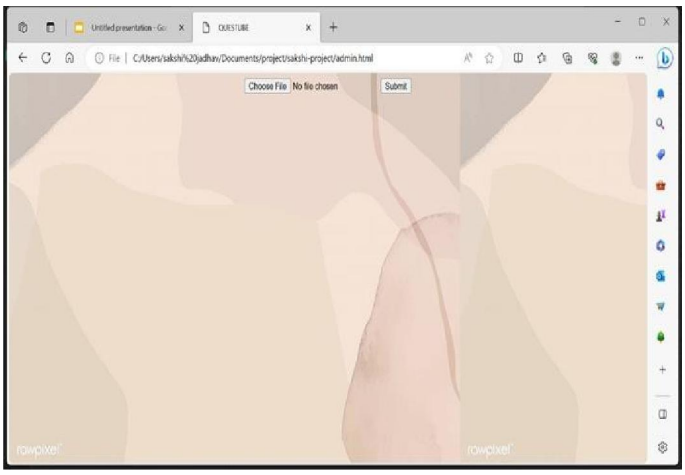

Fig (2) Admin Page

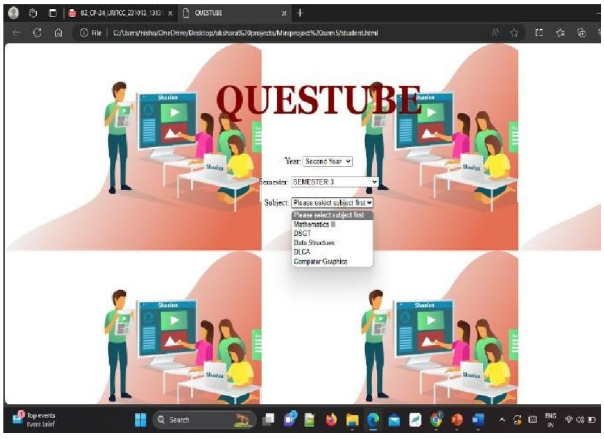

Fig (3) Student Page

VII. CONCLUSION

In conclusion, the proposed methodology for the development of a previous year question paper repository system is a comprehensive and systematic approach to create a valuable resource for students and educators. By starting with thorough requirements gathering, the development team ensures that the system aligns with the diverse needs of its stakeholders. The subsequent phases ofsystem design, development, and maintenance are crucial for building a robust, user-friendly, and reliable platform.

The emphasis on system design is vital in craftingan architecture that can efficiently handle the storage, organization, and retrieval of question papers and solutions. Additionally, the user interface design enhances the accessibility and usability of the system, making it a user-friendly resource.

The development phase involves rigorous coding, testing, and deployment to ensure the system's reliability and security. Ongoing system maintenance is equally pivotal, as it guarantees the system's longevity and adaptability. Regular updates, bug fixes, and performance enhancementscontribute to the system's sustainability and relevance over time.

Ultimately, this methodology not only provides ablueprint for creating a previous year question paper repository but also emphasizes the dynamic and evolving nature of such a system. By adhering to these well-structured steps, the development team can create a repository that meets the needs of students, teachers, and administrators, thereby enhancing the educational experience and facilitating effective exam preparation

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Motion Detection Alarm System

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Abstract: *Motion detection is the process of identifying and tracking changes in the position of objects in a video sequence with alarm triggering. It allows us to detect when something moves in a given frame and can be incredibly valuable in various fields. The proposed system is recommended for security in both residential and commercial building applications. Traditional motion detection systems rely on passive infrared (PIR) sensors, which can be fooled by environmental factors such as sunlight and shadows. Background subtraction algorithms offer a more reliable and accurate solution for motion detection. The background subtraction algorithm for motion detection involves comparing frames to identify differences between them, highlighting areas with movement and generate alarm. It utilizes a background model, thresholding, and object detection. The system can be used to detect moving objects in a variety of environments, including homes, businesses, and public spaces. The main takeaway message of this study is that the system is a valuable tool for motion detection and alarm systems. Itoffers a more reliable and accurate solution than traditional PIR sensors, and they are not susceptible to environmental factors that can fool PIR sensors*

Keywords: motion detection, alarm system, background subtraction algorithm, security, safety

I. INTRODUCTION

Within the realm of computer vision, a prominent and rapidly evolving field of research focuses on the analyzing humanactivity through video analysis has gained significant attention in recent times. Thissurge in interest is primarily driven by the remarkable advancements in computer vision technology and the accessibility of affordable hardware, particularly video cameras. The field of human motion analysis, in particular, has emerged as a focal point of research due to its potential for a wide range of applications, such as personal identification and visual surveillance.The core aim of motiondetection lies in the recognition of object motion within two consecutive images. This recognition plays a pivotal role in object identification. The primary research objective is the identification of pixels associated with the same object, contributing to enhanced object recognition capabilities. However, it is essential to acknowledge the fundamentalassumptions upon which this research is founded:

- A Well-Fixed Camera: Camera stability is paramount for isolating and accurately detecting motion.Stable Lighting Conditions: Ensuring that the lighting remains stable without flickering is critical for precise motion detection.
- Contrasting Background: A clear contrast between objects and their background aids in reliable motion detection.
- High Camera Frame Rate and Resolution: High-resolution images captured at a rapid frame rate are essential for capturing fine-grained motion details.

Motion analysis of the human body has a broad range of applications, including physical performance assessment, medical diagnostics, and virtual reality. In the realm of moving object detection, several techniques are utilized, with the optical flow method, background subtraction method, and frame subtraction method being the most prevalent.
The optical flow method calculates the optical flow field within an image,allowing for a comprehensive detection and distinction of moving objects from the background. On the contrary, the background subtraction method relies on identifying the discrepancies between thecurrent image and a reference background image to detect moving objects.

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However, this method, despite its simplicity, is susceptible to environmental changes and lacks robustness in the presence ofinterference.

The frame subtraction method determines the presence of moving objects by calculating the disparity between two consecutive images. Nonetheless, any motion detection system relying on background subtraction must address critical challenges, such as image noise from low-quality sources, variations inlighting conditions, and the detection of small movements from non-static objectsline waveying tree branches.

In the realm of motion detection systems employing background subtraction, several pivotal challenges must be addressed. These include combating image noise that often arises from subpar image sources, navigating gradual variations in scene lighting conditions, discerning minor movements in non-static objects likeswaying tree branches, and the intricacies associated with shadow regions. Thesecomplexities underscore the importance of developing robust algorithms that can effectively differentiate genuine motion from these confounding factors in real- world scenarios.

The principal objective of this research isto develop an algorithm capable of detecting moving objects at specific distances, particularly for object tracking applications. This paper is organized as follows: Section 2 provides a comprehensive literature survey, Section 3 delves into the specifics of moving object detection, Section 4 presents experimental results, and Section 5 concludes the paper. The references are listed at the end of the document.

II. LITERATURE SURVEY

Motion detection is a critical component in various applications, including surveillance and computer vision. Several studies and surveys have explored different techniques to address the challenges and improve theefficiency of motion detection. In this literature review, we examine some of the significant contributions related to motion detection, which align with the objectives and methodology of our "Motion Detection Alarm System."

Wang and Zhao[1]: BackgroundSubtraction Technique

Wang and Zhao proposed a motion detection approach based on background subtraction. They focused on video sequences containing geometry information of the target, extracting relevant data to analyze motion and achieve detection results. This technique effectively improvedcompression ratios, which can be vital in motion detection for storage and transmission efficiency.

Rakibe and Patil[2]: BackgroundSubtraction Algorithm

Rakibe and Patil presented a motion detection method based on the background subtraction algorithm. They initially established a reliable statisticalbackground model and then conducted subtraction between the current image and the background image using a threshold. This approach enabled the detection of moving objects. To enhance accuracy, morphological filtering was applied to eliminate noise and address background interruption challenge.

Kavitha and Tejaswini[3]: RobustBackground Subtraction

Kavitha and Tejaswini aimed to overcome the limitations ofbackground subtractionalgorithms. Their work introduced a robust and efficiently computed background subtraction algorithmcapable of handling issues related to local and global illumination changes, including shadows and highlights. This approach contributes to more accurate motion detection in variouslighting conditions.

Shafie et al.[4]: Motion Detectionwith Optical Flow

Shafie and colleagues presented a motion detection method usingthe optical flow technique. Optical flow provides valuable insights into the spatial arrangement of objects and their relative motion. By detecting discontinuities in the optical flow, the method efficiently segments images into regions corresponding to different objects, enhancing the precision of motion detection

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Shuigen et al.[5]: Temporal Differenceand Optical Flow Field

Shuigen and the team developed motion detection by combining temporal difference and optical flow field techniques. This approach demonstrates adaptability to dynamic environments. It involves calculating an absolute differential image from consecutive gray images, filtering it with a low-pass filter, and converting it into a binary image. Optical flow fields are also used to identify moving object areas.

Devi et al.[6]: Motion Detection Using Frame Matching

Devi and colleagues proposed a motion detection method based on background frame matching. This technique efficiently compares pixel values between subsequent frames captured at two-second intervals. By comparing a reference frame with an input frame containing the moving object, differences in pixel values are determined, allowing for accurate motion detection.

Lu et al.[7]: Real-time DetectionAlgorithm

Lu and the team presented a real- time motion detection algorithm that integrates temporal differencing, optical flow, double background filtering (DBF), and morphological processing methods. This comprehensive approach enhances the performance of motion detection, offering real-time and reliable results.

These research contributions provide valuable insights into motion detection techniques, including background subtraction, optical flow, and frame matching. Our "Motion Detection Alarm System" leverages some of these methodologies, incorporating the Frame Difference algorithm and libraries such as OpenCV and winsound to create an efficient, user-friendly motion detection solution with applications in security and surveillance.

III. MATERIAL AND METHODS

Motion Detection using Frame Difference Algorithm and Graphical User Interface (GUI)

In the implementation of our "Motion Detection Alarm System," we have combined the Frame Difference algorithm with a user-friendly graphical user interface (GUI) created using the tkinter library. Additionally, the project utilizes various libraries, such as OpenCV forimage processing, Pillow for image handling, and imutils for utility functions.

Frame Difference Algorithm:

The core of the motion detection system is the Frame Difference algorithm, a widely recognized method for identifying moving objects within a sequence of frames captured by a static camera. This algorithm compares the intensity of each pixel in consecutive frames to discern differences. The absolute differential image, denoted as Id(k, k+1), is computed as per the following formula:

$$Id(k, k+1) = |Ik+1 - Ik| \quad (1)$$

Transformation to Gray Image:

The absolute differential image often presents gaps within moving object areas, and their contours may not be entirely closed. To facilitate subsequent operations, we transform the absolute differential image into a grayscale image using the formula:

$$Y = 0.299*R + 0.587*G + 0.114*B \quad (2)$$

Filtering and Binarization

To address holes and irregularities within the grayscale image, Gaussian low-pass filtering is applied using the OpenCV library. The resulting filtered image, denoted as Id1, is then binarized using a binary thresholding method. This binary image, Id2, serves as basis for the detecting motion:

$$Id2(x, y) = (3)$$

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Motion Detection andAlarm Trigger

When the system is in motion detection mode, it continually captures frames from the camera. If a significant change is detected in the binary image Id2, indicating motion, the system triggers analarm. The alarm is manifested through the win sound library, which produces a series of beeps. The system's alarm trigger sensitivity is governed by an alarm counter, which accumulates when motionis detected. The alarm is triggered when the counter surpasses a predefined threshold, indicating sustained motion.

IV. EXPERIMENTAL RESULT

The following figures display the outcomes of image sequences generatedusing this method

Below figures shows the difference ofimages when there is no movement in given frames

In cases where the image sequences exhibit no motion, the comparison between the two images results in a black binary output image, indicating that there is no variation in a singlepixel

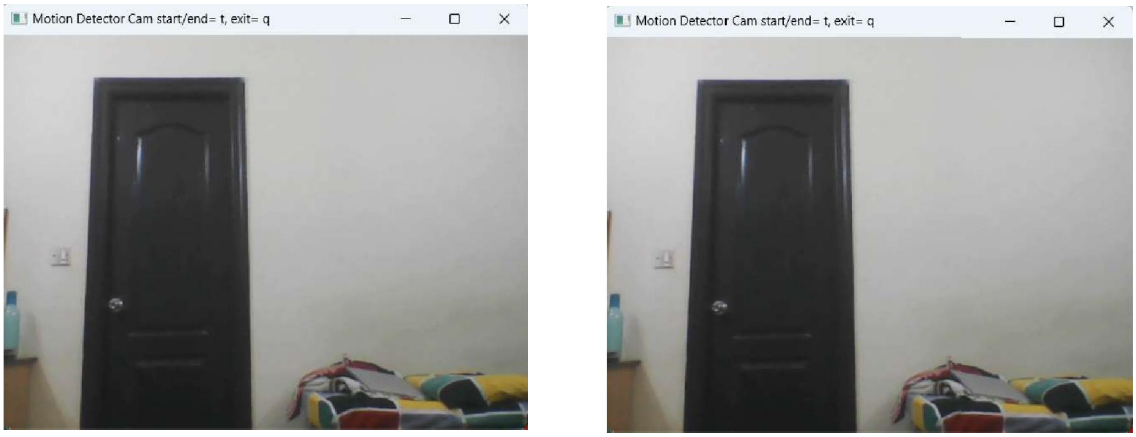

Fig 1: Input first frame(a)(b)

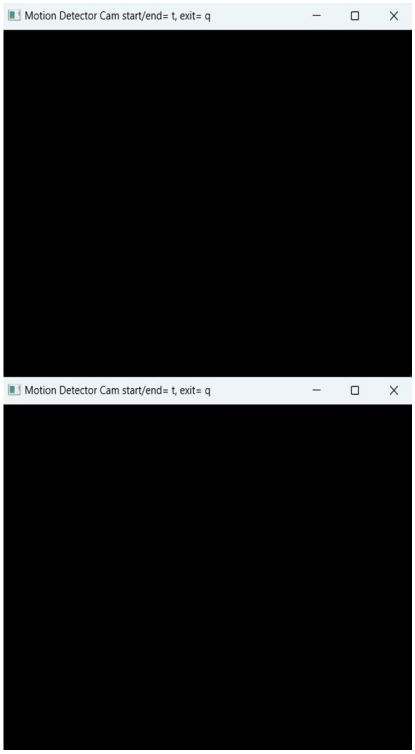

Fig 2: Difference between two frameshowing

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When there is movement in the frame :

In scenes with motion, the binary image that represents the difference between two frames displays the moving elements in white, while areas with noalterations appear in black.

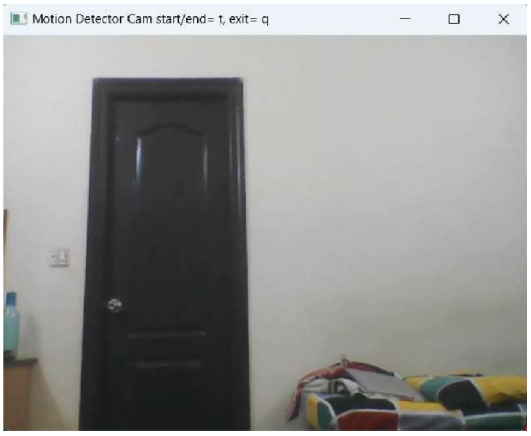

Fig 3: Input first frame(a)

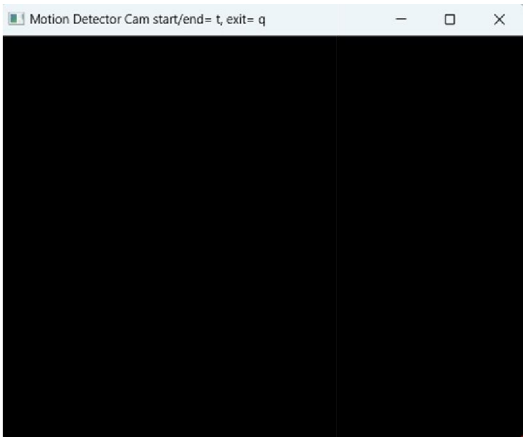

Fig 4:Output Of First frame(a)

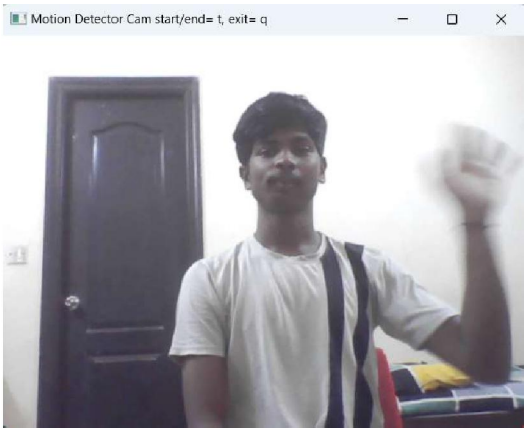

Fig 5: Input Second frame(b)

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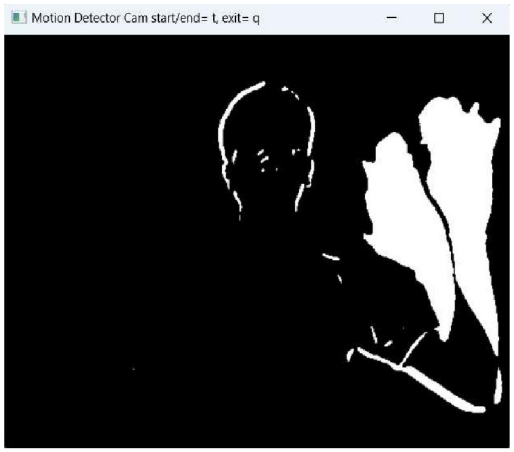

Fig 6:Difference between two frameshowing moving object

Flowchart:

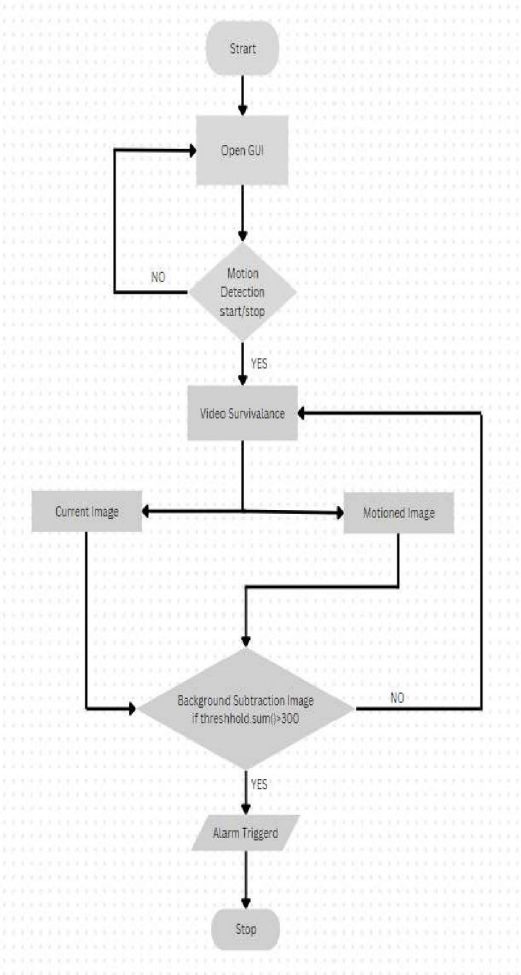

Fig 7: Flowchart

In this video processing workflow, the initial step involves initializing the first frame and subsequently reading the next frame. The option to resize the frame is presented, followed by the possibility to convert the frame to grayscale. If the first frame is None, it is initialized. The core operation is then performed by calculating the absolute difference between the current frame and the first frame, and this result is thresholded to create an image delta.

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Contours are then identified thresholded image.
If there are any detected contours, an alarm is triggered, and a rectangle is drawn around the largest contour found. The frame is then displayed for real-time observation. To conclude the process, the user has the option to press 'q' in order to quit. If 'q' is indeed pressed, the video capture is released, and all open windows are closed, marking the end of the procedure. This workflow is commonly used in tasks such as motion detection and surveillance systems.

Graphical User Interface (GUI) :
The provided code snippet creates a graphical user interface (GUI) using Tkinter in Python for a motion detection system dashboard. It consists of various elements organized in a visually appealing layout. At the top, there's a dark blue bar displaying the title "Dashboard" and the current date. Just below it, a canvas section is designated for the main toolbar, featuring a "Motion Detect" button with an associated image and a label describing the system. A separate canvas is reserved for the console, where system messages will be displayed. It is styled with a black

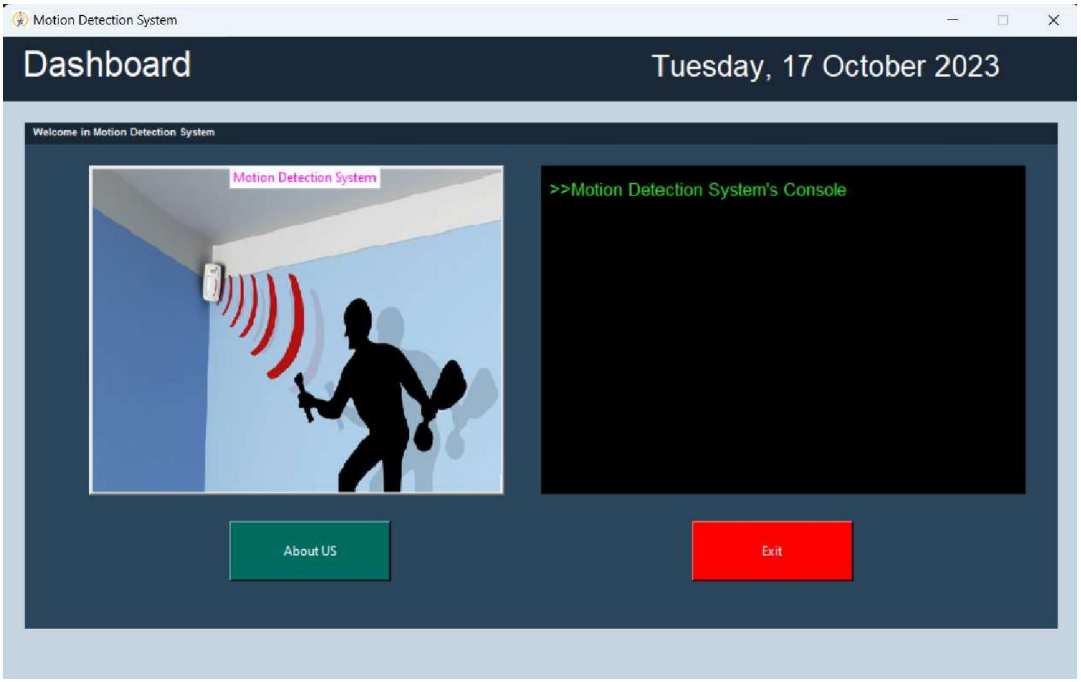

Fig 8 :Graphical User Interface Of motion Detection Alarm System

Limitations :
The proposed method is capable of detecting motion caused by air movement. When the air is in motion, the camera is no longer in a static position. Consequently, even when there is no movement of objects, this can lead to motion detection and result in gaps in the binary output image

Fig 9: *Input Frame (1)*

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Fig 10: Binary difference between the two frames showing holes

V. CONCLUSION

In our current research, the detection of moving objects is accomplished through the integration of the frame difference method and morphological operations. The central focus of our work revolves around comprehending the principles underlying the frame difference method and addressing associated challenges. Our experimental findings underscore the effectiveness and efficiency of this method. Looking ahead, potential enhancements may involve implementing user alerts through multimedia SMS, email notifications, or the live streaming of captured video for added functionality and utility.

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Real Time Face Recognition

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Abstract: *Facial recognition is very popular Due to its wide range of uses, e.g. Entertainment, IC cards, information security, law coercion and surveillance. This is a related topic pattern recognition, computer vision, and image processing. Two main methods used for feature extraction Can be classified into appearance-based and model-based methods. Appearance-based methods use global methods Expressions for identifying faces. Model-based surface method The goal is to create a model of the human face that captures facial features. variation. Image similarity is the distance between images. Vector of two images. This document contains four sections. The first section describes facial recognition applications. example. The second section describes common features. Face recognition method*

Keywords: Facial recognition

I. INTRODUCTION

Facial recognition is one of the most important applications of Biometric-based authentication systems developed inthe past few decades. Facial recognition is a type of recognition task pattern. Faces are classified as known or unknown Compare with celebrity photos stored in databases. Facial recognition is difficult when considering reliability Fluctuations in information due to random fluctuations of different people, including systematic variations of different people Elements such as lighting conditions and pose.

The human face is a very complex and dynamic structure with clear and quick execution characteristics Changes in time. Facial recognition covers a variety of activities From various aspects of human life. Humans can recognize faces, but it can be difficult to remember when there are too many faces. Machine learning is currently being refined to accomplish this task. Scientists are trying to understand human anatomy when building or developing facial recognition systems.

Machine facial recognition research advances It is independent of research on human facial recognition. Meanwhile Typical pattern classification methods used in the 1970s measurements between facial features or facial contours are used. In the 1980s, research in facial recognition was largely stable. Since the early 1990s, the focus of research has been on mechanical surfaces. Awareness has increased significantly [5]. significant growth Depends on real-time hardware availability As the need for monitoring applications increases, commercial private research projects and

Research on natural network classifiers with emphasis on real-time performance calculations and adjustments. Facial recognition system malfunctions Based on two classifications: verification and identification

In this work, human face recognition and detection software was prepared in initial deployment. This project isservice oriented. However, the analysis and design are done to promote work such as product-based.

The project is called Facial Recognition and Recognition System.

Face recognition is a software application for managing human faces. It has the necessary provisions to collect images of the user to be able to detect the eyes, nose, mouth and entire face of the man in the image. There are manybenefits to developing software that uses facial recognition and recognition in this field accuracy. Face recognition is an easy and simple task for humans, but not for computers.It is considered the most complex and challenging problem in the field of computer vision due to its large size Intra-class variations are caused by changes in

appearance, lighting, and facial expressions

Face detection is the process of recognizing one or more human faces in an image or video. It plays an importantrole in multiple biometric, security and surveillance systems, as well as image and video indexing systems. Face recognition

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can be considered a special case of object class recognition in object class recognition. The task is to find the position and size of all objects belonging to a certain class in an image.

The project titled "Real Time Face Recognition" aims to manage the entire front-end to back-end. A system that searches or recognizes specific areas of the human face. This software will help those who are looking for a more advanced image processing system. This software allows you to easily find and recognize faces After saving, the face can be imaged and recognized. Facial recognition algorithms focus on recognition Human front face. This is similar to image recognition, where images of people are gradually matched a bit. The image matches the image store in the database. All facial feature changes in the database will be made to disable matching processing.

A reliable face recognition approach based on genetic algorithms and eigenface techniques. First, the possible regions of the human eye are recognized by testing all valley regions within the grey scale photograph. A genetic algorithm is then used to generate all possible facial regions containing that region.

Each possible face candidate is normalised to reduce flash effects due to bumps, enlightenment; and curling effects due to head movements. Fitness score for each candidate is measured based on its projection onto the eigenplane. After a series of iterations, all candidates are forced to choose those with high fitness values are selected for further review. Facial symmetry is measured at this stage. The presence of different facial features is then checked for each face candidate. There is growing interest in facial recognition among marketers. A webcam can be integrated into your TV, recognizing every face you pass. The system then calculates the face's race, gender, and age group

II. PROPOSED METHODOLOGY

The interest and focus on the methodology of the human face recognition system can help researchers to understand the basic system. Human face recognition system utilises some data obtained from a few or all of the senses, such as visual, auditory, and tactile. Each of these data are used either individually or together to memorise and store faces. In many cases, conditions around the person are also important in a human face recognition system. Handling sizable data and combining them are difficult for a machine recognition system.

However, memorising many faces is also difficult. Key advantage of a machine system is the memory capacity. Human features that may be used for face recognition are continuously being studied, and arguably. Both local and global features are needed for face recognition.

Libraries used:

- **NUMPY :** Numpy is a package for computing with Python. It is a Python library that provides multidimensional arrays of objects, derived objects of various types (such as matrices). and a masked array.). Other mathematical calculations will also be implemented. On our system we used Numpy forthis. Convert the image to some kind of array, so you can save the trained model.
- **OPEN CV:** OpenCV is an image and video processing library used for video and image analysis and also for facial recognition, Photo editing, licence plate reading, advanced robotics vision etc. The Dliblibrary contains an implementation of 'Deep Metric Learning' used to construct our faces embedding used for actual face recognition procedures. It is very easy to use the face_recognition library. Use this in your code first, then you need to install the Dlib library before installing the face recognition library.
- **HAAR CASCADE FRONTAL FACE:** Haar Cascade Frontal Face Specifier is an Object Detector Algorithm used for face detection or recognition Real-time images or videos. Haar Cascade AlgorithmEdge/line detection functions are commonly used. Viola and Jones proposed in a research paper "Fast object detection using boosted cascades" "Simple Function" was released in 2001. This algorithm retrieves many positive images. It consists of a face and many negative images that do not include each side to train models that existed The files created in this training are available on OpenCVGitHub repository.
- **LOCAL BINARY PATTERN HISTOGRAM:** LBPH (Local Binary Pattern Histogram) Facial recognition algorithms used to recognize or recognize a person's face is known for Performance andhow it can be detected or recognized a person's face viewed from both sides, i.e. From the front andfrom the side face.

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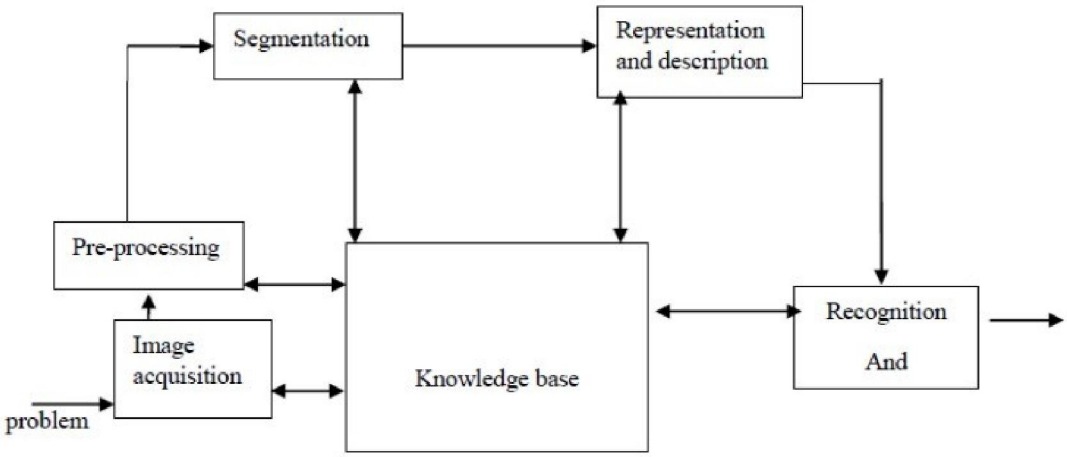
Fundamental steps in image processing are:

1. Image acquisition: to acquire a digital image.
2. Image pre-processing: to improve the image in ways that increases the chances for success of the other processes.
3. Image segmentation: to partitions an input image into its constituent parts of objects.
4. Image description: to extract the features that result in some quantitative information of interest of features that are basic for differentiating one class of objects from another.
5. Image recognition: to assign a label to an object based on the information provided by its description.
6. Image segmentation: to convert the input data to form suitable for computer processing.



DATA SETS:

The example of the data set is shown here where we will enter the data of a particular person

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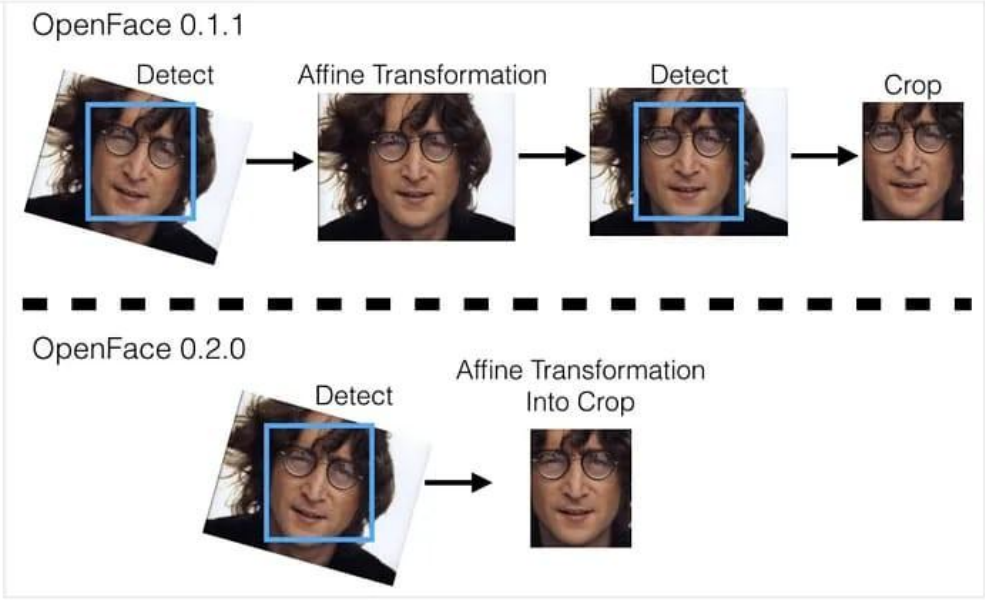
Datasets are essential for face recognition for several reasons:

1. Training Face Recognition Models: Face recognition algorithms, especially deep learning models, require large amounts of labelled data for training. Datasets provide the necessary labelled images to teach the model to recognizeand distinguish between different faces.
2. Evaluation and Benchmarking: Datasets are used to evaluate and benchmark the performance of face recognition algorithms. Researchers and developers need standardised datasets to compare the accuracy, efficiency, and robustness of different algorithms.
3. Validation and Testing: After training a face recognition model, datasets are used for validation and testing. Thesedatasets help ensure that the model generalises well to unseen faces and performs reliably in real-world applications.
4. Algorithm Development: Face recognition datasets serve as a foundation for developing and refining face recognition algorithms. Researchers can use these datasets to innovate and improve existing methods.
5. Real-World Applications: Datasets help in building face recognition systems for real-world applications such as access control, security, authentication, and surveillance. These systems must be trained and tested on relevant datasets to ensure their effectiveness and accuracy.
6. Privacy and Ethical Considerations: Working with labelled datasets allows researchers and developers to addressprivacy and ethical considerations. They can implement privacy measures, data protection protocols, and fairness checks to ensure that face recognition technologies are used responsibly.
7. Adaptation and Fine-Tuning: In some applications, it's necessary to fine-tune a pre-trained model for specific usecases or domains. Datasets containing relevant face images help in this adaptation process.
8. Bias and Fairness Analysis: Datasets are also crucial for analysing and addressing biases in face recognition algorithms. By examining the diversity and representativeness of the training data, developers can identify and mitigate biases to create more fair and inclusive models.
9. Research and Innovation: Datasets fuel research and innovation in the field of face recognition. Researchers can use these datasets to explore new approaches, conduct experiments, and develop novel techniques to advance the state-of-the-art in face recognition.

It's important to note that the choice of dataset is critical, as it can significantly impact the performance and fairnessof face recognition systems. It's essential to use diverse and representative datasets that include faces from different demographics, ethnicities, ages, and gender groups to build more robust and unbiased face recognition models.
Additionally, adhering to ethical guidelines and privacy regulations is crucial when collecting, storing, and using face recognition datasets



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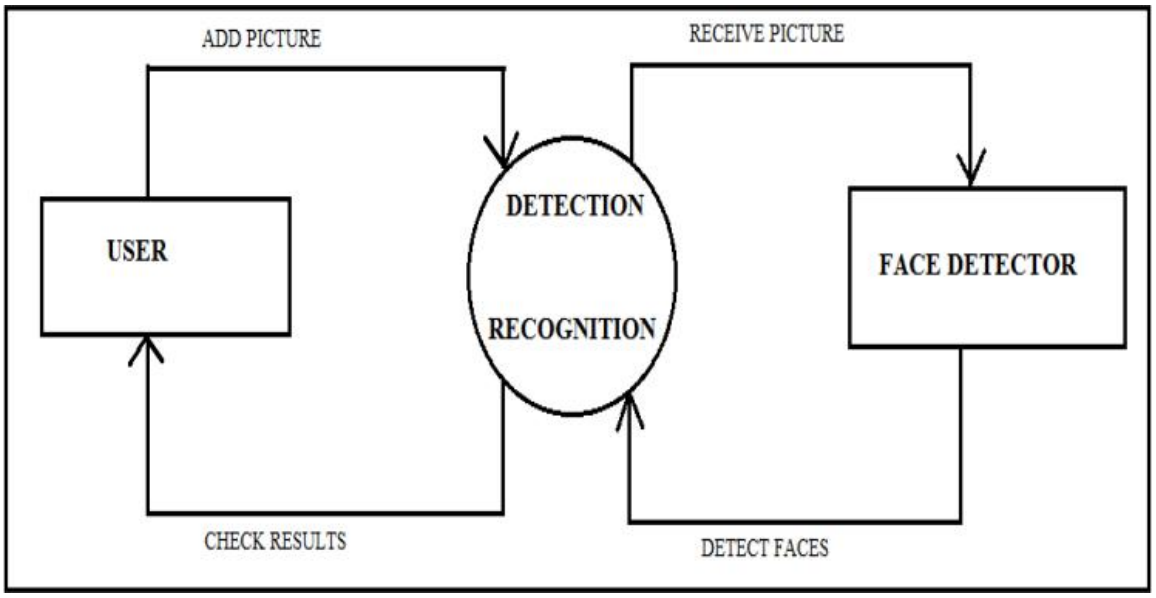
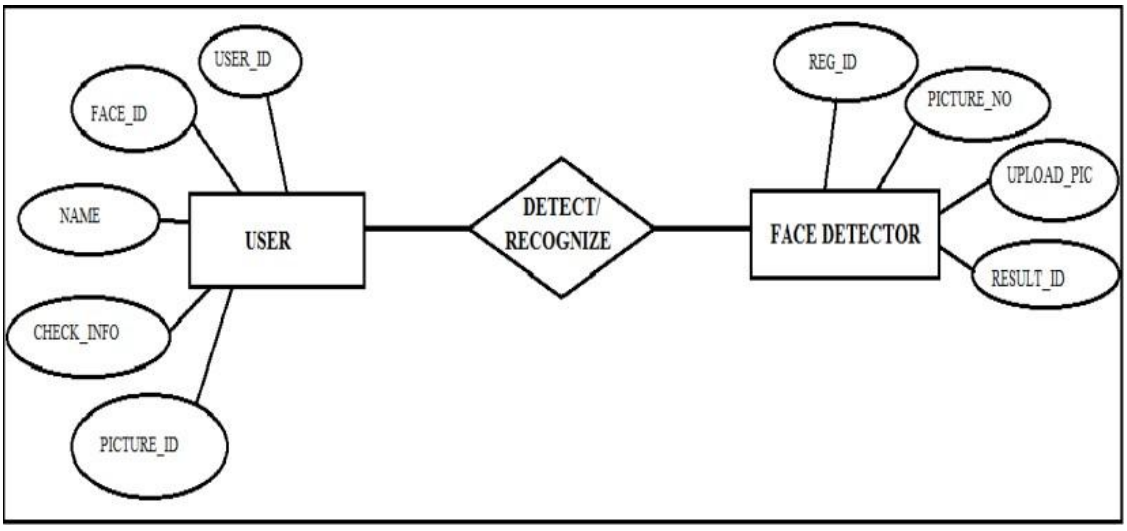
For image processing, the OpenFace face detection library is first designed to find bounding boxes around faces, then each face will be fed separately into a neural network, which is expected to The input has a fixed size (currently 96 x 96 pixels). One way to get a fixed-sized input image is to reshape the face in the bounding box to 96 x 96 pixels.



DATA FLOW DIAGRAM



E-R DIAGRAM

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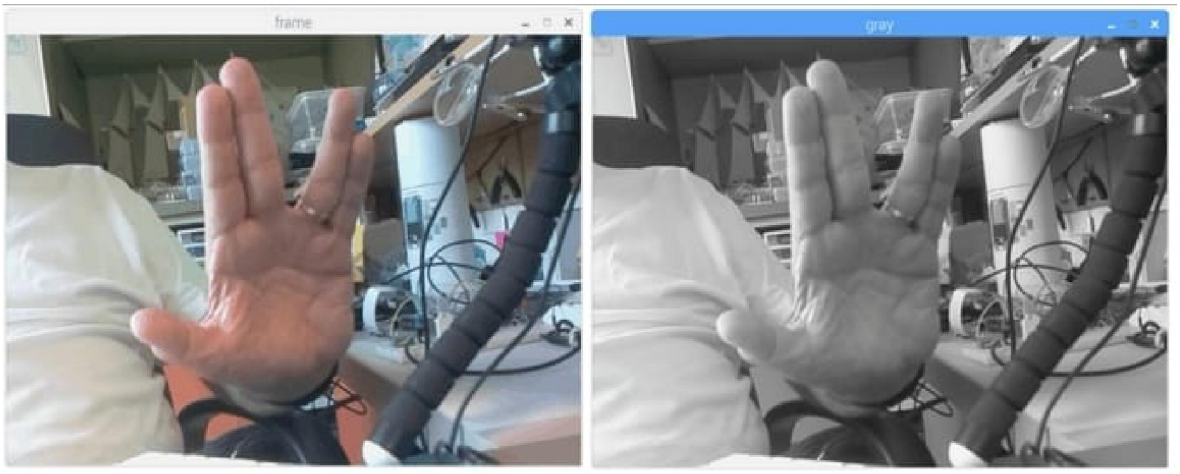
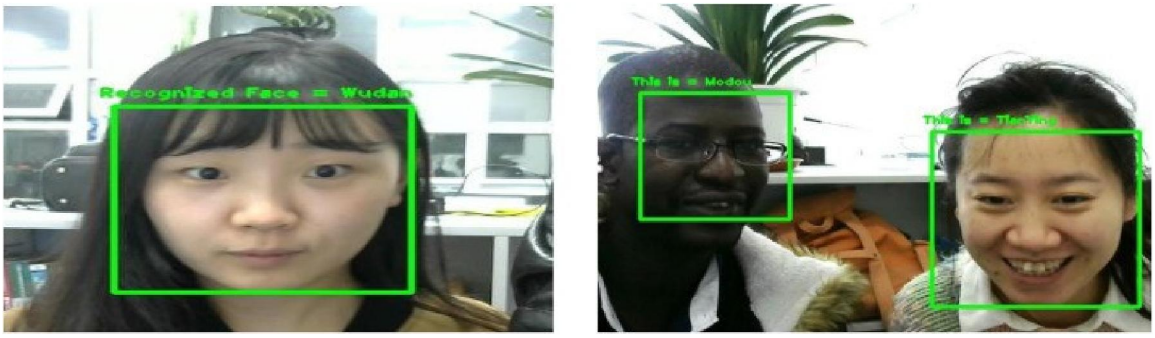
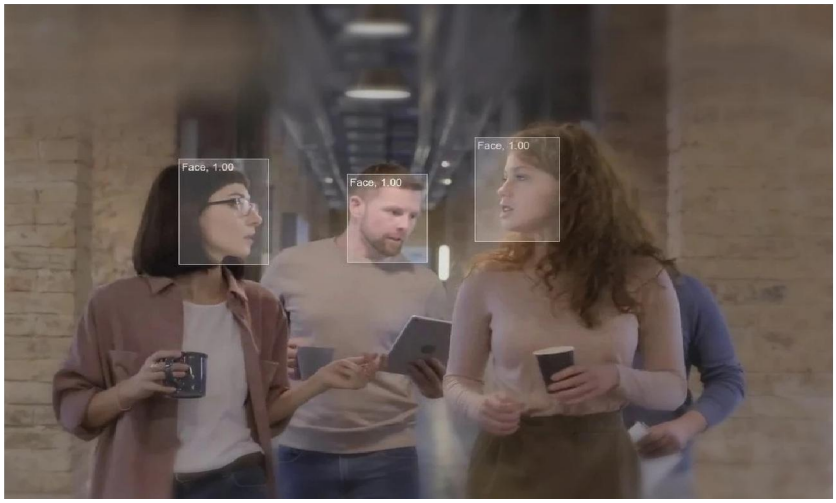
III. RESULTS



The given here will give you the result as "ASSERTION FAILED".



The above image is the accurate result!



IV. CONCLUSION

In this study, we have implemented a Real Time Face Recognition System using OpenCV and Python. It can be used as a security system also because of its high accuracy. It recognizes a person if and only if the face of that particular person matches with the database with 100 percent accuracy. This is a Real-Time System which captures a person's images live using a webcam. In this project there is still some work remaining to do. Our future work is to implement

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Iris Recognition in this system which will make this system more appropriate for security of some confidential data or recognition purpose too. The importance of face recognition and its numerous applications, algorithms, methods, face databases are discussed.

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Restaurant Booking Website

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Abstract: *The system is implemented to reduce the manual work and enhances the accuracy of work in a restaurant. This system manages and maintains the record of customers and their order online. This Website has been made in a user-friendly interface. So that Customer can add and delete the food items easily. The menu card of different restaurant consists of various food varieties available in the restaurant. Through the place ordering menu, the customer can simply click and order the food. The messaging module tells the supplier to supply the particular food. Also tracking module track the order. The billing system prepares the bill according to the delivered food. This system entirely reduces the unnecessarytime. Every order is associated with an individual seat at the table, and orders are built one customer at a time, just like on paper, but with greater accuracy. Items can also easily be shared by the whole table, moved or modified, and noted and the cost can be calculated in real time*

Keywords: Restaurant Booking

I. INTRODUCTION

Over the years, technology has tremendously revolutionized the restaurant industry. Much of the innovation has been with point-of-sale (POS) operations. There is a famous saying that "People eat with their eyes". The e-Menu provides additional information about menu items and drinks than a traditional paper menu. The simplicity and ease of access of a menu are the main things that facilitate ordering food in a restaurant. The service goes quicker. Restaurants can build their e-reputation and customer community in live. The restaurant menu has evolved from its humble beginnings on carte chalkboards and imageless print to today's detailed, colorful displays. With the emergence of digital tablets and user-friendly touch screen technology menus can move to a whole new surface. With this electronic menu, orders can be taken correctly the first time. There is no need to run back and forth to a distant terminal, because the terminal is always with the server. Every order is associated with an individual seatat the table, and orders are built one customer at a time, just like on paper, but with greater accuracy. Items can also easily be shared by the whole table, moved or modified, and noted and the cost can be calculated in real time. The Recommendation algorithm suggests dishes to the patrons based on previous orders. It makes it easier for the customer to build his/her order and also view the most popular dishes. Moreover, various dimension filters can be used according to individual preferences eg. Price, taste, quantity,etc.

The project is developing because; many restaurants have a lot difficult to manage the business such as customer ordering and reservation table. If the customer book an order and later wants to cancel the order, he is permitted to do this only within a specific time period. By using manual customer ordering it is difficult for the waiter to keep the correct customer information and may lose the customer information. The customer is also given the facility to view the status of the order to determine if it is ready Restaurant Booking website is the system for manage the restaurant business. After successful login the customer can access the menu page with the items listed according to the desired time. The main point of developing this system is to help restaurant administrator manage the restaurant Website and help customer for online ordering and reserve table. In proposed system user can search for a menu according to hischoice i.e. according to price range and category of food andlater he can order a meal.

1.1 User Based Problem

Nowadays, many restaurants manage their business by manual especially take customer ordering. . In traditional booking system, a customer has to go to restaurant or makea phone call in order to get his meal reserved. Today,

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restaurant waiter takes the customer ordering by manual system with using paper. Customer does some formal conversation like hello, hi, etc. Than he demands for today's menu and do some discussion over menu items then he orders. It takes 5 to 10 minutes to book the order and waiter book the order on paper so there is probability of lost and duplication of customer information. Restaurant Booking Website puts the order in a queue with specific priority according to time and quantity, and then a cook is assigned for the specific order to complete Besides, the restaurant waiter information also by manual system kept use paper and this is difficult for restaurant administrator to find waiter information, probability missing the paper and difficult to arrange the schedule. Initial problem is that the customer has to get connected over the phone; it would be harder if the restaurant is very popular and busy. Sometimes, waiter information and customer information is important to restaurant administrator for reference in the future. The chances of committing mistakes at the restaurant side in providing a menu list fora specific time would be more.

II. REVIEW OF LITERATURE

The perspectives of organizational, marketing and strategic management theories provide a reliable theoretical groundwork to understand the important managerial aspects of menu. For instance, organization theory explicitly emphasizes the influence of external environment both on the decisions of firm managers and the survival of firms on the long run. More specifically, external environment is one of the central themes of organization theory and the relevantstudies (Duncan, 1972, Jurkovich, 1974, Dess and Beard, 1984, Ashill and Jobber, 1999) primarily propose that managers essentially consider the influential external factors that create uncertainty, diversity and volatility while makingtheir decisions. Planning and operating menus in a restaurant context involve considering external factors such as customers, rivals, and vendors that have a great potential in creating uncertainty, diversity and volatility in the restaurants' immediate business environment.Complementing this view, marketing theory recognizes the importance of identifying the needs and expectations of customers, and developing and improving products and service perfectly fit to those needs and expectations. Additionally, pricing, promoting and distributing the products and services should also be consistent with the customers' needs and expectations on the one hand, and with the firm's objectives on the other hand. Thus, in the it. restaurant context, it is imperative that menu as the food and beverage combinations offered by a restaurant reflects the expectations and needs of customers. Moreover, managing menus involves planning, pricing, designing, distributing and promotional decisions which are also the main issues of marketing. Strategic management is another promising theoretical perspective that helps us understand the importance of menu and its associated managerial activities with reference to competitiveness of restaurants. Indeed, creating and sustaining a competitive advantage is the main focus of strategic management discipline

More specifically, strategic management principally investigates the phenomenon of sustainable competitive advantage as a source of performance differences among business firms (Nerur et al., 2008). Following this argument, it is plausible to consider the role of menu in creating sustainable competitive advantage for restaurants. In particular, offering a unique meal experience and assuring customer satisfaction are the main sources of competitive advantage for a restaurant. As one of the important components of meal experience, menu deserves a special attention to understand how a restaurant firm can achieve its strategic goals, can create a sustainable competitive advantage, can satisfy its customers and canoutperform the rivals. Strategic management literaturecurrently encompasses a wide range of strategic management schools posing different strategy definitionsand processes (Sarvan et al., 2003). As a result, there are various understandings of the meaning of strategy

For example, if the strategy is low cost leadership, thendecisions on planning, pricing and designing menu reflect the strategy through selecting low cost menu items, pricing menu items at a lower price than rivals, and attractively presenting menu items with low prices on menu card, whichprobably result in customers' perceptions of a satisfactory meal experience with a reasonable quality. Conversely, when a differentiation strategy is chosen, a restaurant manager is expected to be attentive to (i) selecting or innovating unique menu items, (ii) setting higher prices withan expectation that customers are willing to pay premiumfor a differentiated product, and (iii) heavily concentrating on attractively presenting unique items on menu card to create a positive image of a unique meal experience. Thus, all managerial decisions with reference to planning, pricing and designing menus are the reflections of the chosen strategy such as low cost leadership or differentiation.

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III. METHODOLOGY

A method of managing a restaurant with a computerized system for restaurant booking website, the computerized system for restaurant booking website comprising: an order input interface for obtaining food order data; a service input interface for obtaining point-of-sale service data; a task completion input device, the task completion input device having a human readable display and an input interface capable of receiving an input from a human indicating completion of restaurant tasks, the input device having program code capable of indicating a task to be completed on the human readable display and program code for generating restaurant task completion data; a computer system connected to the order input interface and the service input interface, the computer system capable of receiving food order data from the order input interface, point-of-sale service data from the service input interface and restaurant task completion data from the task completion input device, the computer system having computer program code capable of generating restaurant performance data based on data selected from the food order data, point-of-sale service data, and restaurant task completion data; a first computer program code operable by the computer system and capable of transforming the restaurant performance data, task completion data and past restaurant staffing data into metrics; a second computer program code operable by the computer system and capable of providing a report summarizing restaurant staffing, metrics and targets for metrics, the metrics including service times, and equipment maintenance or food safety metrics, the method comprising: obtaining:

- food order data from the order input interface;
- point-of-sale service data from the service inputinterface;
- restaurant staffing data; and optionally
- the task completion data from the task completion inputdevice

the computer system receiving data composed of the food order data, the point-of-sale service data and the optional task completion data; transforming the food order data, the point-of-sale service data and the optional task completion data into metrics with the first computerprogram code; producing a report by the first computer or another computer, the report summarizing past restaurant staffing data, metrics and targets for metrics, the metrics including service times, and equipment maintenance or foodsafety metrics, the service time metric based on the time from a customer placing a food order to presentment of the food order to the customer or from a customer payment to presentment of the food order to the customer during the past in-restaurant staffing data;

IV. DESIGN

This chapter aim to present my design of the Restaurant Booking Website .Each design decision will be presented and rationalized ,and enough detail will be given to allow the reader to examine each element in its entirety Proposed System

V. EXISTING SYSTEM

The current system is paper based. Papers are used in restaurants for displaying the traditional menu cards, writing down the orders of customers, storing the records of customers. The disadvantages of paper-based system are that papers can get easily damaged by stain marks; they can be lost due to fire or accidents or can get lost in general. Hence, time and money is wasted. As traditional menu cards are paper based, any changes that need to be made in the menu will require reprinting of theentire menu card, leading to wastage. For small changes, reprinting the entire menu card is impossible. Changes in the menu card cannot be made dynamically. It is inefficient to access a particular record from the stack of papers. This system is time consuming. One has to call a waiter number of times till he notices it, and wait for him to arrive at their table to take their order.

Also the waiter can misinterpret the customer's order since he is writing the order on paper, and the case of serving a wrong dish is possible.

VI. PROPOSED SYSTEM

A tablet menu significantly transforms the eating experience for the customer. There are now system that allow restaurant tofeed their menus into iOS and website to making it simpler forcustomer to flip, swipe, and tap through the menu. Our goal is to provide restaurants with tablet menus with enhanced menu displays using Android phones that

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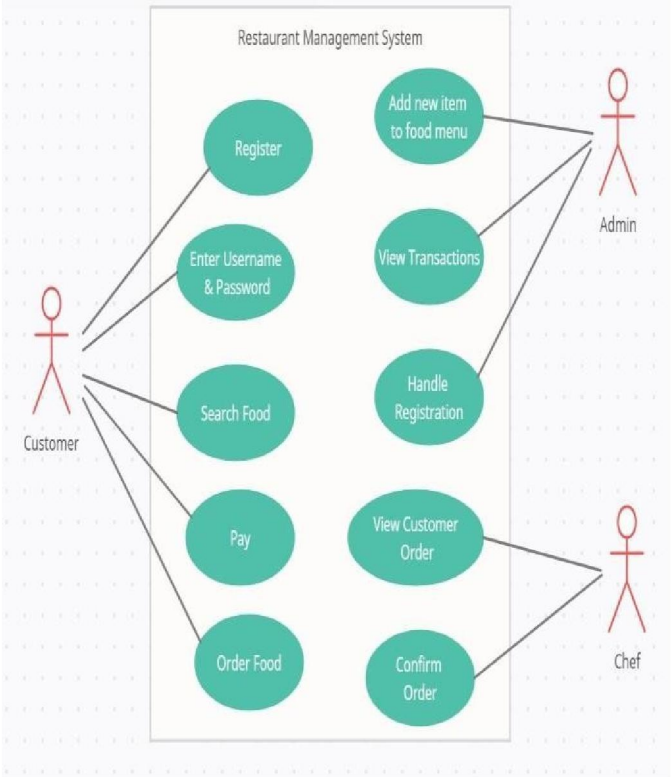
suggest dishes based on an algorithm. In addition, we use an Android tablet rather than an iOS tablet, which is a more expensive option, to run the software. The database is cheap and secure to store because we use a cloud-based server. Customers who sit at tables equipped with tablets, according to developers of related applications, spend 10% more than those at other tables ("people buy more when they can do so instantly, without waiting for service"). The following modules make up the proposed system.

- Module 1: Login Module In login module the customerand restaurants login will be taken while they already registered on the application. Every manager/user will have login id and password to login to the application.
- Module 2: Registration Module This module is displayed to the visitors if they need to perform some order placements, and new registration for restaurantswho wants to do business with us on our online restaurant booking website.
- Module 3:Add/Update/remove Menu This module is Admin have rights to insert, update (modify) and delete the data in database as per his/her necessaryrequirements.
- Module 4:Account Management Module There will be an account manager who will manage all the online order transaction and he/she will be responsible for issuing printed copy of customers payment receipts
- Module 5: Station Tracking Module This module describes the current location of any particular area over the usage of internet connectivity and GPS. This module is useful to find the location of order placed and for estimated time delivery.
- Module 6: Place Order Module The activity is performed by customer itself whose registration is already done. Once the verification is done by application, the order gets confirmed and delivery will be given to the dedicated customers address.
- Module 7: Carting Module This is additional feature given to add the food items in customer's virtual basket just like pending orders or the orders which customer wants to do later. But, if the customer is first time visiting then he/she will unable to place order until he/she do registration to our application.

Use case diagram of Restaurant Booking Website:



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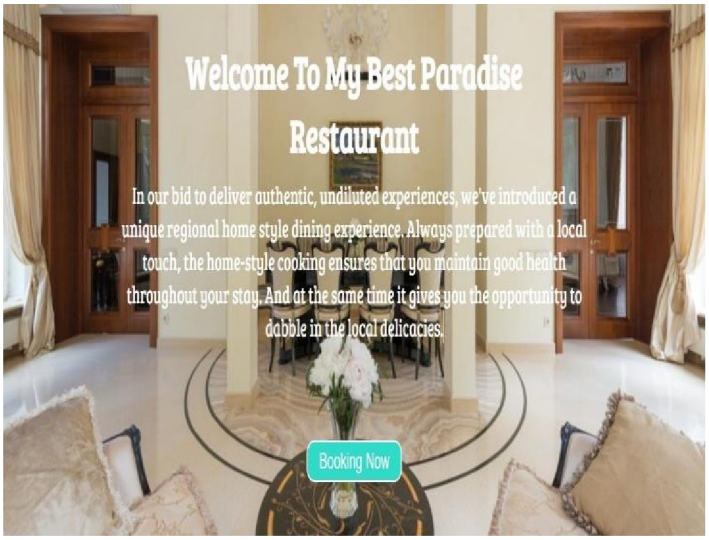
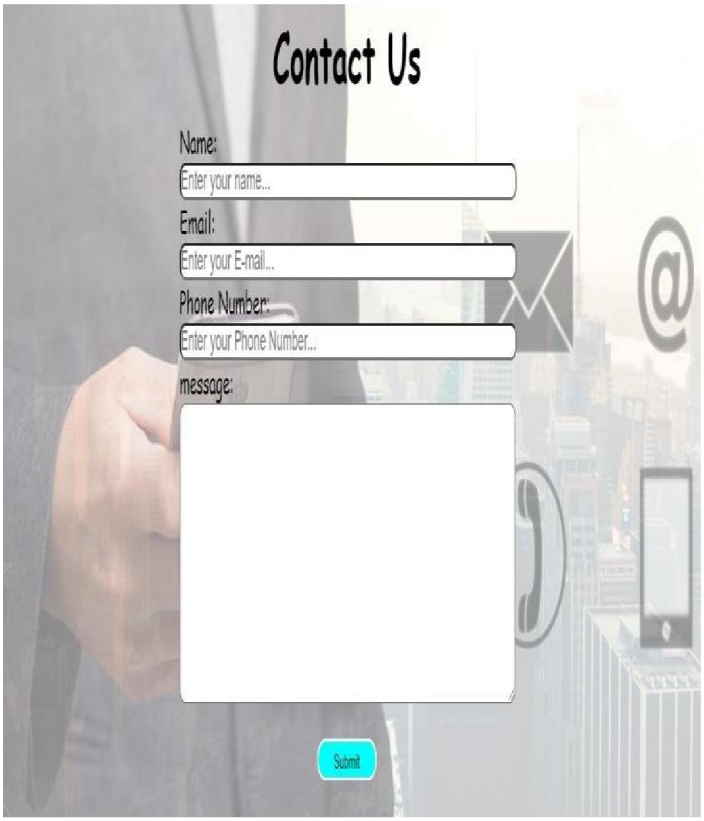
VII. RESULT



User panel:



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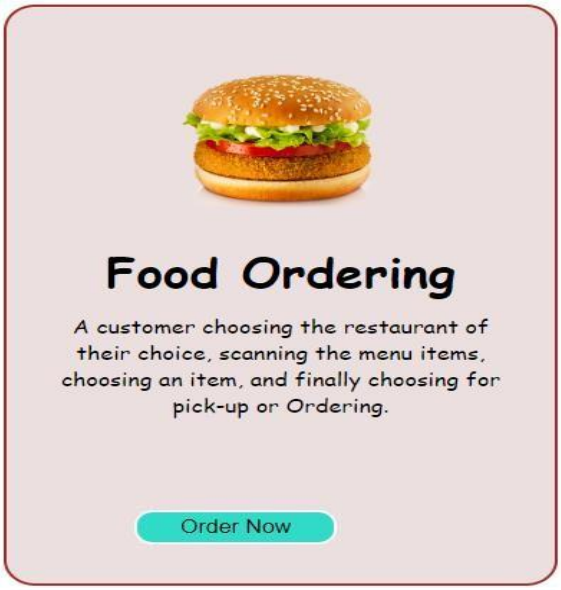

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Admin Module

ADVANTAGES:

- Improve website design and navigation based on user behavior analysis
- Identify effective revenue strategies for sustained profitability
- Use positive research outcomes for marketing and building customer trust
- Stay updated with market trends for maintaining competitiveness
- Guide strategic decisions based on data-driven insights from research

DISADVANTAGES:

- Rapid technological advancements make research quickly outdated.
- Ethical concerns about user data privacy and consent for research purposes.
- Restaurant industry fluctuations make long-term predictions challenging.
- Research demands significant time, effort, and resources for comprehensive analysis
- Legal and regulatory constraints related to data usage and analysis

VIII. CONCLUSION

Here the need for tablet food ordering is analyzed and its advantages over the traditional food ordering system in restaurants are studied. The proposed online restaurant booking website is time saving and error free as compared to the traditional system. This system attracts customers and also adds the efficiency of maintaining the restaurant's ordering and billing. Hence it is the modern way to grow up the business using E-commerce. Here implementation of an advanced e-restaurant menu ordering system using website. This system entirely reduces the unnecessary time. Every order is associated with an individual seat at the table, and orders are built one customer at a time, just like on paper, but with greater accuracy. Items can also easily be shared by the whole table, moved or modified, and noted and the cost can be calculated in real time. The idea of the advanced e-restaurant can also be extended for future using GPRS module. GPRS module can be used to monitor and request of the menu order from table will be directly sent to the predefined web link for process of even billing the items purchased.

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Human Activity Recognition

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Abstract: *The topic of Human activity recognition (HAR) is a prominent research area topic in the field of computer vision and image processing area. It has enabled state-of-the- art applications in multiple sectors, such as surveillance, digital entertainment, and medical healthcare. Studying and predicting these movements can be interesting and intriguing, and several sensor-based approaches have also been introduced. +predict human activities such accelerometer, gyroscope, etc., This paper develops an intelligent system for recognizing human activities using convolution, which has its own advantages and disadvantages. (3D) Kernels are taught using the Kinetics data set, which has 400 classes that depict humans' daily activities and work, and consists of four.. This model uses the RESNET-34 3D CNN model, and the videos are only around a tenth of a second in length.. The model that was trained performed satisfactorily during all stages of training and testing*

Keywords: Human activity recognition

I. INTRODUCTION

The topic which has increased its importance in last few decades in the domain of Computer Vision and A.I. is “Human Activity Recognition”. As the concepts of the human activity recognition helps in understanding the concepts and issues of the human action understanding which majorly helps in medication, management, learning patterns and many situations of video retrievals.

The Human Activity Recognition Systems (HAR) is capable of recognizing physical activities like running, playing, sleeping, eating and many such activities. The detection of the physical activities by different such sensors and recognition process is a key topic of research in wireless, smartphones and mobile computing. Human Activity recognition Systems is able to perform different tasks and recognize the multi day to day actions performed by humans which can be either simple activities like sleeping or the complex activities like running and eating.

For the purpose of activity recognition of human’s different actions, multiple types of sensors and devices are required like video sensors, environmental activities sensors, body inertia sensors and many other sensors like these which record or sense the human actions.

There are many other sensors used by the HAR systems but with the limited availability of use due to the effect of outdoor environments and activities on them like GPS receiver which is limited to outdoor environments. Thus in this research paper we are trying to implement Human Activity Recognition through resnet-34 algo which is an artificial neural network (ANN) type algo which is based on the constructs of the basic things known from the pyramidal cells of the cerebral cortex. The ResNet algos specifically ResNet-34 do the process of this by the usage of skip connections and the process of jumping over some layers in the different neural networks. The general ResNet Algo and specifically the ResNet 34 algo are basically implemented with two and it’s three layer skip which generally contains the nonlinearities (ReLU) and the batch normalization for the usage in the residue neural network techniques.[1] The skip weights can be recalled by the usage of an additional weight matrix which are known as the HighWayNets term.[2] In ResNet the procedure followed by the models with multiple levels of parallel levels skips are referred as DenseNets.[3] As they are using skipping of multiple neural network layers

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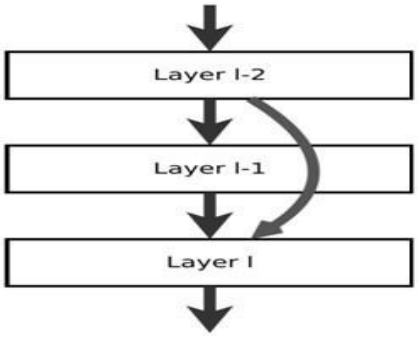
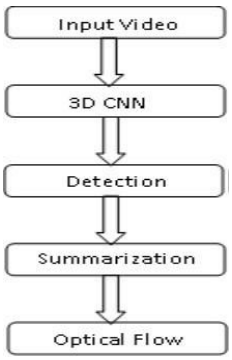


Fig.1 Skipping of Different levels in ResNet

Thus, only the weights of the adjacent layer areadapted with no link to upper layers of the neural network.[6] The best use of ResNet can be taken from it when a singlelayer is over stepped that is when all the linear layers are used as the intermediate layers and if we are not capable of doing this a particular weight matrix should bemade for the all skipped connections that is not the DenseNet should not be used rather HighwayNet should be taken in use. The procedure of skipping multiple layers in ResNet in an effective manner helps us in the simplification of the network by the use of fewer layers in the initial training stages. The learning phase gets speed up as we reduce the impact of the gradients due to the fewer layers for the propagation procedure. The skipped layers are gradually reconstructed via the

II. METHEDOLOGY

Implementation involves two major processes that are training and recognition. To proceed with the training process, we have to pick a temporal spot in a film to generate training samples using sampling.[4]A sixteen frame film is produced about the selected temporal position. We loop around the video until necessary if the video clip selected is smaller than sixteen frames. Next, we will choosea spatial position and spatial scale accordingly as per necessary. The samples are also spatially resized to 112 X 112 pixels. While training the model that is Resnet-34 from scratch the learning rate at the beginning was set to 0.1 and later reduced by a factor of 0.1 after the saturation of validation loss.[5] Then comes the recognition part where the loop begins over the frames where we first initialize the batch of frames that will be passed to the neural net. From there we will populate the batch of frames from the stream of video and resize them to a width of 400 pixels and maintain the aspect ratios.[7] The reason here is that we're building a batch of multiple images to be passed through the human activity recognition network, enabling it to take advantage of spatiotemporal information. Dataset used to train the model is the Kinetics human action video dataset. The dataset contains 400 classes of human activities, with 400 and more films for each and every action. Each film lasts around tenth of a second and is extracted from a different YouTube clip.[8] The actions are human centric and cover a wide range of classes including human-object interactions such as riding skateboard, cooking, smoking, reading book, reading newspaper ,as well as human-human interactions such as hand shaking, hugging etc.[9]



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III. RESULT AND DISCUSSION

The trained model gave an accuracy of 79% on the kinetic dataset. We observed that the accuracy was very high for activities like running, standing, etc. but it was reduced considerably for activities like cooking, doing yoga, etc., since there are several ways of performing these activities. For further improvement of results, we can amore detailed dataset which separates the different yoga asanas into different labels. We observe that datasets with more detailed class labels give better results. So, instead of using the broad term cooking, splitting the class into different labels like cooking rice, boiling water, etc.

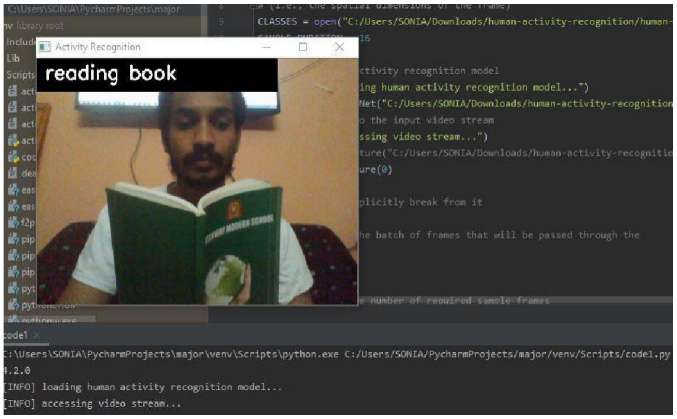

Fig.2 Demonstration Of Activity(Reading Book)

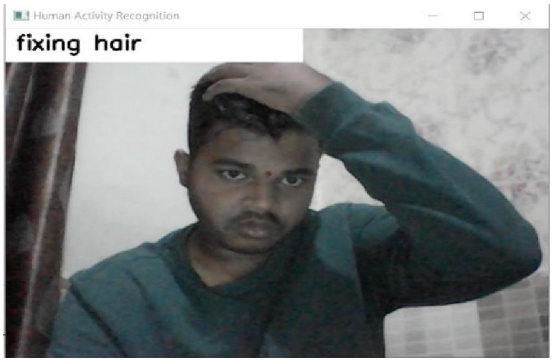

Fig.3 Fixing hair

Fig.4 Reading newspaper

The dataset contains a single activity in each entry, examples like 2 people in the same frame performing different activities were not considered. For such entries, first performing some video processing to determine personof interest in the frame and then using the model to determine different activities will be sufficient.

IV. CONCLUSION

In this paper Human Activity Recognition System, weproposed a model trained using Convolutional neural network (CNN) with spatiotemporal three-dimensional kernels on Kinetic data set to recognize almost 400 human activities with

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satisfactory accuracy level. The designed system can be used to automatically categorizing a dataset of videos on disk, training and monitoring a new employee to correctly perform a task, verify food worker services, monitoring bar/restaurants patrons and ensuring they are well served. For future work, we can use a dataset coveringmore than 400 activities to make the system more versatile.It is also observed that increasing the number of samples foran activity in the dataset improves the performance of the system significantly

V. ACKNOWLEDGMENT

We the team members of the research project sincerely want to thank our guide Assistant Professor Ms. Shikha our supervisor and the reputed Electronics andCommunication Department of Delhi TechnologicalUniversity, Delhi, India for their helpful and motivating encouragement and the must needed support for the completion of this project work by providing the golden opportunity in the form of Major Project.

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E-Commerce Website

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Abstract: *In the modern era, as technologies are getting advance, the work related to them are also getting advance. Today's business is totally dependent on the internet and to run a business we need the help of the internet so that it can grow at bulkier expanse. Everyday humongous amount of data and personal information has been transmitted and retrieved. With the brisk development of internet technology in contemporary years, online business is gradually rampant. Web users are very demanding and they foresee web services to be easily and quickly accessible from other places around the world all the time, whenever they need it.*

Web users always need quick and rapid responses. With the broadening trend of the internet, it turns out to be an essential part of our life. Website development is a process that takes time and if done by the basic language it takes more time which is not compatible with this fast and developing world of technologies. So to overcome these problems related to web development frameworks are developed. Frameworks are used so that we can create websites conveniently. This system generalizes the concept of e-commerce website with a framework. What parameters we have to look upon so that we can prepare a website without any Hassel.

This system also concludes what advantages did PHP framework had on other frameworks, and how it is different to work on Framework. Electronic commerce as the name suggests electronic means through digital instruments or through the World Wide Web and commerce suggest the business so it combined means business through the World Wide Web which is on gravitate. Frameworks are on go, as there is no need to write whole code.

Keywords: PHP, electronic-commerce, PHP frameworks, My SQL Database, CSS

I. INTRODUCTION

Computer plays an important role in our daily life. Anything we want we can get only in one mouse click. Speed, reliability and accuracy of the computer make it a powerful tool for different purposes. A very important and basic need of today's modern business world is the quick availability and processing of information using computer. One can easily get the type of required information within a fraction of a second.

The project that I have taken is also in this category which is used in our daily life whenever we want to purchase some items we can easily get them at our home. E-commerce (electronic commerce) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer or consumer-to-business. The terms e-commerce and e-business are often used interchangeably. The term e-tail is also sometimes used in reference to the transactional processes for online shopping.

II. REVIEW OFLITERATURE

Keyword search on E-Commerce adoption in India e-business in India E-Commerce and India‖ and e-business and India‖ in various databases like EBSCO, ProQuest, and Emerald Management Xtra found the following E-Commerce/e-business research articles done in Indian context. They give us ideas about work and ideas that various people explored during their research on different areas of Ecommerce.

Raven et al compared India and China's approaches in adoption of e-business. Based on the literature Survey and secondary data, the study analyzed various factors influencing the growth of businesses in the two countries. The factors examined include government policy and focus, existing efficient routing approach used here is Localized Power-Efficient Data Aggregation Protocols (LPEDAPs) which is robust and localized. This is based on powerful localized structure, local minimum spanning tree (LMST). The actual routing tree is constructed over this topology.

There is also a solution involved for route maintenance procedures that will be executed when a sensor node fails or a new node is added to the network. HTML consists of a series of short codes typed into a text-file by the site author —

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these are the tags. The text is then saved as a html file, and viewed through a browser, like Internet Explorer or Netscape Navigator. This is needed for layout of a web page.CSS: Stands for "Cascading Style Sheet." Cascading style sheets are used to format the layout of Web pages. JavaScript is a client-side scripting language, which means the source code is processed by the client's web browser rather than on the web server. This means JavaScript functions can run after a webpage has loaded without communicating with the server. JavaScript coding is also included in this project. Now that the theoretical foundations of the project have been laid, it's time to start putting them to work.

Neha Yadav, Dharmveer Singh Rajpoot Shri Krishna Dhakad, 978-1-7281-0899-5/19/$31.00 ©2019 IEEE. LARAVEL: A PHP Framework for E-Commerce Website 2019, this paper generalizes the concept of e-commerce website with a framework. What parameters we have to look upon so that we can prepare a website without any Hassel. This research paper also concludes what advantages did Laravel had on other frameworks, and how it is different to work on Framework. Electronic commerce as the name suggests electronic means through digital instruments or through the World Wide Web and commerce suggest the business so it combined means business through the World Wide Web which is on gravitate. LARAVEL is a free open source PHP framework. Frameworks are on go, as there is no need to write whole code.

Aaftab Aalam1, Shivansh Mishra2, Satyam Sharma3, Richa Gupta4 Study & Development of E-Commerce Website International Research Journal of Engineering and Technology (IRJET) May 2020 , This research paper provides insight into the development of e-commerce of website. While understanding the nitty gritties of its different aspects with special emphasis on B2C e-commerce. Which has shown tremendous growth in the recent years because of increased consumer awareness, investor trust and technological proliferation.

Elham Mohammed Thabit AbdAlameer1, Building and Developing E-commerce Website, Volume 3 Issue 9, September 2014, This document suggested to build and develop up full reliable website with IT solutions, online retail computer products (hardware and software) based on the theories and using the current technology. As a first stage was setting up online ecommerce store with easy-to-use. Then the second stage was to improve the customer experience.

Gaurav Jha, Anita R, "Ecommerce In PHP and MySQL (Online Shopping Store) "Department of Computer Science and Engineering SRM Institute of Science and Technology University, International Journal of Advanced Research Trends in Engineering and Technology (IJARTET) Vol. 5, Special Issue 1, January 2018, In this paper everyone is done from scratch and coded everything by hand, but this requires solid knowledge of HTML, PHP, MySQL, and other programming languages. To shorten the learning curve, one might want to invest in web design software like Adobe Dreamweaver or Microsoft expression Web but choice notepad++ as Text editor for project

Prof. More r.s., 2sneha mane, 3khuteja shaikh, 4jyoti mashal. 1Asst. Prof. Computer Science & Engineering, A.G.P.I.T., Solapur 2, 3,4Students, Computer Science & Engineering, A.G.P.I.T., Solapur ,NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING & TECHNOLOGY – NITET-18 16-17th March 2018 NOVATEUR PUBLICATIONS International Journal Of Innovations in Engineering Research And Technology [IJIERT], The project objective is to deliver the online shopping application. This project is an attempt to provide the advantages of online shopping to customers of a real shop. It helps buying the products in the shop anywhere through internet by using a web site.

III. SYSTEM ARCHITECTURE

3.1 System Overview

Our purpose in this project is to replace the existing manual searching of online products with an automated process. We want to develop a web-based search engine for different most popular e-commerce websites operating in India.

The proposed search engine takes the product name from the shopper and searches its availability on different e-commerce sites. It uses the Web Scrapping technique to extract the product details such as the Manufacturer, Price and Payment method, etc.

The search engine then consolidates this information and displays the result to the user. As a start, we are going to consider only 4 to 5 e- commerce which is to be included in the search.

Ecommerce system is a computerized, online solution to the various problems faced by the Product buyer and seller wishing to outsource their software development work to a Provider at an economical cost, thus achieving high performance, accuracy, reliability and high speed of data retrieval. In this system, there is a registration process each for

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the Product buyer and seller. The Administrator of the site verifies the Provider after his registration and if satisfied, assigns him a user name and password. Our site can be used by anyone who is searching for Products whether he/she is first time visiting our site. Our site also provides some discounted Products as same u get on any shop.
E-commerce website design is the method of shaping the coding, modules in HTML, CSS3, JavaScript and Bootstraps for designs, interfaces and information for a system to satisfy mere needs

3.2 System Module Description:

- Coding (PHP, HTML, CSS3, JavaScript, Bootstraps)
- Seller
- Customer
- Management
- Delivery

DATABASE

Database & Information Systems could be a database employed in a way of life, a database could be a collection of processed information associated with a selected subject or purpose. Allow us to consider an enterprise, like delivery agents, that features a great deal of k nowledge kept for long periods of your time in a very computer. This data might include information about passengers, locations, flights, airlines, and personnel, for instance. Typical relationships that may be represented include bookings, location (which passengers to which location?), and order (which order to which location?). These forms of data stored more or less permanently in a very computer is termed a database.

CUSTOMER

Customer features a wider choice not from his town or country but also around the globe unless there are import restrictions. Customized or personalized product and repair. for example if some lady wants a bra of actual size, her size are often measured through internet and stored and he or she are supplied bra of her requirement. In case of purchase, one isn't required to travel from store to store to determine the products to gather their details, prices etc. Sitting reception he gets all the desired information which too in no time without spending much time. There is absolute flexibility of your time, place and distance is not any hurdle; one can open the positioning any time day or night to urge details, there's no problem of shops/stores opening/closing hours. Websites are often opened any time. In physical sales place and distance is additionally a controversy which is not any problem in e-commerce because one can see sites everywhere the planet without moving out of the house. Goods are available at cheaper price because there are lot of economies of space, rent, interest to the vendor further, he manages with much lesser number of outlets and price of promoting is reduced. A part of these savings is passed on to consumers and so, he gets the products cheaper than from conventional shops/departmental stores, grocers etc. It helps to globalize retail trading. One should buy things without geographical boundaries.

MANAGEMENT

One of the more important themes that permeate this paper is that the incontrovertible fact that knowledge management is synonymous with change: adaptation and evolution. It's assumed that at the start the system operates on principles extracted from human experts that represent their view of the population of the potential customers. It also incorporates variety of theoretical laws that are proposed as high-level abstractions of the economic reality. One among these theories claims that it's almost impossible to make an accurate model of commerce (and therefore also e-commerce) reality based only on theory and knowledge extracted from human experts. The system should be adjusted to the cater to real-life customers, who may behave differently than the idea predicted. Additionally, because the time goes by, clients' interests and desires change because of their aging moreover as because of the changes within the environment (e.g. bell bottom jeans were popular once). To be ready to successfully add the constantly changing world, the system should be adaptive. Since knowledge management could be a process of continually adjusting knowledge through its application and thru collection of additional data and extracting knowledge from it and incorporating it into the system,

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with the goal to constantly improve the prevailing model(s) of reality and effectiveness of the operation of the system, its knowledge management that's the premise for system adaptively.

DELIVERY

Delivery demands of e-commerce world, where all sellers and delivery partners need functional, efficiently and extensive infrastructure. In additio n transport and logistics networks that combine new technologies, multimodal transport operations and compliance with trade rules. Barriers to the availability of international transport and logistics services do remain. These relate both to plug access – including limitations on operating in an exceedingly country; the necessity to partner with a domestic supplier; restrictions associated with foreign equity in transport services; restrictions on sabotage operations; domestic monopolies – and to the domestic regulatory environment .A more open environment could improve efficient access to global networks for home-grown small businesses. Competition between service suppliers can reduce prices and lift the standard of services offered. A facilitative regulatory environment can rapidly increase these trends and makes the business case for operating in smaller or more remote markets that way more appealing

PAYMENT SYSTEM

Payment is that the integral process within the mercantile process, electronic payment system is that the integral a part of electronic commerce. Thanks to the emergence of electronic commerce has created new financial needs through which new payment systems are created while traditional payment systems cannot be ready to fulfill its needs. As an example new payment systems are of the forms like auctions between individuals¿1/2s online leads to looking for new payment systems meaning peer to look payment methods that enables individuals to create payments through their emails. By recognizing these needs for all interested parties.

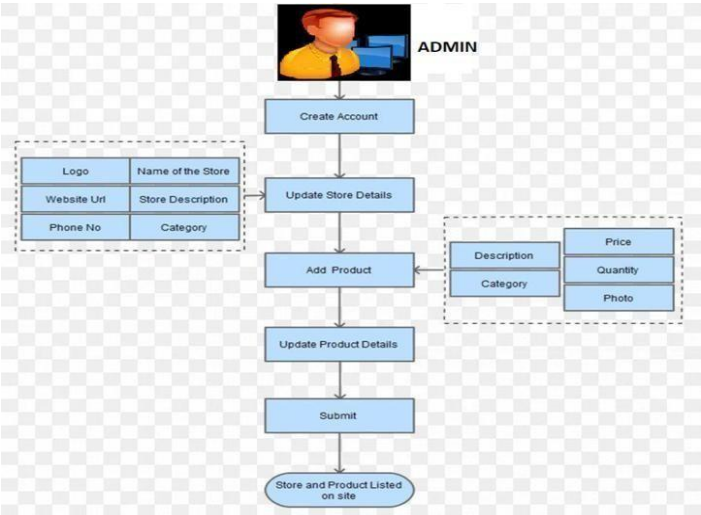

Figure 1: System Overview Admin Side

IV. METHODOLOGY & ALGORITHM

METHODOLOGY

The main purpose of this project is to reduce the manual work.

Functions: A Customer can browse through the shops and choose products to place in a virtual shopping cart. The shopping cart details can be viewed and items can be removed from the cart. To proceed with the purchase, the customer is prompted to login. Also, the customer can modify personal profile information (such as phone number and shipping address) stored by the application. The customer can also view the status of any previous orders, and cancel any order that has not been shipped yet.

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We have Following Main Modules Used In this Project

- Admin Panel
- Login/Sign Up
- Magnify product image
- Product Cart
- Google Captcha
- Checkout using PayPal
- Add, Edit, Remove and View Products
- User Management
- View daily/monthly sales

ALGORITHMIC STRATEGY

This E-commerce responsive website should prepare a development a security plan to insure information integrity to both parties (customer and vendor) by using the following techniques

Encryption: For protecting the data and to ensure the safe arrival, data converts into the code by the sender and then decoded by their receiver.

An encryption algorithm is the method used to transform data into cipher text. An algorithm will use the encryption key in order to alter the data in a predictable way, so that even though the encrypted data will appear random, it can be turned back into plaintext by using the decryption key.

Digital Signature: a digital signature is used to identify of Authenticates sender of the message and to check that don't occur any modify in the message, insure that the message in safe.

Trusted Third Parties: an authentication, confidentiality, integrity.

Network Security: prevent the entry of outsiders to the local network (LAN), and do not allow entering the prohibited data to local network.

TOOLS AND TECHNIQUES

Php

Hypertext Preprocessor (or simply PHP) is a server-side scripting language designed for Web development, but also used as a general-purpose programming language. It was originally created by Rasmus Lerdorf in 1994,] the PHP reference implementation is now produced by The PHP Group.

PHP originally stood for Personal Home Page, but it now stands for the recursive acronym PHP: Hypertext Preprocessor. PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications.

Xampp

XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform (X), Apache (A), Maria DB (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

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MySQL

MySQL Workbench is a unified visual tool for database architects, developers, and DBAs. MySQL Workbench provides data modeling, SQL development, and comprehensive administration tools for server configuration, user administration, backup, and much more. MySQL Workbench is available on Windows, Linux and Mac OS X.

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web.[4] Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document. HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items.

Bootstrap

Bootstrap is a free and open-source front-end framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many web frameworks, it concerns itself with front-end development only

Sublime text

Sublime Text is a proprietary cross-platform source code editor with a Python application programming interface (API). It natively supports many programming languages and markup languages, and functions can be added by users with plugins, typically community-built and maintained under free-software licenses.

Git hub

GitHub is a web-based hosting service for version control using Git. It is mostly used for computer code. It offers all of the distributed version control and source code management (SCM) functionality of Git as well as adding its own features. It provides access control and several collaboration features such as bug tracking, feature requests, task management, and wikis for every project. GitHub offers plans for both private repositories and free accounts which are commonly used to host open-source software projects.

Java Script

JavaScript often abbreviated as JS, is a high-level, interpreted programming language. It is a language which is also characterized as dynamic, weakly typed, prototype-based and multi-paradigm. Alongside HTML and CSS, JavaScript is one of the three core technologies of the World Wide Web. JavaScript enables interactive web pages and thus is an essential part of web applications. The vast majority of websites use it, and all major web browsers have a dedicated JavaScript engine to execute it.

Css

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate css file, and reduce complexity and repetition in the structural content.

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V. RESULT AND DISCUSSION

PHP Laravel framework is the most popular framework among all the PHP frameworks. A database is also an important part of any project database is the backbone of an e-commerce website as we store data in a database .A structured set of data stored is called data structure.

Laravel supports four databases-

- MySQL
- Postgres
- SQLite
- SOL Server

The query of the database can be used using raw SQL, fluent query builder and the Eloquent ORM. To connect the database we configure the database in the config/database.php file and create the database with structure in MySQL. According to this paper ,laravel has medium reusability score as compared to cake PHP and Codeigniter,In loading, data laravel performs well as compare to others . Laravel performs the best for Read/write files. In Laravel code generation is done CLI (code line interface) UI whereas, in codIgniter, Phalcon and Zend framework doesn't support CLI. Laravel supports Eloquent ORM and codeIgniter supports Active Record whereas Phalcon and zend don't support any ORM .

Cache storage of Laravel is far better than other frameworks. Dependency injection container is present with auto wiring in laravel but not in other frameworks. Command schedulers allow us to fluently define the command schedule. It provides a unified API across a variety of different queue back ends. Most importantly it allows us to transfer our database from one platform to another without any hustle.

It also includes a simple way to seed the database with seed classes. This feature of Laravel makes it different and efficient from other PHP frameworks. It is the most efficient Framework to work on.

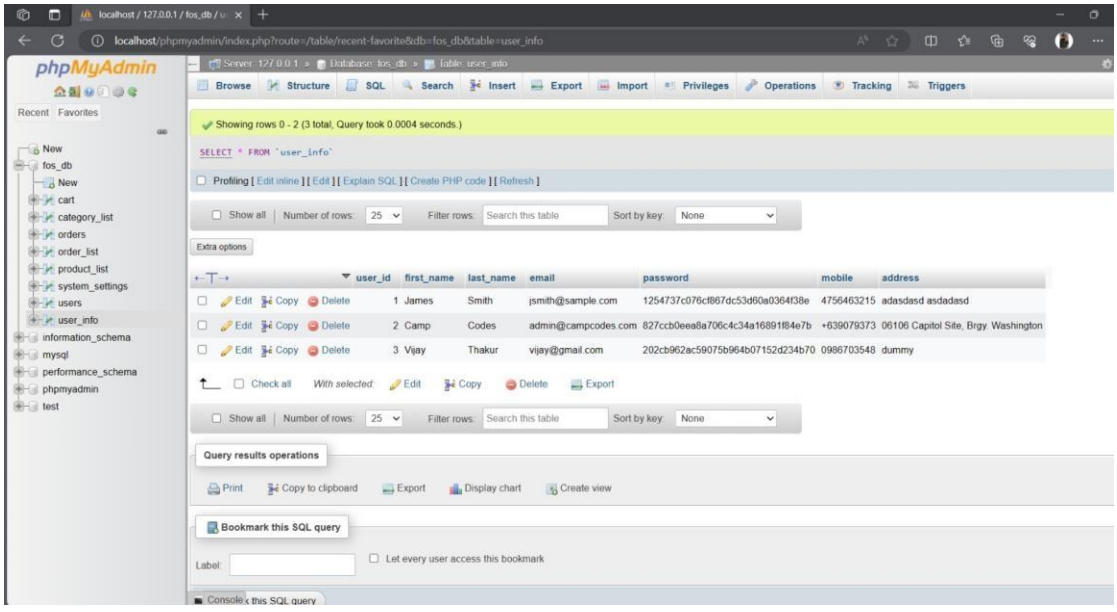
Laravel it is easy to make website as it doesn't required typing of code from scratch what we do in plain PHP. But in Laravel most of the work is done just we had to make changes according to our business requirement. But in the other framework like codeIgnitor there are not such inbuilt libraries to make our website more fruitful

Output And Screenshots

Home Page

Admin page

Product List



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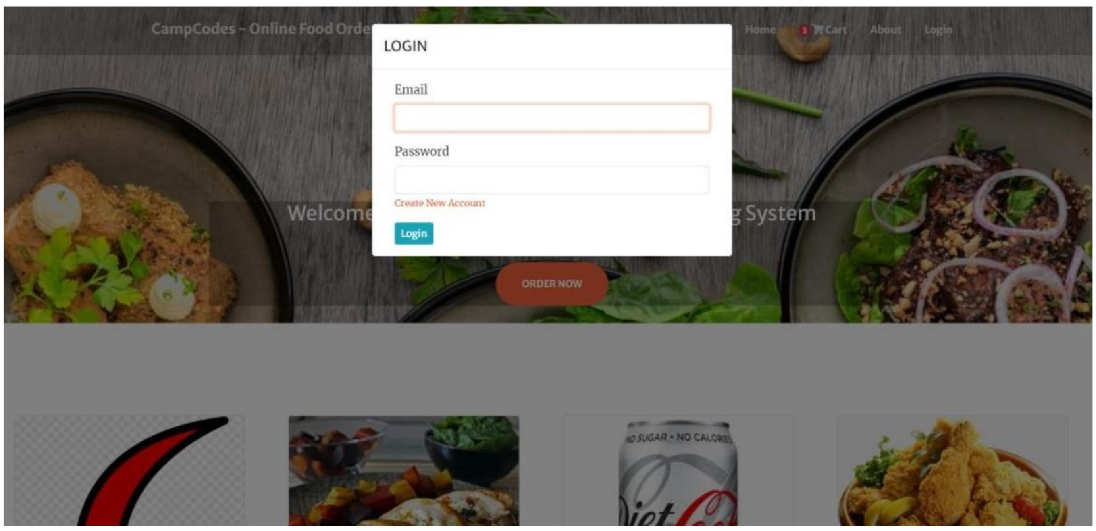

VI. BENEFITS

Faster buying process

Customers can spend less time shopping for what they want. They can easily browse through many items at a time and buy what they like. When online, customers can find items that are available in physical stores far away from them or not found in their locality.

Store and product listing creation

A product listing is what the customer sees when they search for an item. This is one advantage in ecommerce meant for the seller. This online business plus point is that you can personalize your product listing after creating them.

Cost reduction

One of the biggest advantages of ecommerce to business that keep sellers interested in online selling is cost reduction. Many sellers have to pay lots to maintain their physical store. They may need to pay extra upfront costs like rent, repairs, store design, inventory etc. In many cases, even after investing in services, stock, maintenance and workforce, sellers don't receive desired profits and ROI.

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Affordable advertising and marketing

Sellers don't have to spend a lot of money to promote their items. The world of ecommerce has several affordable, quick ways to market online. Ecommerce marketplaces are visual channels – and sellers can really show off their product.

Flexibility for customers

An important advantage of ecommerce to business is that sellers can provide flexibility to customers. One highlight is that the product and services are ready 24x7. The result is that seller can offer his item any place, any time.

VII. CONCLUSION & FUTURE SCOPE

To conclude the description about the project: The project, developed using PHP and MySQL is based on the requirement specification of the user and the analysis of the existing system, with flexibility for future enhancement. The expanded functionality of today's software requires an appropriate approach towards software development. This ecommerce software is designed E-commerce site project is developed using PHP, CSS, Bootstrap, and JavaScript.

Talking about the project, it has all the required essential features. This project has a user side where he/she can view product category and add products to cart and proceed for checkout whereas from administration side he/she can view sales, number of product, users, daily sales report, add product and categories. The user can also leave comments on each product if he/she wants. In this project, all the main functions are performed from the Admin side User Friendly.

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E-Commerce Website with Data Analysis and Power Bi

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Abstract: *E-commerce is booming in today's economic world. E-commerce is the term for online shopping. Electronic commerce (E-commerce) refers to the exchange of products and services, the transmission of money or data through an electronic network, most often the Internet .Electronic commerce (E-commerce) is a paradigm change that affects both marketers and the consumer customers. E-commerce is instead more than just a new tool to expand an already successful business. practices. It is driving a total transformation of the established business model. This important Globally, the number of businesses changing their business models is skyrocketing, and India is not an exception. Moreover The ecology is significantly impacted by e-commerce. Even though the model is heavily utilized in the current corporate environment, the choice has not been fully investigated. The goal of the current study is to characterize the current state of e-commerce and examine its tendencies. The study also looks at the important factors that E-commerce business models need to succeed.*

Keywords: E-commerce

I. INTRODUCTION

E-commerce is the term for online shopping. It refers to conducting business on the internet and through electronic media. E-commerce is the practice of conducting business utilizing the internet and information technologies such as Electronic Data Interchange (EDI). Ecommerce is the practice of trading goods or services directly with customers through a vendor's website on the Internet. The portal accepts payments through credit card, debit card, or EFT (Electronic fund transfer) and uses a digital shopping cart or digital shopping basket system.

According to C. Nisha and G. Sangeeta (2012), a more comprehensive definition of e-commerce is the use of digital information processing and electronic communications in business transactions to create, transform, and redefine relationships for value creation between or among organizations as well as between those organizations and individuals. Business-to-business (B2B), business-to-consumer (B2C), business-to-government (B2G), consumer-to-consumer (C2C), and mobile commerce (mcommerce) are the four primary categories of electronic commerce.

II. REVIEW OF LITERATURE

The internet, which now serves billions of users worldwide, has transformed into a virtual world in the twenty-first century. Inventing new things while expanding utilizing technology to change established practices Business encouraged us to establish a prosperous online store. Businesses are now adjusting to this and have built their websites that allow consumers to browse products and services, then purchase the goods and services using various methods (e.g., credit card, debit card, electronic check, PayPal) via the website payment gateway, and finally the businesses deliver the orders to the consumers' doorsteps.

There are numerous successful e-commerce business models, however the following are the most prevalent:

Business-to-Business (B2B): B2B refers to business-to-business transactions in which goods are sold to a temporary buyer. The B2B e-commerce model focuses on interactions between companies. This group includes almost 80% of all online sales. B2B transactions include those that take place between a manufacturer and a wholesaler or a wholesaler and a retailer.

Business-to-Consumer: In this paradigm, transactions are made directly between businesses and customers online. In the business-to-consumer (B2C) paradigm, businesses or organizations transact with clients for the purpose of providing goods or services online.

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Consumer-to-consumer :e-commerce is the one that is expanding the quickest. Businesses design and supply a platform for the product's promotion, and customers can purchase the product directly from the seller. Businesses create a setting where customers can transact directly with one another for the purposes of the C2C model.

Consumer-to-Business (C2B) Model: In a C2B model, consumers offer goods and services to businesses, which then buy the items. Businesses use the added value that consumers supply in the form of goods and services.Given that it is a single seller, multiple buyer system, this project is specifically designed for the B2C technique.

III. E-COMMERCE FACILITATORS

Internet: A massive internet penetration has added to growth of E-commerce. Internet and smart phones are becoming an integral part of every life. Internet is no more a source of information but has become an important tool for shopping, learning, communicating and even getting service from plumbers, carpenters, doctors etc. Supply chain is also becoming leaner and smarter as digital platforms are helping to better connect with the customers which significantly reduces the waste and supporting to green businesses. 3 Over the past 15 years the ICT revolution has driven global development in an unprecedented way. With an immense progress in technology, internet and its services have led to creation of new markets (D'silva et al., 2010).The number of internet users was low in the 1980s, growing gradually but steadily until 1994 due to an increase in text-based users (e.g., those using email and file transfer functions). Then, with the advent of the World Wide Web and subsequent expansion of multimedia content, the number of net users exploded, growing much more quickly than any other medium in history (Strauss et al., 2007).

The number of internet users in India increased from 10 million to 100 million after more than ten years, from 100 million to 200 million after three years, and from 300 million to 400 million after just one year. Internet usage is undoubtedly commonplace in India today. By June of this year, this figure is projected to increase further to 462 million as more individuals, particularly those using mobile devices, go online. Over 300 million people used the Internet in total in December 2014, and by October of that year, that number had increased to 375 million.

Payment Gateways: A payment gateway is an internet service that authorizes credit card payments for brick-and-mortar stores, online merchants, brick-and-mortar stores, and e-businesses. The payment methods, which include credit card, debit card, online banking payments, and electronic funds transfer, are the heart of online commerce. Payment gateways are necessary for future, sustainable e-commerce as the globe shifts from using cash to digital currency.

Analytics: Analytics is the disciplined process of turning data into knowledge to aid in decision-making. Analytics aids organizations in compiling, organizing, analyzing, and reporting on every action taken by their clients. Businesses now need to concentrate on analytics to understand client behavior due to the enormous rise in data volume. The channel mix must be optimized and return on online investments must be measured by e-tailor in real time. The fundamental analytics tools offered by e-commerce businesses, such as basket size analysis, average order value, and conversion ratio, are useful, but for practical customer insights, we need deeper analytics solutions.

Social Media

Social media is being used by businesses to sell their products and services more and more. Social media are websites and computer programs that enable users of computers and mobile devices to communicate and share information online.Social media has been quite effective at spreading information about different offers to clients and building brands. Receiving feedback on a product or service is another benefit. It offers a platform for creating a brand, running adverts, growing a network of reliable users, and word-of-mouth marketing, among other things.

IV. PROPOSED METHEDOLOGY

In India, the internet buying trend has reached about 70% of the population. Google trends and polls suggest that by 2025, it will have increased by 8%. Consequently, creating an e-commerce website is a lucrative business. During the pandemic, about 40% of the Indian populace has shifted to online commerce. We are attempting to find a solution to the issue of moving small-scale and retail offline enterprises online by using this as an opportunity. Our primary goal while developing a website is to incorporate some distinctive characteristics that will set it apart from the competition. Additionally, to make the UI & UX of the website simple, dynamic, and customer-facing For the delight of the customer, each product has many photographs taken from various perspectives. A new user can browse, search, sort,

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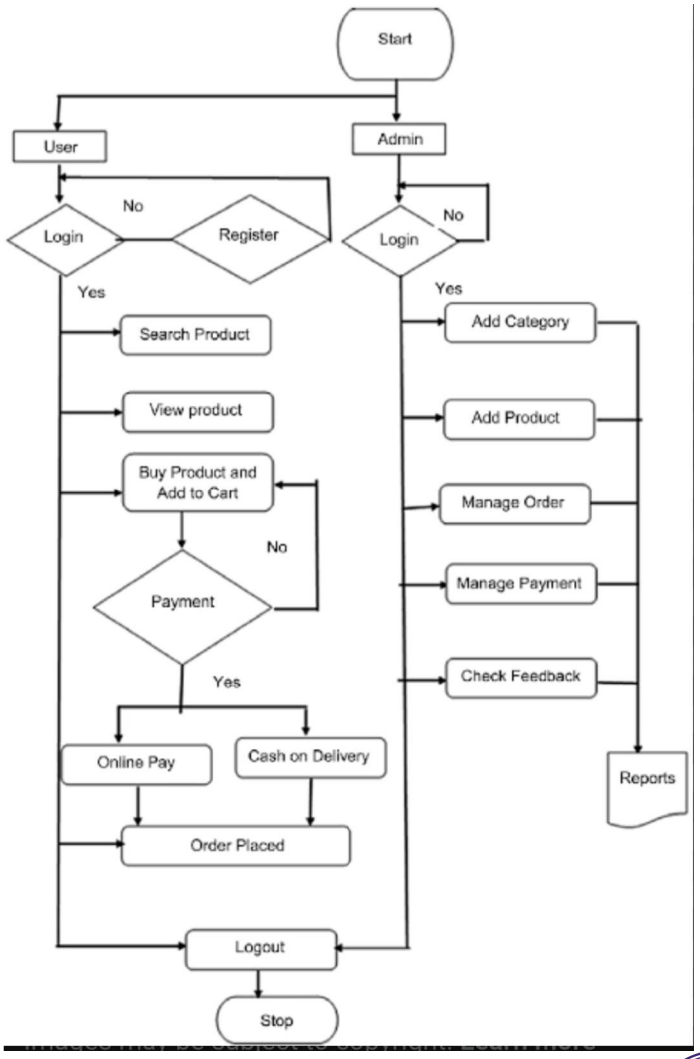
and filter the products on this website without logging in, but they must register in order to add items to their wish list and shopping cart for later use or to place an order. When a user checks out, our database will automatically authenticate and verify his credentials and offer all the information needed to provide the additional services, such as a phone number, delivery location, shipping costs, mail ID, etc. The user is then forwarded to a secure payment service gateway, where the transaction is completed. After the transaction is completed, the user will receive both an email and a message with information about the purchase invoice, order summary, and any additional updates pertaining to the order, such as the order id, delivery service provider number, live order location, etc. To verify that the goods is on the right track and to estimate the time of delivery, we have provided customers with a live order tracking page that shows the product's current location. A registered user has rapid access to the items in his cart list, which can be seen in a distinct column, each time he logs onto the website. It allows the customer to save time. Additionally, we are attempting to create a chatbot for our 24/7 customers.

The administration of the complete website may seem like a challenging undertaking. In light of this, we chose Firebase as our data base because it offers a very user-friendly interface. The entire website is accessible to the administrator for upcoming changes. He gets access to all features, including products, quantity, price, pictures, deals, and promo codes offered to customers. He has the ability to create new categories, goods, modify product stock levels, add deals, alter promocode expiration dates, and more. He can use the information supplied by customers to make modifications in response to their requirements and comments so that he can better serve them with offers and discounts.

V. FLOWCHART



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VI. CONCLUSION

If marketers want to succeed in this new business model, the research on e-commerce suggests a lot of factors that must be considered. The elements that need be prioritised and concentrated on in order for the e-commerce sector to succeed are Consistency in transaction processes, Web site design, MCommerce services, analysis, in-stock signals, and other aspects of transactions variety in products, location-based services, payment methods, appropriate content, and shipment option, legal requirement for online transactions to generate invoices, rapid service, and T&C should be realistic and clear, and the quality of the products should match what is depicted on the web.

Privacy is a crucial component of e-commerce that not only increases competitive advantage but clients' level of assurance. The studies also recommend 18 to 35 as the ideal customer age to regardless of gender, be promising and to be targeted for improved outcomes. Brands and marketers who want to reach their target customers may find social media to be a blessing. Luxury businesses have just discovered it, though, without spending a lot of money on traditional media. a challenge since purchasers are being drawn in by unlicensed merchants, and the majority of them give into the lure of Using websites like Facebook, Instagram, and others to obtain discounts of up to 50–70% WhatsApp and Twitter. Companies must pay for legal checks and actively manage such accounts.

VII. IMPLICATION FOR RESEARCHERS

Our work has a variety of chances for further research, both in terms of theory building and concept confirmation, due to its conceptual nature. In reality, more empirical study will be required to hone and further elaborate findings in the field of ecommerce.

The study opens the researchers' eyes, especially those who have a keen interest in e-commerce.

They will receive tips from this review article to help them better comprehend the important variables.

The modern E-commerce platform that is transforming the industry.

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Digital Dining System

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Abstract: *Our proposed system is an online food ordering system that enables ease for the customers. It overcomes the disadvantages of the traditional queuing system. Our proposed system is a medium to order online food hassle free from waiting for waiter to take the order This system improves the method of taking the order from customer. The online food ordering system sets up specific QR code on every table after scanning it the customers will have easy access for the food menu online and customers can easily place the order as per their wish. Also the food will be served to the specific table. This system also provides a feedback system in which user can rate the food items. Also, the proposed system can recommend food, based on the ratings given by the user, the working staff will be informed for the improvements along with the quality. The payment can be made online or pay-on-delivery system. For more secured ordering separate accounts are maintained for each user by providing them an ID and a password.*

Keywords: Automated Food Ordering System, Dynamic Database Management, Smart Phone

I. INTRODUCTION

When peoples go to the Cafe's/ Restaurants The online food ordering system sets up a food menu online and customers can easily place the order as per they like without waiting in the queues. Also with a food menu, online customers can easily track the orders. The management maintains customers database, so that the ordered food does not get delivered on the wrong table. The Cafe management systems motivates us to develop the system. There are various facilities provided so that the users of the system will get service effectively. Again, the idea comes that mostly mess users are person who don't wont to west time by waiting in the queue or waiting for the waiters to take their order. Increasing use of smart phones is also considered as a motivation, we use QR code on every tables in the store and every QR code is indifferent to that specific table, After Scanning that QR code the user will go directly to our Cafe's website. so that any users of this system get all service on single click. Another motivation can be considered as the system will be designed to avoid users doing fatal errors, users can change their own profile, users can provide feedback and recommendations and can give ratings, it will give appropriate feedback to Restaurants service providers.

The proposed system will provide the flexibility to the Customers/Users to order from either With the help of the waiters or order it by themselfs. It will also provide Recommendations to the customers from theCafe/restaurants owners uploaded on a daily basis. In the proposed system, there will be no limitation on the amount of order the customer wants. Also, same application can be used as a Startup Business for the developers. It will provide real time customers feedback and ratings along with the comments to the restaurants owner. It gives appropriate feedback to users, so if there is any error happened, then there will be a feedback dialog toward users.

The proposed system is designed to avoid users doing fatal errors and inappropriate action. Scope of proposed system is justificable because in large amount peoples wait for waiters or cafe's/ Restaurant staffs to take the food order, so wide range of people can make a use of proposed system. The system/interface will take input from the user. The major attributes that will give input to the dataset is the table number with the specific QR code where the customer scan and ordered the food. The additional data of the customer are: name, email-Id, mobile-no, etc. The output will include user/customer's Order, Bill, Feedback and Payment options if the customer select the Cash payment.

The reason why to choose this project is the idea behind project that is to solve problem of people which they are facing when they nned to wait for waiter or for the queue . The system is not only for user but also for provider who provides

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food service. This system is for making efficient communication between consumer and producer of the food system which will then leads to the ideal and effective system

II. PROBLEM STATEMENT

The online food ordering system sets up a food menu online and customers can easily place the order as per they like. Also, the customers can easily get their orders delivered on their table. The management maintains customer's database to not serve food on the wrong table, and improvefood serving service.

This system also provides a feedback system in which user can rate the food items. Also, the proposed system can recommend food, based on the ratings given by the user, the cooking staff will be informed for the improvements along with the quality. The payment can be made online or cash or pay- on-delivery system. For more secured ordering separate accounts are maintained for each user by providing them an IDand a password.

III. LITERATURE REVIEW

The current gadget is paper based. Papers are used in eating places for showing the traditional menu cards, writing down the orders of customers, storing the information of customers. The disadvantage paper- based gadget is that papers can get effortlessly damaged through stain marks, they can be lost dueto fireplace or accidents or can wander off in general. Hence, time and money is wasted. As conventional menu playing cards are paper based, any adjustments that need to be made in the menu will require reprinting of the complete menu card, main to wastage. For small adjustments, reprinting the entire menu card is impossible.

Changes in the menu card can't be made dynamically. It is inefficient to get right of entry to a particular document from the stack of papers. This system is time consuming. One has to call a waiter quantity of times till he notices it, and await him to arrive at their desk to take their order. Also, the waiter can misread the customer's order since he's writing the order on paper, and the case of serving a wrong dish is possible. The management of restaurants has advanced with time. Each waiter is assigned a collection of tables, and after taking ordersfor a table, the waiter enters the order (listing of meals, drinks ordered via the purchaser or a group of customers) into the machine at the PC.

In [1] there was an attempt to design and implementation of digital dining in restaurants using android technology. This system was a basic dynamic database utility system which fetches all information from a centralized database. Efficiencyand accuracy of restaurants as well as human errors were improved by this user-friendly application. Earlier drawbacks of automated food ordering systems were overcome by this system and it requires a onetime investment for gadgets.

In Paper [2], this research works on eff orts taken by restaurants owners also to adopt information and communication technologies such as PDA, wireless LAN, costly multi-touch screens etc. to enhance dining experience. This paper highlights some of the limitations ofthe conventional paper based and PDA-based food orderingsystem and proposed the low-cost touch screen based Restaurant Management System using an android Smartphoneor tablet as a solution.

In [3] research work aims to design and develop a wireless foodordering system in the restaurant. Technical operations of Wireless Ordering System (WOS) including systems architecture, function, limitations and recommendations were presented in this system. It was believed that with the increasing use of handheld device such as PDAs in restaurants, pervasive application will become an important tool for restaurants to improve the management aspect by minimizing human errors and by providing higher quality customer service.

In [4] along with customer feedback for a restaurant a design and execution of wireless food ordering system was carried out. It enables restaurant owners to setup the system in wireless environment and update menu presentations easily. Smart phone has been integrated in the customizable wireless food ordering system with real-time customer feedback implementation to facilitate real-time communication between restaurant owners and customers.

In Paper [5], the research work aims to automate the food ordering process in restaurant and also improve the dining experience of customers. Design implementation of food ordering system for restaurants were discuss in this paper. This system, implements wireless data access to servers. The android application on user's mobile will have all the menu details. Kitchen and cashier receives the order details from the customer mobile wirelessly. These order details are updated inthe central database. The restaurant owner can manage the menu modifications easily.

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DataSet

The dataset use for Digital Dining is the images of the different verity of dishes. For Cafes we use the images such as image ofan ice cream, Cakes, Coffee, Sandwich, etc

IV. PROPOSED METHODOLOGY

To overcome the limitations of above system, The Digital Dining System based on Dynamic Database is proposed. It uses the different QR code for different tables.

If a customers wont to order something then they need to scan the QR code with their smart phones, if the customer is sitting on the table no 7 is trying to order food with the help of QR code then after Scanning the QR code thet will lead the customer to the website where the Table number ofthe customers scaned QR code will be saved in the databaseand after the customer need to place an order on the website. The customer needs to select the foodsthat he needs to order and after selecting the order he need to select the mode of payment such as online mode or using cash.

After selecting the payment mode the customer needs to fillup the personal details such as name, mobile no and email id, etc. After making an order customer just need to wait forwaiter to serve their dishes.

The Provider or cooking staff will receive the order and startpreparing the food, The serving staff or waiter will deliver the food on the table number mention on the order, it also helps the serving staff to avoid misplacing the order on the wrong table.

This type of system helps to reduce the time consumtion ofboth customer and provider. And avoiding miss serving of the food.

The customers can also send the feedback of the food that they have ordered and also recommend that dish to the future customers, so that the future customer can see whichis the most recommended dish.

Architecture

To develop a system that will surely satisfy the customer service will be considered as an objective. One of the Objective is to design a system that is able to accommodatehuge amount of orders at a time and automatically compute the bill. To evaluate its performance and acceptability in terms of security, user-friendliness, accuracy and reliability is

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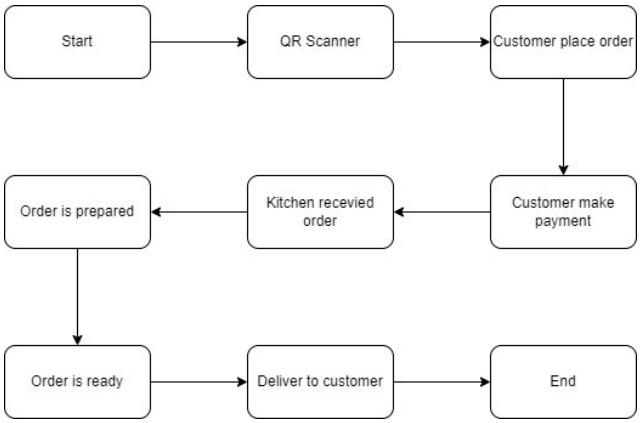
an important objective. To improve the communication between the client and customers is one ofthe objective. The figure.1 represents the simple system architecture of the proposed system: -

Fig.1: System Architecture



The architectural design consists of 3 main users: - Service Consumer, Owner of Restaurant, and Employee.
User can also search by food rating. The dish that has high rating is checked by user and if matched it will give the list of dishes. User can communicate to service provider with the help of message box and get notification from provider end if any.

V. CONCLUSION

Thus the need for tablet food ordering is analyzed and its advantages over the traditional food ordering system in restaurants are studied. It is concluded that the proposed tablet food ordering system is time saving and error free as compared to the traditional system.
Therefore, conclusion of the proposed system is based on user's need and is user centered. The system is developed in consideringall issues related to all user which are included in this system. Wide range of people can use this if they know how to operate android smart phone. Various issues related to Service will be solved by providing them a full- fledged system. Thus, implementation of Digital Dining system is done to help and solve one of the important problems of people.
Based on the result of this research, it can be concluded: It helps customer in making order easily; It gives information needed in making order to customer. The Food website application made forrestaurant can help in receiving orders and modifying its data and it is also made for admin so that it helps admin in controlling all the Food system.
With online food ordering system, a Cafe menu can be set up and the customers can easily place order. Also with a food menu online, it maintain customer's database and improve the food serving. The restaurants can even customize online restaurant menu and upload images easily. Having a restaurant menu on internet, potential customers can easily access it and place order at their convenience. Thus, an automated food ordering system is presented with features of feedback and wireless communication. The proposed system would attract customers and adds to the efficiency of maintaining the restaurant ordering and billing sections
Scope of the proposed system is justifiable because in large amount peoples wait for the waiters to take the order or wait in the queue for placing the order, so wide range of people can make a use of proposed system

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Price Comparison Website

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Abstract: *Mobile apps have evolved to be more useful for regular use in recent years. The goal of this project is to give users an easy way to compare product availability and costs on various e-commerce websites. Users can easily compare prices from numerous sources by simplyentering the product information into the programme. To compare the product information found on several websites side by side, the application's databases are then searched. In order to ensure that they never miss out on a great offer, customers can also receive push notificationswhen things become available or go on sale.*

Keywords: Price Comparison Website

I. INTRODUCTION

The growth of e-commerce has contributed to an increase in the use of price comparison websites, which provide customers with information and metrics to compare prices across various online retail outlets. These websites assist users in making wise purchase decisions, saving them time and money. It might be cumbersome and time- consuming to manually check the pricing of the same product across many internet retailers when comparing costs. There are many websites that compare prices, but none of them compare prices for things thatare on wish lists. We created a project calledthe Wish List Products Price Comparison Website to counteract this, which onlyevaluates the prices of goods the user intends to acquire. Customers can contrast this website's prices with those on other

II. LITERATURE SURVEY

"Price comparison websites have grown in significance in the current industry, boosting provider efficiency and competition whileassisting consumers. Consumers formerly had few options for doing product and service research, so they had to rely on printmedia like books, periodicals, and newspapers. However, the introduction of the internet has made it simpler for consumers to conduct product and service research online. Price comparison websites are a type of search technology that helps customers find products and services, assessalternative possibilities, and save money on search costs. Modern price comparison websites offer cutting-edge functions including cost calculation, internet crawling,and better user control. Costs, items, and other crucial data from third parties are gathered and combined.

III. PROPOSED SYSTEM

A computerised system is being suggested because the current system has discovered abnormalities. Only one entity, the user, willhave access to the suggested system. A wishlist product price comparison site is thesystem that compares the costs of the things that consumers are attempting to buy. The system's sophisticated capabilities enable price comparison between a variety of e- commerce websites and notify users when the cost of a specific item on their wish

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list changes. The ability to compare costs from multiple online stores in one place makes this website very handy for people who frequently shop online.
The programme will provide product prices from different merchants, allowing the user to determine the most reasonable price for the thing.

Limitations

- For the application to produce precise results, accurate data entry isnecessary.
- This application requires an internet connection in order to function properly.
- Users must input accurate information to avoid the application acting strangely.

Problem statement and drawback of current scenario

Problems

Users of this website will be able to additems they want to buy to their wish list. Thepricing of these products from numerous e- commerce websites will then be compared by the website and shown in one location forsimple comparison.
The website also features a sophisticatedfeature that alerts users if the price of acertain item on their wish list changes. Userswill find it simpler to stay informed about and take advantage of pricing changes as a result.
This technique will be highly useful to frequent online consumers who wish to compare costs from different online retailers in one location. Additionally, it will spare them the time and effort they would otherwise expend manually looking for the most affordable costs. This technique assistsconsumers in finding the most inexpensive pricing for their products by displaying the product prices from many stores.

Drawbacks

- People typically research pricesonline before making purchases.
- Online stores provide the same goods at different pricing points.
- Prior to now, shoppers had to manually compare costs across several websites.
- The technology sends notifications for price changes and compares prices from multiple e-commercewebsites.
- This technique is useful for frequent internet consumers who wish tocompare costs from numerous businesses in one location.
- The program presents data to users in an intuitive manner.
- The existing system has concerns with upkeep, accuracy, and usability.
- These problems are addressed by the suggested system. In this situation, be proactive and make plans properly.

IV. METHODOLOGY

Oral interviews, which can be utilized for both theoretical and practical research goals,are one approach that can be used to collectdata for study.
For instance, data may be gathered for management studies to conceive operational planning and change management methods using oral interviews.
To be effectively finished, all projects in the field of information systems must go through the System Development Life Cycle (SDLC)'s many stages. The Planning, Analysis, Design, and Implementation stages of the SDLC are what go into creating and delivering the finished system. Software is used to assess and reach pertinent conclusions in order to build the technique for a project.The SSADM is an illustration of a CDLC model in which analysts and users systematically complete each step, evaluating it before moving on to the next (Hevner, 2004)

V. IMPLEMENTATION

Following is how the proposed systemfunctions: The backend system makes advantage of the essential web crawling and scraping techniques. A technique for gathering data from the internet and displaying it on the target terminal is called web scraping. Web crawlers are responsible for locating the location, though, before scraping the content. The

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scraping process starts after they land on the correct page and locate the products. Web scraping essentially involves loading the needed webpage and parsing the HTML code to extract the relevant data. Python is utilized in this system since it offers a large number of libraries that can handle the scraping tasks.

Rely on "requests" to

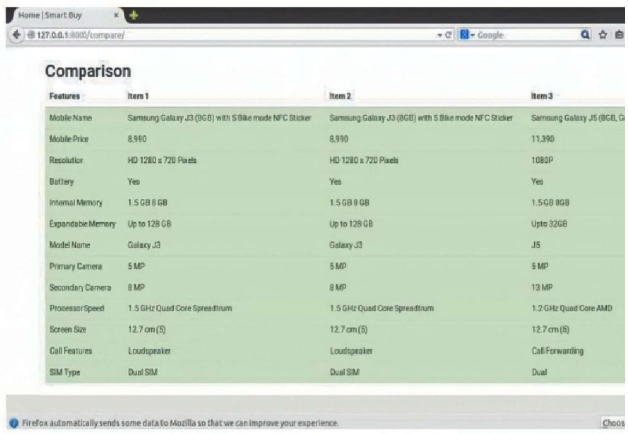

Image 3. User can compare 2 or 3 products

VI. CONCLUSION

Our team has finished creating the "ProductsPrice Comparison" system utilizing Python asthe programming languages. Our team had to put in a tremendous amount of work to create this system. We are pleased with theoutcome and think the users will be quite happy with it. We are, however, open to anyupcoming adjustments or improvementsbecause, as with any development effort, there is always potential for improvement. We learned a lot about the development industry through this initiative, and we hopeto use what we learned in the future.

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Trip4u : Responsive Tourism Website for Tour and Travel Management

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Abstract: *Website evaluation is a crucial aspect of the tourism industry, as it directly impacts tourist decision making. While previous research has extensively studied website evaluation in the fields of Information Systems and Tourism, few studies have combined these perspectives. This research evaluates the websites of the top ten tourist attracting nations based on a comprehensive set of criteria and five factors of website effectiveness. The data collected through a content analysis is analyzed using correspondence analysis and weighted mean scores.*

The findings of this study highlight areas where websites can improve to enhance their effectiveness. The two most important factors that websites need to focus on are Security and Responsiveness. Additionally, websites should incorporate features that support decision making at different stages of travel, thereby enhancing their effectiveness in attracting and assisting tourists.

Furthermore, the research explores the implications for tourism organizations in developing websites that create a compelling destination image and attract tourists from around the world. By adopting a tourist decision making perspective rather than solely focusing on technical aspects, this study contributes to the existing website evaluation approaches. A novel aspect of this research is the analysis of cross-national websites, which differs from previous studies that have primarily evaluated websites from a single country.

Keywords: development; travel; tourism; tourism industry; international tourism.

I. INTRODUCTION

Tourism is a rapidly growing industry that has gained immense popularity over the past few years. With advancements in technology and easy accessibility to information, more and more people are inclined to plan their vacations and travel adventures online. The emergence of tourism websites has revolutionized the way individuals plan their trips, making it easier and more convenient than ever before. These websites act as a virtual platform that provides comprehensive information and services, catering to the needs of tourism enthusiasts worldwide. The purpose of this research paper is to explore the effectiveness of tourism websites in tour and travel management. With the increasing reliance on technology, it is imperative to assess the impact of these websites in facilitating the planning and organization of tourism activities. This paper aims to analyze the various features and functionalities offered by tourism websites, evaluating their contribution towards enhancing the overall travel experience. In recent years, tourism websites have become an essential tool for both travelers and tour operators alike. For travelers, these websites offer a wealth of information regarding destinations, accommodation options, transportation facilities, and local attractions. They provide aninteractive platform where users can compare prices, read reviews, and make bookings according to their preferences and budget. Additionally, these websites often include travel guides, itineraries, and recommendations from experienced travelers, assisting individuals in making informed decisions about their trips. Tour operators and travel management companies also greatly benefit from tourism websites. They can use these platforms to showcase their services, promote their packages, and establish a wide customer base. By being present on prominent tourism websites, tour operators can increase their visibility and reach potential travelers from across the globe. Moreover, these websites enable tour operators to efficiently manage bookings, track customer preferences, and customize their offerings to meet the demands of the market. However, with the growing number of tourism websites, there arises a need to critically

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assess their performance and credibility. The abundance of information available online can sometimes be overwhelming and confusing, making it difficult for travelers to make the right choices. Therefore, it is essential to evaluate the accuracy, reliability, and authenticity of the content provided by these websites.
Additionally, the ease of navigation, user- friendliness, and responsiveness of these platforms should also be considered to ensure a seamless userexperience.

1.1 Objectives

The primary objectives of the Trip4u project are asfollows:
The primary objective of a tourism websiteis to provide a platform that showcases theunique features, attractions, and services offered by a tour and travel management company. It serves as a virtual gateway for potential tourists to explore destinations, find relevant information, and make informed decisions regarding their travel plans. A well-designed website should be visually appealing, easy to navigate, and contain detailed information about various tour packages, destinations, accommodations, and other related services offered.

Importance of a Tourism Website:-

- Information Dissemination: A tourism website acts as an informative resource for individuals seeking details about different destinations, attractions, and available tour packages. It should provide comprehensive information regarding visa requirements, local customs, weather conditions, local cuisines, and any special events happening in a particular region. This helps potential tourists plantheir trips accordingly and ensures that they have a memorable and hassle-free experience.
- Promoting and Selling Tour Packages: A tourismwebsite should highlight the unique selling points of the tour and travel management company. Itshould showcase the expertise and experience of thecompany in organizing tours to various destinations. The website should offer detailed descriptions, itineraries, and pricing options for different tour packages. This enables potential tourists to compare and choose the most suitable package that aligns with their preferences and budget.
- Enhancing User Experience: A well-designed tourism website should have a user-friendly interface to ensure a seamless browsing experience for visitors. It should be optimized for mobile devices to cater to the rising number ofusers accessing the internet through smartphones and tablets.The website should incorporate easy-to-use navigation menus, search options, and interactive maps to aid travelers in finding the desired information quickly. Moreover, incorporating high-quality images and videos can provide a virtual tour of the destinations, captivating the visitors and increasing their interest to explore further.
- Building Trust and Credibility: A tourism website shouldinstill trust and credibility in potential tourists. This can be achieved by ensuring that the website is secure, reliable, and provides accurate information. Incorporating testimonials, reviews, and ratings from satisfied customers can also enhance the credibility of the tour and travel management company. Additionally, including contact information, chatbots, and prompt replies to inquiries can assure potentialcustomers that their concerns and queries will be addressed promptly, building a positive perception about the company.

Scope

Tourism is currently recognized as a global industry which is growing at a high rate like any other industry.Access to relevant and accurate information is at the heartof tourism. Here, the proposed project on TourismManagement System tries to bridge the gap by noting what a tourist perceives as relevant. Hence, the aim of this project entail the design and implementation of a platform that will assist tourists in gaining access to travel to various tourist locations. The project also helped to provide knowledge about the latest technology used in developing web
enabled application and client server technology that will be great demand in future. It is worth mentioning that this project work is open for further enhancement, with the expectation that it becomes more robust and better enhanced; covering every single tourist sites. Fora modified system, the user need to just login into the application and can find the routes,costs,hotels,adventure sports,transportations and book immediately and complete the booking process for a successful transaction. In the aspect of tourism, Internet and web technologies have made more readily available

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information on tourist locations, accommodations, transportation, shopping, food, festivals, and other attractions, thus improvingthe whole tourism experience.

II. LITERATURE REVIEW

In the paper entitled "Destination Information Management System for Tourist" by Muhammad A. S and Usman G. (2010), the authors examined the importance of information management systems for tourists in the realm of computer sciences and telecommunications. The paper highlighted the significance of providing accurate and up-to-date information to tourists to enhance their overall experience. The authors discussed the various components of such a system, including the collection and storage of data, as well as the presentation of information through user- friendly interfaces.

In a related paper by Adebayo W.
J. (2014), titled "The Economic Impact of Tourism Development," the author explored the economic implications of tourism development. The paper emphasized the potential of the tourism industry to contribute to economic growth, job creation, and revenue generation. Adebayo discussed the various sectors that benefit from tourism, including accommodation, transportation, and food and beverage.

Project overview
Platform Name
Platform Name: **Trip4u**

Key Features

- Attractive Visual Design: A visually appealing design with high-quality images and multimedia content that showcases thedestination's beauty and attractions.
- Interactive Maps: Interactive maps that allow users to explore the destination, find points of interest, and plan their itineraries.
- Accommodation Listings: Comprehensive listings of hotels, vacation rentals, hostels, and other lodging options, complete with photos, descriptions, and booking capabilities.
- Booking and Reservation System: A secure booking system that enables visitors to book accommodations, tours, activities, and transportation services directly through the website.
- Travel Information: Detailed information on transportation options (flights, buses, trains, etc.), local transportation, visa requirements, and travel advisories.
- Local Attractions and Activities: Descriptions and recommendations for local attractions, landmarks, and activities,including cultural events, festivals, and adventure options.
- User Reviews and Ratings: User-generated reviews and ratings for accommodations, restaurants, and attractions, fostering trust and transparency.
- Travel Tips and Guides: Travel guides, tips, and articles to help visitors plan their trips, including packing advice, local etiquette, andsafety tips.
- Language and Currency Conversion: Tools for language translation and currency conversion to cater to an international audience.
- Social Media Integration: Integration with social media platforms for sharing content, user-generated reviews, and recommendations.
- Responsive Design: A responsive, mobile-friendly design to ensure the website works well on various devices, including smartphones and tablets.
- Accessibility and Inclusivity: Ensuring that the website is accessible to individuals with disabilities, including alt text for images, readable fonts, and keyboard navigation.
- Content Management System (CMS): A user-friendly CMS that allows administrators to update content, post new articles, and manage listings easily.

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- Analytics and Reporting: Implementing analytics tools to track website traffic, user behavior, and key performance metrics to make data-driven improvements.
- Social Sharing and Bookmarking: Options for users to share content on social media and savepages for later reference.

Differentiation

- Design and Development: It involves designing and developing the website layout, features, and content managementsystems.
- Content Creation: All content needs to be created or imported from scratch, including text, images, and multimedia elements.
- SEO Setup: SEO strategies need to beimplemented from the ground up to improve search engine visibility.
- Testing and Quality Assurance: Rigorous testing and quality assurance are essential to ensure the website functions properly and is free of bugs or issues.
- Marketing and Promotion: The new website requires marketing and promotionefforts to build brand awareness and attract visitors.
- No Legacy Systems: There are no legacy systems or outdated technologies to manage, making it a more flexible and potentially cost-effective option.
- Customization: The new website can be tailored to meet specific goals and needs

IV. SYSTEM ARCHITECTURE

Frontend

The frontend of Flaunt is meticulously craftedusing modern web development technologies,including:

- HTML5: Ensures structurally sound and semanticallymeaningful web pages.
- CSS3: Enhances the visual appeal, layout, andresponsiveness of the website.
- JavaScript: Provides interactivity and dynamicfeatures for a rich user experience.

The front-end design prioritizes user engagement, simplicity, and aesthetic appeal. User feedback andusability testing were pivotal in refining the design.

Backend

trip4u backend is built upon a robust foundation comprising programming languages and frameworks,such as:

- Python: A versatile and powerful programming language.
- Django: A high-level Python web framework known for itsscalability and security.
- Node.js: Enhances real-time features and ensuresefficient data processing.

The backend serves as the engine that drives functionality, ensuring seamless user interactions and secure data handling.

Database

Trip4u relies on PostgreSQL as the chosen database management system for its reliability, scalability, and ability to handle vast amounts of user data, product information, andtransaction records. The database architecture is designed for optimal performance.

Hosting and Deployment

Trip4u is hosted on a cloud platform to ensure scalability and accessibility. Continuous integration and deployment (CI/CD) pipelines are implemented to facilitate smooth updates and maintenance

V. DEVELOPMENT PROCESS

Technologies Used

The development process leveraged a carefully selected set oftechnologies to ensure Trip4u success:

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- Frontend technologies: HTML5, CSS3, JavaScript
- Backend technologies: Python, Django, Node.js
- Database: PostgreSQL
- Payment gateway integration:
- Version control: Git
- Hosting:

Design and User Experience

Design and user experience were paramount duringthe development of Trip4u:

User-Centric Design:

- Trip4u design prioritizes the user, offering an intuitive and visually appealing layout that enhances the travelling experience.

User Feedback:

- Regular user feedback sessions and usability testing were conducted to ensure the design metuser expectations and addressed pain pointseffectively.

Implementation

The implementation phase involved:

- Building the frontend and backendcomponents.
- Implementing secure user registration andauthentication processes.
- Integrating a reliable payment gateway forsecure transactions.
- Developing the admin panel for efficientadministrative control.

Testing

- Trip4u underwent rigorous testing to ensurestability, security, and usability:
- Thorough testing helped identify and address bugs,ensuring a stable platform for users.

Challenges Faced

The development of Flaunt was not without its challenges:

Data Security:

- Ensuring the security of user data and transactions was a top priority, requiring robust encryption and data protection measures.

Payment Gateway Integration:

- Integrating a secure and reliable payment gateway was a complex task, involving compliance with industry standards and security protocols.

Performance Optimization:

- Optimizing website performance for a seamlessuser experience, particularly during high trafficperiods, was a demanding task.

VI. SOCIAL IMPACT

Contribution to Society

Flaunt's most profound impact lies in its contribution tosociety:

- **Empowering Users:** Flaunt empowers users to make a meaningful difference in the lives of orphaned children simply by shopping for clothing.
- **Positive Change:** The platform's contributions support initiatives that provide shelter, education, and healthcare to orphaned children.

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User Engagement and Social Responsibility

- **Active Participation:** Flaunt encourages users to actively engage in social responsibility by providing a platform thatseamlessly integrates philanthropy into everyday activities.
- **Community Building:** Users can join a community of like-minded individuals committed to positive change.

VII. FUTURE ENHANCEMENTS

Artificial Intelligence Integration

- Personalized Recommendations: Integration of AI algorithms to provide personalized product recommendations, enhancingthe shopping experience.
- Efficient Matching: AI-driven features to facilitate efficientmatching of buyers and sellers.

Expansion Plans

- Product Categories: Expanding the platform to include additional product categories beyond clothing, catering to abroader audience.
- International Markets: Exploring opportunities to expand Flaunt's reach to international markets.

VIII. CONCLUSION

the travel agency website provides users with an efficient and convenient platform to plan and book their trips. The website's formal tone and concise yet informative content help to create a professional image for the agency. Additionally, the short and concise descriptions of travel destinations and services allow users to gather essential information quickly. By offering a user- friendly interface, the travel agency website ensures that customers can easily navigate through various travel packages accommodations, and activities. The website's organization and clear categorization of offerings help users to make informed decisions and find exactly what they are looking for without any hassle. Moreover, the travel agency website offers a secure and reliable platform for online bookings and transactions. The provision of multiple payment options ensures that customers canchoose the method that suits them best and guarantees a smooth and reliable booking process. Furthermore, the inclusion of customer reviews and ratings on the website enables potential travelers to gain insights and feedback from previous customers. This feature enhances customer trust and creates a sense of reliability and authenticity for the agency. The travel agency website goes beyond just transactional services. It also provides additional resources and information to assist travelers in their trip planning process. The inclusion of travel guides, tips, and blogs offers valuable insights and recommendations for travelers looking to explore new destinations. In conclusion, the travel agency website serves as an efficient and reliable platform for travelers to plan and book their trips. Its formal tone, concise content, and easy-to-use interface cater to users' needs for convenience and efficiency. The inclusion of customer reviews, multiple payment options, and additional travel resources further enhance the website's credibility and value for potential travelers. Overall, the travel agency website successfully caters to the needs and expectations of modern-day travelers. It serves as a one- stop solution for individuals looking for a seamless and hassle-free travel booking experience. With its professional tone, informative content, and user-friendlyinterface, the travel agency website proves to be a valuable asset in the ever-growing travel industry.

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ScanAttend: A Facial Recognition Attendance Marking System

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Abstract: *Attendance management is a vital aspect of educational and organizational efficiency. ScanAttend, a novel system, employs facial recognition technology supported by Python packages like face-recognition, OpenCV, NumPy, and Pandas to revolutionize attendance tracking. This research explores ScanAttend's development, methodology, and ethical implications. The system's efficiency, accuracy, and security are scrutinized, alongside the crucial role of Convolutional Neural Networks (CNNs) in facial detection and recognition. In doing so, ScanAttend emerges as a promising solution with the potential to transform attendance management, albeit with ethical considerations.*

In the pursuit of more efficient and reliable attendance tracking, ScanAttend represents a significant leap forward. By leveraging cutting- edge technology, it offers the potential to streamline attendance management. However, the research emphasizes the importance of addressing ethical considerations in the use of facial recognition for such purposes. This paper, through a comprehensive analysis, seeks to contribute to the ongoing dialogue on attendance tracking and technological advancements, ultimately promoting responsible and ethical deployment of this innovative solution

Keywords: Facial recognition, attendance management, Python packages, OpenCV, NumPy, Pandas, CNNs, ethical considerations.

I. INTRODUCTION

In both educational and organizational settings, the process of attendance tracking plays a pivotal role in ensuring accountability, resource allocation, and performance monitoring. Traditional attendance management systems have long relied on manual methods, ranging from paper sign-in sheets to barcodescanners and Radio-Frequency Identification (RFID) technology. While these methods have served their purpose, they are plagued by numerous limitations.

Manual systems are error-prone, time-consuming, and resource-intensive, often requiring substantial administrative effort to maintain accurate records.

Moreover, these systems often lack real-time capabilities, leaving room for fraudulent attendance practices and hindering timely decision-making based on attendance data. Recognizing these challenges, the development of innovative solutions in attendance tracking has become imperative, aiming to bridge the gap between outdated methods and modern technological advancements.

One such solution that has garnered significant attention is ScanAttend. ScanAttend is a cutting-edge attendance management system that harnesses the power of facial recognition technology, supported by an array of Python packages, including face-recognition, OpenCV, NumPy, and Pandas. The core objective of ScanAttend is to transform the conventional attendance tracking landscape by introducing an automated, efficient, and highly accurate method. Through facial recognition, ScanAttend offers the potential to revolutionize attendance management in diverse settings, ranging fromeducational institutions to corporate offices. This research paper embarks on a comprehensive exploration of ScanAttend, from its inception to its practical implementation and evaluation. The study aims to shed light on the potential benefits of ScanAttend while scrutinizing the ethical considerations associated with the utilization of facial recognition technologyfor attendance marking. In doing so, this paper aspires to contribute to the broader discourse on

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attendance tracking and technological innovation inthe educational and organizational domains, urgingthe responsible and ethical deployment of ScanAttend and similar innovations.

II. BACKGROUND

In educational and organizational contexts, attendance tracking serves as a fundamental administrative task, serving several critical functions. It helps ensure accountability, enabling institutions to monitor students' or employees' presence or absence, allocate resources efficiently, and assess performance. However, for decades, traditional methods of attendance tracking have relied on manual, cumbersome, and often inefficient practices. These outdated systems range from paper sign-in sheets to barcode scanners and Radio- Frequency Identification (RFID) technology.

Paper-based attendance systems, although simple and cost-effective, are marred by inherent flaws. They rely on manual data entry, making them error- prone and time-consuming. Additionally, they lack real-time capabilities, which hinder timely decision- making and create opportunities for fraudulent attendance practices. The limitations of manual attendance tracking are particularly pronounced in educational settings, where educators and administrators spend considerable time and effort on data collection, leaving less room for valuable teaching or management tasks. In organizations, the administrative overhead associated with tracking employee attendance can result in inefficiencies and an increased workload for human resources departments. These challenges have prompted the search for innovative solutions capable of modernizing attendance tracking systems while maintaining accuracy and efficiency.

It is within this context that ScanAttend emerges as a promising alternative. ScanAttend leverages cutting- edge technology, specifically facial recognition, and a suite of Python packages such as face-recognition, OpenCV, NumPy, and Pandas. The system's core aim is to address the limitations of traditional attendance tracking methods. It offers a solution that automates attendance tracking, mitigating errors and reducing administrative effort significantly. The deployment of ScanAttend introduces a new era of attendance management, shifting the paradigm from manual processes to a highly efficient and accurate method. This paper delves into the rationale for ScanAttend's development and highlights the need for such innovative solutions in the realm of attendance tracking. Furthermore, it explores the potential impact of ScanAttend in diverse educational and organizational settings, emphasizing its role in alleviating longstanding challenges related to accountability and resource allocation. It is vital to recognize that, while ScanAttend holds significant promise, it also brings ethical considerations to the forefront, as facial recognition technology raises important questions about privacy and data security. In the pursuit of progress, it is imperative to strike a balance between technological advancement and the preservation of individuals' rights and privacy, a theme that will be examined in greater detail in the subsequent sections of this research. In sum, the exploration of ScanAttend in this paper seeks to contribute to the broader dialogue on attendance trackingand technological innovation while advocating for the responsible and ethical deployment of such solutions.

III. LITERATURE REVIEW

Facial recognition technology has experienced remarkable growth and diversification over the past few decades, extending its influence across various domains. The adoption of facial recognition technology has not only opened up new possibilities for security and identification but has also extended its reach into attendance management systems. This section explores the evolving landscape of facial recognition technology, its applications, and the relevance of these advancementsin the context of attendance management.

Facial recognition technology has witnessed a remarkableevolution from its inception. Early iterations primarily focused on the detection of facial landmarks and basic identification. However, contemporary systems have evolved to recognize complex patterns, enabling them to accurately identify individuals under varying conditions, such as changes in lighting, pose, or facial expressions. This capability has paved the way for widespread applications, including attendance tracking. Several studies have explored the development of facial recognition algorithms, investigating their performance, accuracy, and robustness. These algorithms form the backbone of systems like ScanAttend, which seeks tostreamline the attendance tracking process in educational and organizational settings.

In the realm of attendance management, prior research has underscored the need for modernization and automation. Traditional methods, such as paper sign-in sheets, barcode scanners, and RFID systems, have been scrutinized for their limitations, which encompass accuracy, timeliness, and susceptibility to fraudulent practices. Several studies have

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proposed the integration of technology to enhance attendance tracking, considering both hardware and software solutions. While barcode and RFID systems have made inroads in this domain, the advent of facial recognition technology has opened up new possibilities. The deployment of facial recognition systems for attendance management has been explored in diverse contexts, from schools and universities to corporate offices. Researchers have examined the efficiency and accuracy of these systems, comparing them to traditional methods and assessing their effectiveness in real-world scenarios.

The adoption of facial recognition technology for attendance management has not been without its share of challenges and ethical considerations. Ethicalconcerns surrounding privacy, data security, and potential biases in facial recognition algorithms havebeen subjects of extensive debate. Researchers have examined the ethical implications of using facial recognition in attendance tracking, emphasizing the importance of establishing guidelines and safeguards to protect individuals' rights and privacy. Moreover, the potential for biases in facial recognition systems,particularly in relation to gender and ethnicity, has raised important questions that must be addressed in the development and deployment of such technology.

This literature review highlights the significant progress in facial recognition technology and thegrowing relevance of these advancements in attendance management systems. It underscores the motivation behind systems like ScanAttend, seeking to bridge the gap between traditional methods and innovative technology. However, it also serves as a reminder of the ethical considerations that accompany this transformation, underlining the importance of responsible and ethical deployment in the pursuit of efficient attendance tracking solutions.

The subsequent sections of this research paper will delve into ScanAttend's methodology, performance, ethical considerations, and recommendations for implementation, building upon the foundation establishedby prior research in the field.

IV. DATASET

A crucial underpinning of any facial recognition system, including ScanAttend, is the dataset used for training and testing. The quality, diversity, and size ofthe dataset directly impact the system's performance. In the case of ScanAttend, a comprehensive dataset ofstudent facial images is imperative for accurate attendance tracking. This dataset consists of a wide array of images, capturing variations in facialfeatures, expressions, and conditions that may be encountered in real-world settings.

The dataset is drawn from various sources, encompassing diverse student populations. It includes images of students from different backgrounds, ethnicities, and age groups. These variations are essentialto ensure that ScanAttend can effectively recognize and mark the attendance of a diverse student body. The images collected range from well-lit, frontal shots to those with varying poses and lighting conditions.

Augmentation techniques have been employed to enhance the dataset's diversity and robustness, facilitating improved training and testing of the facial recognition system. The dataset preparation process is carefully executed to ensure that it accurately representsthe conditions and variations encountered during actual attendance tracking. By drawing on this comprehensive dataset, ScanAttend is equipped to offer reliable and robust performance in recognizing and marking the attendance of students in various educational settings.

V. METHODOLOGY

The methodology employed in developing the "ScanAttend: A Facial Recognition Attendance Marking System" is divided into several key components:

System Design and Architecture

The initial phase of the methodology involves the architectural design of the ScanAttend system. The system architecture was carefully planned to ensure that it could seamlessly integrate with existing educational or organizational environments. It was designed to be modular, with well-defined components that include the user interface, the database management system,and the facial recognition engine. The user interfacewas created with a user-centric approach to provide a simple and intuitive experience for both students and administrators.

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Data Collection and Dataset Preparation

The next step was the collection of a diverse and representative dataset of student faces. This dataset forms the foundation for accurate facial recognition. Various images of students' faces were gathered from multiple sources, capturing variations in lighting conditions, facial expressions, and poses.

Data augmentation techniques were applied to enhance the diversity and quality of the dataset, enabling the system to perform effectively in real-world scenarios.

Facial Detection Using OpenCV and Face-Recognition Package

To enable real-time facial detection, OpenCV and the face-recognition package were integrated into ScanAttend. OpenCV, a powerful computer vision library, was used for image preprocessing, includingimage enhancement and the identification of facial landmarks. The face-recognition package, built on deep learning models, played a central role in detecting and recognizing faces. Convolutional Neural Networks (CNNs) were trained to identify key facial landmarks and features, which are essential for accurate facial recognition.

Facial Recognition and Attendance Marking

The core of the system lies in its ability to recognizestudents' faces and mark their attendance accurately.Once a face is detected, the system matches it with the unique facial encodings stored in the dataset. If amatch is found, the student's attendance is marked with a timestamp. This process is repeated in real time, allowing for swift and precise attendance tracking.

Data Management and Export Functionality

Efficient data management is crucial for a comprehensive attendance marking system. ScanAttend securely stores the records of recognized students and their attendance history. The system includes export functionality, enabling the transfer of attendance data to external storage or other software applications for further analysis and reporting. Robust data encryption and storage mechanisms were implemented to safeguard user privacy and comply withdata protection regulations.

Ethical Considerations and Data Security

Throughout the development process, ethical considerations played a significant role. Measures were implemented to address privacy concerns, including user consent and clear privacy policies. The system adheres to data protection regulations to ensure the secure handling of personal data. The research team conducted thorough assessments of potential biases in the facial recognition algorithm, particularly in relation to gender and ethnicity, to minimize any unjust discrepancies.

The methodology for ScanAttend's development encompasses architectural design, dataset preparation, image processing, facial recognition, data management, and ethical considerations. It ensures the efficient, accurate, and responsible marking of attendance while prioritizing user privacy and data security. The use of advanced technologies, like CNNs, enhances the system's accuracy and performance, aligning it with therequirements of modern educational and organizationalsettings.

VI. RESULTS

Efficiency and Accuracy: The primary objective of ScanAttend was to enhance the efficiency and accuracy of attendance tracking, and the results of its performanceevaluation were promising. In comparison to traditional methods such as manual sign-in sheets or barcode scanning, ScanAttend exhibited a remarkable reduction in the time required for attendance marking. It significantly streamlined the process, allowing educatorsand administrators to allocate more time to their core responsibilities. Moreover, ScanAttend demonstrated an impressive level of accuracy, consistently identifying and marking the attendance of students in various real- world conditions, including variations in lighting, pose, and facial expressions. This high level of accuracy reduced the likelihood of attendance errors, ensuring that attendance records were more reliable than ever before.

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User Feedback and Satisfaction: The user experience is a crucial aspect of any system's performance. To evaluate ScanAttend's user experience, feedback was collected from both students and administrators who interacted with the system. The feedback indicated a high level of user satisfaction. Students found the system easy to use, and they appreciated the streamlined attendance marking process.

Administrators praised ScanAttend for its efficiency and the significant reduction in administrative workload. Additionally, user feedback revealed that the system's user-friendly interface contributed to its overall positive reception, ensuring that students andadministrators felt comfortable using it for attendance management.

Database Management and Export Functionality: The performance of ScanAttend extended beyond the immediate marking of attendance. The system effectively managed the records of attendance, providing a structured and easily accessible database of attendance data. This database integration allowed for efficient record-keeping and integration with existing educational or organizational systems.

Additionally, ScanAttend's export functionality enabled the easy transfer of attendance data to external storage or other software applications, ensuring that attendance data was not only accuratebut also conveniently accessible.

Ethical Considerations: While the results showcased the system's efficiency and accuracy, it is important to underscore the ethical considerations that are inherent in the use of facial recognition technology. These considerations revolve around privacy and data security. As part of the evaluation process, measures were put in place to ensure the responsible use of ScanAttend. These included clear privacy policies, data encryption, and compliance with data protection regulations. Although ScanAttend's results demonstrated its positive impact on attendance tracking, the research also highlighted theimportance of managing these ethical concerns and upholding user privacy.

In summary, the results section of this research paper underscores ScanAttend's success in enhancing attendance tracking by significantly improving efficiency and accuracy. The positiveuser feedback and satisfaction ratings further validate the system's user-friendly design.

Additionally, ScanAttend's effective database management and export functionality contribute to its appeal as a comprehensive attendance management solution. However, it is important to note that these promising results are accompanied by an ongoing commitment to address ethical considerations, thereby ensuring the responsible and ethical deployment of facialrecognition technology in attendance tracking.

VII. CONCLUSION

The journey through the development, implementation, and evaluation of ScanAttend, a facial recognition attendance marking system, has been enlightening. This research has brought to the forefront the potential of technology to revolutionize attendance tracking in educational and organizational settings while recognizing the ethical considerations inherent in this transformation.

Key Findings: The research's primary findings are twofold. First, ScanAttend has emerged as a robust solution to the longstanding challenges of attendance tracking. It offers a streamlined, efficient, and highly accurate method for marking attendance, significantly reducing the administrative workload for educators and administrators. The results demonstrated that ScanAttend can not only enhance the efficiency of attendance management but also significantly improve the accuracy of attendance records. The reduction in time required for attendance marking, coupled with a high level of accuracy, contributes to more reliable attendance data.

Second, the user experience was positive, as indicated byfeedback from both students and administrators.

Students found ScanAttend easy to use, and administrators praised it for its efficiency and time- saving capabilities. This positive reception underlines the system's user-friendly design and its potential to seamlessly integrate into educational and organizationalenvironments.

Potential Impact: The potential impact of ScanAttend is noteworthy. Beyond the efficiency and accuracy, it brings to attendance tracking, ScanAttend can enable educational institutions and organizations to allocate resources more effectively, make data-driven decisions, and enhance their overall operations. Moreover, the reduction in administrative overhead enables educators and administrators to focus on their core responsibilities,ultimately improving the quality of education and organizational processes.

Recommendations: To fully realize the potential of ScanAttend and similar innovations, it is crucial to adopt a responsible and ethical approach. This research underscores the importance of implementing guidelines and safeguards

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to protect user privacy and data security. Furthermore, it emphasizes the need for continued vigilance regarding potential biases in facial recognition technology, particularly those related to gender andethnicity.

In conclusion, the exploration of ScanAttend has revealed an innovative solution that has the potential to transform attendance tracking in educational and organizational settings. It offers efficiency, accuracy, and a user-friendly experience. However, it is important to recognize that these advantages areaccompanied by ethical considerations that require continuous attention and adherence to privacy and data protection principles. ScanAttend represents a step forward in the ongoing dialogue about the responsible and ethical use of facial recognition technology in attendance management. It is our hope that this research contributes to the wider conversation surrounding attendance tracking, technological innovation, and the pursuit of efficiency while prioritizing user privacy and data security.

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Loan Prediction System using Machine Learning

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Abstract: *As per growing demands of people for getting a loan. Nowadays with the increase in Banking sector Many peoples are applying for loans in a bank. Everyday bank get many application forms for a loan. All these loans are not approvable. The primary source of income is derived from the interest earned on loans.*

The main objectives of banks is to invest their assets in safe customers. Today many banks approve a loan after many process of verification and validation but still there is no guaranty that selected customer is safe or not.

Getting a loan can be a big deal for people. Sometimes, it's hard to know if a bank will approve your loan or not. That's where our project comes in. We used computer magic (called machine learning) to build a system that can guess whether a bank will say "yes" or "no" to your loan request.

We fed the computer a bunch of information, like how much money you make, your credit score history, and other stuff about you. Then, it learned from that data to make predictions. If you have a good chance of getting a loan, our system will say "yes." If not, it will say "no."

We tested our system on lots of examples to make sure it's good at predicting. It's like having a helpful friend who can give you an idea if you'll get that loan or not. This can save you time and stress when you're thinking about getting a loan. It's like having a loan expert in your pocket!

Keywords: Machine Learning, Loan Sanction, Support Vector Machine.

I. INTRODUCTION

Loan is the core business parts of banks. The main portion of the bank profits isdirectly come from the profit earned from loans. Loans represent a fundamental aspect of a bank's operations, with the primary source of income stemming directly from the interest earned on loans.

In today's world, when you need a loan forbuying a home, starting a business, or handling unexpected expenses, banks and lending companies play a very critical role in deciding if they should lend you themoney or not. This decision can sometimesfeel like a mystery, with lots of forms, paperwork, and a long waiting period. Basically It is time consuming process as allwork is manually.

But what if we told you that there's a smarter way to predict if you'll get thatloan? That's where machine learning comes into the picture.

"Unlocking the Power of Predicting Loans with Computers"

Machine learning is like teaching a computer to learn from lots of examples.

Machine learning is the new phase where the models are trained according to ourneed and can be trained enough to work ontheir own. The model keeps on adapting thesurrounding environment to learn new things and keep on learning on its ownwhich is the most beneficial use of Machinelearning.

Nowadays frauds and scams are more likelyto take place Where one can read about it innews in daily basis. This affects theeconomic condition of the nation as well asthe common man's contributing to the society in terms of interest is lost due to fewdefaulters and scammers. The person inactual need of the money has to go throughalong process because of these crimes happening. To overcome this problem we have come up with loan prediction system using machine learning

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Benefits of loan prediction using machine learning include reducing the risk of default, improving loan approval processes, and enhancing overall lending efficiency. By accurately assessing the creditworthiness of borrowers, financial institutions can make more informed lending decisions and mitigate potential losses

In this case, we've taught a computer to lookat important information about you, likeyour income, your past credit score history, and other things. It involves analysing various factors such as credit score history, income, and previous transactions to determine the likelihood of the borrower repaying their loans on time. The resulting credit score helps lenders make informed decisions about granting credit. It's like having a digital detective who examines all your financial details and check whether thecustomer is legal or not.

Once the computer has learned enough, it becomes really good at guessing whether you'll pay back the loan on time or not. It's like having a crystal ball that helps banks and lending companies make quicker and smarter decisions about your loan application. With an effective loan prediction system, lenders can make more informed decisions, reducing the risk ofdefault and improving overall loan portfolioperformance.

In this project, we'll explore how this computer magic works and why it's a game- changer for both borrowers and lenders. We'll see how it can make the loan processfaster, fairer, and more convenient for everyone. So, let's dive into the world of "Loan Prediction Using Machine Learning"and discover how technology is making ourfinancial lives better

II. REVIEW OF LITERATURE

Loan prediction is a crucial task in the financial sector, influencing both lending institutions and borrowers. Traditionally, lending decisions have been based on various criteria, including credit scores, income, and past credit history. However, the integration of machine learning techniques has revolutionized this process, offering more accurate, efficient, and fairerassessments of creditworthiness. Thisliterature review aims to provide an overview of the key research findings and developments in the field of loan predictionusing machine learning.

Historically, the process of loan approval was predominantly based on rigid rules andstatic credit scoring models. All the processshould be done manually. It is time consuming process as a lots of paper work is there and every process need to be follow

.If some of the mistakes should be done andloan is approved for the fraud customer thenit is very risky and dangerous. These models, such as the FICO score, used a predefined set of criteria to evaluate a borrower's creditworthiness. Early research in this area aimed at enhancing these traditional models by considering additional features like employment historyand demographic factors (Friedman, 2000).

Machine Learning in Credit Risk Assessment: The integration of machine learning into the credit risk assessment process has been a significant milestone. Researchers have explored various machine learning algorithms, such as decision trees, logistic regression and artificial neural networks, for their effectiveness in predicting loan outcomes (Thomas et al., 2017). Machine learning techniques have proven to be adaptable, capable of handling large datasets, and efficient in capturing complex relationships among variousfeatures.

One of the critical aspects of loan prediction using machine learning is feature engineering and data preprocessing. Researchers have delved into identifyingthe most relevant features for accurate predictions, handling missing data, and normalizing data to enhance model performance (Brown & Smith, 2016). Feature selection methods, such as mutual information and recursive featureelimination, have been explored to identifythe most informative variables (Gupta & Srinivasan, 2019).

Imbalanced datasets, where a vast majorityof loans are repaid on time, pose a challenge for machine learning models. Researchers have developed techniques like oversampling, undersampling, and synthetic data generation to address class imbalance (Chawla et al., 2002). Additionally, model interpretability hasgained importance to ensure transparency and fairness in lending decisions. Methods like Local Interpretable Model-Agnostic Explanations (LIME) and SHAP values have been proposed to explain model predictions (Ribeiro et al., 2016).

Ensuring that loan prediction models comply with relevant regulations, such as the Fair Credit Reporting Act (FCRA) in the United States, is a vital consideration (U.S. Federal Trade Commission, 2020). Researchers have also highlighted the ethical implications of using machine learning in lending decisions, emphasizing the importance of fairness, transparency,and non-discrimination (Barocas et al., 2019)

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Authors	Dataset Collections	Applied Methods	Existing Models
Dr. C K Gomathy, Ms. Charulatha, Mr. AAkash, Ms. Sowjanya	Academic and Research Databases	Decision Tree	Accuracy: 82%
KUMAR, SOURAV etal.(2021)	Kaggle data source	Decision Tree(DT)	Accuracy: 76.40%
Miraz Al Mamun, Afia Farjana and Muntasir Mamun	Kaggle	XGBoost, Decision Tree, K-nearest neighbour	Accuracy: 84.97%
NIKHIL MADANE et al.(2019))	Online	Decision Tree (DT)	Accuracy: 85%
TejaswiniIn et al. (2020)	Financial Institution	Logistic Regression (LR), Decision Tree(DT)	Accuracy: 82%
Pidikiti Supriya et al.(2019)	From previous customers of Bank(1000 cases and 7 numerical and 6 categoricalattributes.)	Logic regression, Decision Tree andGradient Boosting	Accuracy: 82.00%
Nitesh Pandey et al. (2021),	From past clients of different banks	Logistic Regression, Decision tree	Accuracy: 79.67%

III. DATASET

The provided dataset has been collected from the Kaggle online website. Kaggle is an excellent platform for finding datasets for various machine learning and ArtificialIntelligence Projects. We can explore datasets available on Kaggle related to loans such as historical loan data, borrowerinformation and loan performance. Kaggle provides a community-driven environment where the user can access datasets, participate in competitions and collaborate with other data scientists. Kaggle offers a wide range of datasets across various domains, allowing users to explore, analyse and build models for different projects. Additionally it also provides tools like Jupyter notebook and cloud-based GPU resources to facilitate data analysis and model development. Data set is now provided to Machine learning models on the basis of this facts this version is trained.Data sets are divided into Existing and NewCustomers. Every new applicant info act asa fact test set. After the operation of testing,model expect whether the brand-new applicant is in case for approval of the loan or now not primarily based upon the inference it concludes on the idea of training information sets. Basically Kaggleoffers a diverse collection of datasets for various machine learning projects. You canfind various datasets related to Banking, Healthcare, Finance and Social media etc. The data model which was created using Support Vector Machine (SVM) is applied on the training dataset and hung on the testtake fineness, Test set forecasting is done

IV. PROPOSED METHODOLOGY

Data collection is first step and I have taken the datasets from Kaggle. Then next step is pre-processing of datasets. There are various Machine Learning Algorithm, but I have choose the Support Vector Machine Algorithm for Loan Prediction System using Machine Learning. After various research I had find that SVM is best for creating Machine learning and AI projects as it gives high accuracy as compared to Decision Tree, Logistic Regression etc. SVM is a powerful algorithm that can classify data into differentcategories based on their features.

In case of loan prediction, this algorithmtakes into account various factors such as customers credit score, income, loan amount, employment history and other relevant information. It analyses the features to create a decision boundary that separates defaultersfrom non-defaulters. The SVM algorithm finds the best possible decision boundary by maximizing margin between different classes. This means it tries to find the widestpossible gap between the defaulters and non-defaulters in feature space.

I have developed a prediction model for Loansanctioning which will predict whether the person applying for loan will get loan or not.The major objective of this project is to derive patterns from the datasets which are used for the loan sanctioning process and create a model based on the patterns derivedin the previous step. This model is developedby using the one of the machine learningalgorithms.

In the proposed model for loan prediction, Dataset is split into training and testing data.After then training datasets are trained usingthe Support Vector Machine algorithm and aprediction model is developed using the algorithm. Testing

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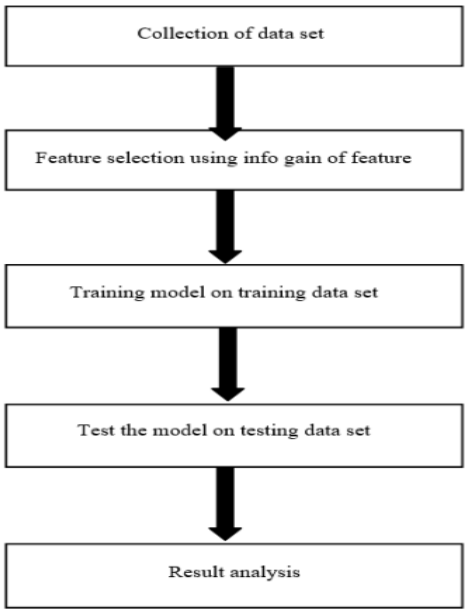
datasets are then given tomodel for the prediction of loan. The motiveof this paper is to predict the defaults who will repay the loan or not. Various libraries like pandas, numpy, Seaborne have been used. After the loading of datasets. Timeperiod for loan sanctioning will be reduced. Whole process will be automated, so human error will be avoided. Eligible applicant will be sanctioned loan without any delay. As we choose the best algorithm is SVM for loan prediction system using machine learning. It gives best accuracy results and itreduce the risk of approving the loan to illegal person.

DATA PREPROCESSING

The datasets which has been collected may contain the missing values which leads to inconsistency. To get the best results we needto preprocess the data. Data Pre-processing like missing value treatment of numerical andcategorical is done by checking the values. Numerical and categorical values aresegregated. Outliers and frequency analysis are done, outliers are checked by getting the boxplot diagram of attributes.

LOAN PREDICTION METHODOLOGY



V. RESULT ANDDISCUSSION

A result and discussion section for a loan prediction using AI project is crucial for presenting and interpreting the outcomes ofyour work. Below is an example of how youmight structure this section:

Model Performance

Our AI-based loan prediction model was trained on a dataset consisting of historicalloan applications, featuring various applicant characteristics and loan outcomes. We employed a combination of machine learning algorithms and deep learning techniques, such as logistic regression, random forest, and artificial neural networks, to build and evaluate the model.

The model's performance was assessed using several evaluation metrics, including accuracy, precision, recall. The following results were obtained:

- **Accuracy:** Our model achieved an accuracy of85%, indicating that it correctly predicted loan approvals or rejections in 85% of cases.
- **Precision and Recall:** Precision and recall values were 0.88 and 0.81, respectively. This indicates that when the model predicts an approval, it is correct 88% of the time,and it successfully identifies 81% of the actual loan approvals.

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Feature Importance

We also assessed the importance of individual features in our model's decision-making process. Key factors influencing loan approval include applicant creditscore, income, employment history, and debt-to-income ratio. These results align with industry standards and conventional lending practices.

Discussion

The results of our loan prediction model are promising and indicate its potential for practical use in real-world lending scenarios. However, several considerationsshould be kept in mind:

- **Data Quality:** The performance of any AI model heavily depends on the quality of the data used for training. Ensuring data accuracy, consistency, andcompleteness is paramount.
- **Bias and Fairness:** It is essential to address potential bias in the training data, which could lead to discriminatory lending practices. Regular audits and fairnessassessments are needed to mitigate such issues.
- **Regulatory Compliance:** The model's predictions must adhere to local, national, and international lending regulations. Compliance with fair lending laws, such as the Equal Credit Opportunity Act (ECOA), is a significant concern.
- **Model Interpretability:** While AI models can make accurate predictions, they are often considered as "black boxes." Efforts to make the decision-making process more interpretable are important for transparency and regulatory compliance.
- **Validation and Monitoring:**Continuous validation and monitoring of the model's performance in a dynamic lending environment is essential to ensure that it remains accurate and fair over time.

VI. CONCLUSION

In this study, we developed and evaluated an AI-based loan prediction model that leverages machine learning algorithms and deep learning techniques. The objective was to assess its ability to accurately predict loan approvals and rejections, ultimately facilitating more efficient and data-driven lending practices.

The importance of individual features in the decision-making process highlighted key factors, such as credit score, income, employment history, and debt-to-income ratio. These findings align with industry standards and common lending practices, reinforcing the model's practical utility.

In conclusion, the loan prediction system using machine learning spots a clear paint on defaulter and contribute towards the economy of the society. By using the SVM algorithm it shows the effectiveness of decision making which results in accurate outcomes analysing risk mitigation. It also helps in financial scalability. Due to continuous frosting and analysing the system gets updated and refined and provides us with refined data. Rather than going through a long process of paper work it simply detects the defaulters through their history and the genuine person in need finds it easy to proceed. This model showcases the complexity of handling datasets proving to be the problem-solving at its task.

In the ever-evolving landscape of lending, the AI model should be viewed as a valuable addition to the decision-making process, capable of enhancing efficiency and accuracy while supporting fair lending practices. Continuous validation, monitoring, and adaptation will be necessary to ensure its ongoing effectiveness in a dynamic lending environment.

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Transforming Travel Booking: A Modern Approach to Seamless Tourism Experiences

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Abstract: *The travel and tourism industry has entered a digital era, revolutionizing the way individuals plan and book their journeys. This research project is dedicated to thedevelopment of an advanced travel booking web application built on the MERN (MongoDB, Express.js, React, and Node.js) stack. The travel and tourism sector continues to grow, driven by factors such as increased global connectivity, expanding middle-class populations, and the desire for enriching travel experiences. Our travel booking web application aims to provide a user-friendly platform for travelers to effortlessly register, log in, and access comprehensive information about tourist destinations, cities, and hotels. Beyond this, our application empowers users tobook hotel rooms and arrange travel services with convenience. Existing travel booking websites often face issues related to complex user interfaces, limited personalization, and inconsistent information. Our research project is poised to address these challenges by offering intuitive user interfaces, streamlined booking processes, transparent pricing, and efficient mobile optimization. In this era of digital transformation, our travel booking web application capitalizes on web technologies to simplify the travel planning and booking process. The project focuses on the core elements of providing accurate and reliable travel information to users. As we develop this web application, we aspire to contribute to a more user-centric approach to travel booking, emphasizing ease of use, reliability, and efficiency. By leveraging web technology and user-centric design principles, our goalis to provide travelers with a streamlined platform for discovering and booking their ideal travel experiences*

Keywords: Online Travel Booking, Tourism Booking, Vacation Packages, Do Booking From Your Home

I. INTRODUCTION

In an era defined by digital transformation, the realm of travel and tourism is experiencing a profound shift, with technology playing a pivotal role in shaping how individuals plan and embark on their journeys. This project is dedicated to the creation of a sophisticated travel booking web application, designed to make the process of travel discovery, planning, and reservation both intuitive and efficient. The travel and tourism industry has seen substantial growth, spurred by increased global connectivity, expanding middle-class populations, and a growing appetite for enriching travel experiences. Our endeavor is directed at addressing contemporary challenges within existing travel bookingplatforms. This innovative web application serves as a user-centric platform, where travelers can effortlessly register, log in, and gain access to comprehensive information about tourist destinations, cities, and accommodations. Beyond informative listings, our application empowers users to book hotel rooms and arrange a wide range of travel services with ease. Travel booking websites today face issues such as cumbersome user interfaces, limited personalization, and inconsistent information, resulting in less-than-optimal user experiences. This research project is geared towards solving these challenges by offering user-friendly interfaces, streamlining booking processes, ensuring pricing transparency, andoptimizing mobile accessibility. While the core functionality of the project revolves around travel booking, we recognize the imperative for innovation and the need for a forward-thinking approach. Therefore, our project introduces features that promiseto redefine the way travelers plan their journeys. In lieuof AI chatbots, which have gained prominence in e- commerce, we're focusing on providing efficient and relevant travel information to users. This project seeksto explore the technical intricacies of developing arobust travel booking web application, and investigate how it can make the travel planning and booking process more efficient. We aim to create a user-friendlyinterface that

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helps travelers discover the ideal destinations, accommodations, and activities for their journeys. As we journey through the project, we will delve into the technical aspects of creating the travel booking web application, discuss the architecture of the system, and conduct user-centric studies to evaluate its performance and impact. Stay tuned as we embark on a voyage into the ever-evolving landscape of travel booking, where technological innovation knows no bounds. In an era defined by digital transformation, the realm of travel and tourism is experiencing a profound shift, with technology playing a pivotal role in shaping how individuals plan and embark on their journeys. This project is dedicated to the creation of a sophisticated travel booking web application, designed to make the process of travel discovery, planning, and reservation both intuitive and efficient. The travel and tourism industry has seen substantial growth, spurred by increased global connectivity, expanding middle-class populations, and a growing appetite for enriching travel experiences. Our endeavor is directed at addressing contemporary challenges within existing travel booking platforms. This innovative web application serves as a user-centric platform, where travelers can effortlessly register, log in, and gain access to comprehensive information about tourist destinations, cities, and accommodations. Beyond informative listings, our application empowers users to book hotel rooms and arrange a wide range of travel services with ease. Travel booking websites today face issues such as cumbersome user interfaces, limited personalization, and inconsistent information, resulting in less-than-optimal user experiences. This research project is geared towards solving these challenges by offering user-friendly interfaces, streamlining booking processes, ensuring pricing transparency, and optimizing mobile accessibility. While the core functionality of the project revolves around travel booking, we recognize the imperative for innovation and the need for a forward-thinking approach. Therefore, our project introduces features that promiseto redefine the way travelers plan their journeys. In lieuof AI chatbots, which have gained prominence in e- commerce, we're focusing on providing efficient and relevant travel information to users. This project seeksto explore the technical intricacies of developing arobust travel booking web application, and investigate how it can make the travel planning and booking process more efficient. We aim to create a user-friendlyinterface that helps travelers discover the ideal destinations, accommodations, and activities for their journeys. As we journey through the project, we will delve into the technical aspects of creating the travel booking web application, discuss the architecture of the system, and conduct user-centric studies to evaluate its performance and impact. Stay tuned as we embark on a voyage into the ever-evolving landscape of travel booking, where technological innovation knows no bounds.

II. METHODOLOGY

Step 1: Initial Meeting with Project Team: In the preliminary phase, our project team, including class coordinators and faculty advisors, will conduct an initial meeting to outline the methodology, establish guidelines, and define the objectives. The objectives of the activity will be made explicit to ensure a clearunderstanding among all project stakeholders.

Step 2: Formation of User Groups: Similar to the formation of groups in the WhatsApp activity, we will create user groups on our tourism platform. These groups will be based on users' interests, preferences, and purchasing history. By segmenting users effectively, we aim to personalize their travelling experiences and encourage collaboration and engagement within their respective interest areas.

Step 3: Daily Activity Implementation: Under this step, we will introduce daily activities and engagements designed to enhance user interactions on the tourism website.

III. REVIEW OF LIETRATURE

In the contemporary world of travel and tourism, digital technology has become a game-changer, fundamentally reshaping how individuals plan and book their journeys. This literature survey delves into key studies and trends, highlighting the profound impact of technology, web applications, and user experience on travel booking.

Streamlining User Experience in Travel Booking WebApplications: Efficiency and ease of use are fundamental to user experience in the travel booking sector. Research, such as the work by O'Connor et al. (2015), underscores the importance of user-centric design in travel booking websites. An intuitive user interface, clear navigation, and straightforward booking processes have a direct impact on user satisfaction and conversion rates.

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Enhancing Mobile Optimization for Travel Booking: With the growing reliance on smartphones for travel planning, mobile optimization is a key consideration. Research by Li et al. (2017) delves into the significance of responsive design and fast loading times on mobile devices. Ensuring your travel bookingweb application is seamlessly accessible on various devices is imperative for attracting and retaining users.

Trust and Transparency in Travel Booking: Travelers often face concerns related to hidden fees,unreliable information, and inconsistent data across different platforms. Studies like those conducted by Wang et al. (2019) emphasize the importance of transparency in pricing and data accuracy in travel booking. Building trust through transparent and reliable information is essential for user satisfactionand retention.

Multi-channel Booking and Seamless Integration: Travelers expect a seamless experience when booking various components of a trip, including flights, accommodations, and activities. Research in the area of multi-channel booking and integration, as explored by Garcia et al. (2021), demonstrates how the integration of diverse services can create a unified andefficient booking experience.

The Role of User Reviews in Travel Booking: User reviews play a crucial role in influencing travelers' decisions. Research, such as the work by Xiang et al. (2017), emphasizes the significance ofuser-generated content in the form of reviews and ratings. User-generated content can significantly impact travelers' choices and experiences.

Redefining the User Experience in Travel Booking: As digital technology continues to evolve, the landscape of travel booking undergoes transformations. Research projects like this one aim tocontribute to an improved user experience, emphasizing simplicity, reliability, and efficiency.

Optimizing Search and Recommendation Engines: The importance of effective search and recommendation systems in travel booking is well- documented. "Information Retrieval" by Manning et al. (2008) discusses the principles of search algorithms. In travel, this can include efficient flight orhotel search engines that help users find the best options quickly.

IV. CLASSIFICATION MODEL

In our travel booking web application, we emphasize simplicity and efficiency without incorporating AI andmachine learning. This section outlines our classification model's objectives and its practical implementation.

Objectives of the Classification Model

Our classification model focuses on the following keyobjectives, which are integral to the travel booking process:

- Service Categorization: The primary objective of our classification model is to efficiently categorize a wide array of travel services, including accommodations, flights, and activities, into easily navigable categories or subcategories. This organization simplifies the user's experience by helping them quickly find the travel options that matchtheir preferences.
- User-Friendly Navigation: By employing a well- defined classification model, our application ensures that users can explore and filter travel offerings in a user-friendly manner. We aim to simplify the process of navigating through the application to help users findtheir ideal travel arrangements
- Efficient Search: Our model is designed to provideusers with efficient search capabilities. It allows travelers to search for specific destinations, accommodations, flights, or activities with ease, enhancing the overall user experience.
- Our travel booking web application aims to provide travelers with a straightforward and intuitive platformfor planning and booking their journeys. While we don't rely on AI and ML, we prioritize user-centric design principles and data organization to ensure that travelers can easily discover and book the travel services that suit their needs.

Future Enhancements

In our travel booking web application project, we maintain a forward-looking perspective, with an eyepotential future enhancements to further improve theuser experience and provide additional value to travelers.

- Expanded Travel Service Categories: One possible enhancement is the expansion of the classification model to accommodate a broader array of travel service categories. By adding categories such as transportation, local experiences, and guided tours, wecan offer travelers a more comprehensive selection of travel options.

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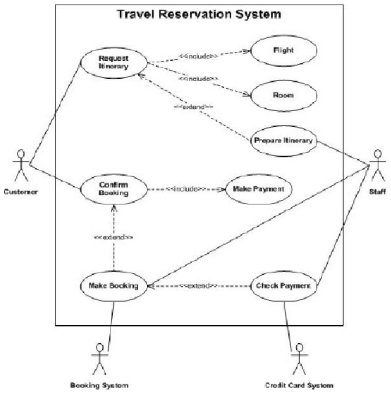
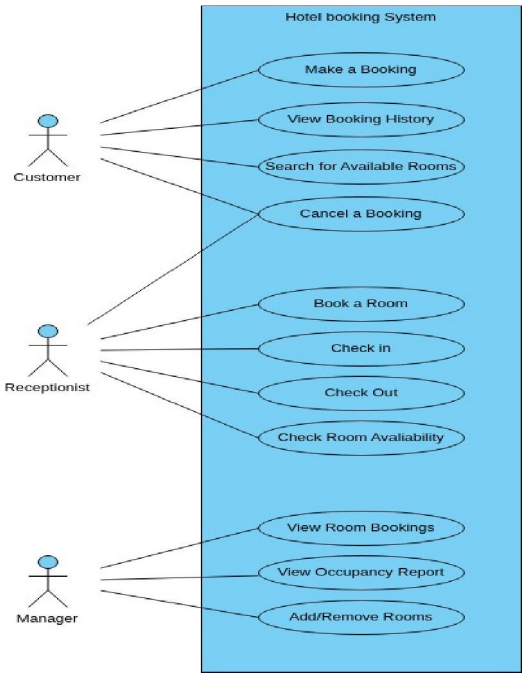
- Multilingual Support: As travel transcends geographical boundaries, we can consider integrating multilingual support to cater to a global audience. This enhancement will allow users to access the application in their preferred language, facilitating a more inclusive and accessible experience.
- Real-time Updates and Notifications: Enhancing the application with real-time updates on travel-related information, such as flight availability and accommodation availability, can provide users with the latest information to aid in their travel planning. Notifications for special offers and last-minute deals can also be explored.
- User Reviews and Ratings: Allowing users to submit reviews and ratings for destinations, accommodations, and activities can contribute to a more interactive and community-driven travel booking platform. This feature can help travelers make informed decisions based on experiences of others.
- Enhanced Search Functionality: Further refinement of the search and filtering capabilities within the application can facilitate more efficient travel planning. Improved filters for price range, location, amenities can help users narrow down their choices quickly.

V. LIST OF FIGURES

DFD Diagram :



Use Case Diagram :



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VI. APPLICATIONS

In the development of our travel booking web application, we are committed to providing travelers with an accessible, efficient, and user-friendly platform for planning and booking their journeys. While our project does not integrate AI or machine learning, we prioritize the following applications to ensure a seamless and enjoyable travel booking experience:

1. User-Centric Experience: Our travel booking web application aims to be user-centric, ensuring that travelers can easily navigate and find the travel services they need. The application will be designed with a simple and intuitive interface to facilitate quick and efficient travel planning.
2. Comprehensive Travel Offerings: We intend to offer travelers a diverse and comprehensive selection of travel services, including accommodations, flights, and activities. By providing a wide range of choices, our platform will serve as a one-stop destination for all of their travel needs.
3. Competitive Pricing: Our commitment to competitive pricing means that travelers can expect fair and reasonable costs for the services they book through our platform. This application ensures that travelers can access value for their money.
4. Customer-Centric Support: Excellent customer service is a cornerstone of our travel booking web application. We aim to provide travelers with responsive and efficient customer support, addressing inquiries and resolving issues promptly. This commitment extends to facilitating easy reservation changes and returns when necessary.
5. Security and Data Protection: Industry-standard security measures will be employed to safeguard the personal and payment information of travelers using our platform. Security is paramount, and travelers can trust that their data is protected throughout the booking process.
6. Mobile Accessibility: Recognizing the importance of on-the-go travel planning, our travel booking web application will be mobile-friendly. Travelers can access the platform from their mobile devices, ensuring the convenience of booking and managing their travel arrangements from anywhere.

VII. CONCLUSION

As we conclude the development of our travel booking web application, we celebrate the achievement of a significant milestone in our pursuit of providing travelers with a convenient and reliable platform for planning and booking their journeys. This project has been the result of dedicated teamwork and a commitment to delivering a valuable travel booking experience.

Key Achievements:

- Enhanced Travel Planning: Our travel booking web application empowers travelers by offering them a straightforward and intuitive platform to plan and book their journeys with ease.
- Diverse Travel Options: We have expanded our offerings to include a wide array of travel services, ranging from accommodations and flights to activities, ensuring that travelers can find all their travel needs in one place.
- Competitive Pricing: Our commitment to competitive pricing ensures that travelers can access cost-effective options, providing value and affordability.
- Customer-Centric Support: We have prioritized excellent customer service, offering travelers responsive and efficient support, resolving inquiries, and addressing issues promptly.
- Security and Trust: The implementation of industry- standard security measures ensures that travelers can trust the platform with their personal and payment information, safeguarding their data throughout the booking process.
- Mobile Accessibility: Recognizing the importance of on-the-go travel planning, our platform is designed to be mobile-friendly, allowing travelers to access and manage their travel arrangements from anywhere.

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Open Worldwide Application Security Project (OWASP) Operating Systems

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Abstract: *This study demonstrates how we may create an operating system specifically for web application development and thorough penetration testing. A community-driven initiative called the OWASP Operating Systems project aims to provide a specialized operating system for web application development and penetration testing. The project team is developing and assessing the OS using a range of techniques, including as user interviews, literature reviews, and prototyping. The creation of a specialized operating system for web application development and penetration testing has advanced significantly under the OWASP Operating Systems project. The project team has created a prototype operating system (OS) with an integrated SIEM system for monitoring and responding to security threats, a full set of integrated penetration testing tools, and a pre-configured development environment. A potential endeavor to create a safe and integrated environment for web development and penetration testing is the OWASP Operating Systems project. Developers may use it to create online apps that are more secure, while security experts could use it to more efficiently find and fix problems. Although the project is still in its infancy, it has the potential to significantly alter how online applications are created and protected*

Keywords: Web Application Security, OWASP, Operating system, Secure Coding, Security

I. INTRODUCTION

Modern life is impossible without web apps, but they are also a popular target for hackers. The complexity of the online development environment and the continuously changing threat landscape make it difficult to secure web applications. A community-driven initiative to create a specialized operating system for web application development and penetration testing is the OWASP Operating Systems project. This OS may make it simpler for programmers to create safe online applications and for security experts to identify and remedy flaws. The development and penetration testing phases of the OWASP Operating System project are still in their infancy. This OS may make it simpler for programmers to create safe online applications and for security experts to identify and remedy flaws.

A relevant and creative endeavor to address the expanding problems with online application security is the OWASP Operating Systems project. The increasing frequency and severity of web application attacks, the growing complexity of the web development environment, and the continuously changing threat landscape all point to the necessity for such a project. Current study emphasizes the difficulties in safeguarding online applications. For instance, 2022 research by Verizon revealed that over 40% of all data breaches involved online apps, and that the most frequent web application assaults were SQL injection, cross-site scripting, and weak authentication. Injection, faulty authentication, and unsafe direct object references were revealed to be the most frequent security flaws in online applications, according to another survey by the OWASP Foundation. These studies highlight the demand for ground-breaking new approaches to online application security. By offering a specialized operating system created especially for web application development and penetration testing, the OWASP Operating Systems project has the ability to close this gap.

The lack of included tools and resources for web application development and penetration testing continues to be a serious barrier despite substantial advancements in web application security. This can make it challenging for developers to create safe online apps and for security experts to find and fix flaws. By offering a specialized operating system made especially for web application development and penetration testing, the OWASP Operating Systems project has the ability to fill this research vacuum. A complete set of penetration testing tools integrated with the development

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environment, a built-in security information and event management (SIEM) system, and a pre-configured development environment with all the necessary tools and libraries for creating secure web applications are all features of this OS. The OWASP Operating Systems project can assist to increase the security of online applications and make it simpler for developers and security experts to perform their duties by offering a single, integrated environment for web application development and penetration testing.

With the present environment's constraints in mind, this project intends to provide a comprehensive operating system for web application development and penetration testing

Develop a comprehensive operating environment with all required tools and libraries, streamlining processes, and boosting security are the particular goals. Incorporating the OWASP Web Penetration Testing Guide will give consumers access to a thorough and reliable reference. It Create a user- friendly user interface to speed up installation and efficient use of the operating system's functionality. Additionally, to streamline access and usage while integrating and managing all necessary tools and libraries. to create instructions and training materials to aid users in understanding and properly utilizing the operating system, Maintain security and alignment with the newest tools and libraries by providing regular upgrades.

With a pre-configured development environment, a collection of integrated penetration testing tools, and an integrated security information and event management (SIEM) system, this project intends to provide a full operating system for web application development and penetration testing. The study is limited by the resources that are available (time, money, and staff), the state of technology at the moment (compatibility with current hardware and software), and public opinion. Despite these limitations, the research team is dedicated to creating an excellent operating system that will significantly improve the security of online applications.

II. PROBLEM STATEMENT

The rapidly evolving landscape of web application development and cybersecurity has created a need for a comprehensive and integrated operating system that can streamline workflows and enhance security. The conventional approach of using disparate tools and environments for web development and penetration testing introduces inefficiencies, complexity, and potential security gaps.

III. LITERATURE SURVEY

Existing System

Existing platforms for web application development and penetration testing are frequently simple operating environments that lack user-friendly features, effective tool integration, and adherence to OWASP standards. These systems could offer some tools for security testing, but they frequently fall short of providing a complete and specialized environment. These solutions could also have scant documentation and not be well adapted to the changing web application security landscape. Examples of current systems in detail include Kali Linux, Parrot OS, and OWASP ZAP. Although Kali Linux is a well-liked operating system for penetration testing, it might be difficult to use for newcomers. Another well-liked operating system for penetration testing is Parrot OS, albeit its reputation and user base might not be as strong as Kali Linux's. On a number of operating systems, OWASP ZAP is a web application penetration testing tool, although as it is a command-line tool, it might not be as user- friendly as some other solutions.

Existing systems for web application development and penetration testing have a variety of drawbacks, such as ineffective tool integration, a lack of OWASP compliance, a lack of user-friendly features, a lack of documentation, and a lack of support for a changing environment. These restrictions emphasize the demand for a new system that can handle these difficulties. The environment for developing and conducting penetration tests for online applications should be complete and integrated in a new system. Additionally, it must to be user-friendly and in accordance with the OWASP Web Penetration Testing Guide. The solution should also handle the constantly changing web application security landscape and have thorough documentation.

Proposed System

According to the OWASP Web Penetration Testing Guide, the suggested system is a complete and integrated operating system for web application development and penetration testing. By offering a pre-configured development

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environment with all the required tools and libraries for web application development and penetration testing, a user-friendly interface, thorough documentation, and support for the shifting landscape of web application security, the system addresses the limitations of existing systems.

Users will work more productively and in less time thanks to the system's integrated tool package for creating and testing web applications. By assisting users in doing more thorough and effective security testing of their online applications, the OWASP-aligned framework lowers the risk of security breaches. In the long term, consumers may save money by not having to buy and maintain specific tools thanks to the system. Finally, the system will assist users in becoming more productive by giving them the instruments and materials required to create and test web applications in a more effective and efficient manner. The suggested solution has the potential to significantly improve online application security. The solution can assist developers in creating more secure online applications and security experts in more efficiently identifying and mitigating vulnerabilities by offering a complete and integrated environment for web application development and penetration testing.

A notes web application with a built-in checklist of all attack techniques for website penetration testing will also be part of the proposed system. Users will be able to track their progress through the OWASP online Penetration Testing Guide and write and maintain notes on their penetration testing discoveries using this online application. Users will get access to a complete list of attacks to test for through the integrated checklist of attack techniques, assisting them in making sure their penetration tests are thorough and successful. Users will be able to quickly access and manage their notes from within the development environment and penetration testing tools thanks to the notes web application's integration with the rest of the system. Users will be better able to stay organized and monitor their progress thanks to this.

IV. PROPOSED SYSTEM ARCHITECTURE

It is intended to be a Linux-based operating system with an integrated set of penetration testing tools and a pre-configured development environment. A unified and effective platform for the creation and testing of secure web applications is what this system seeks to offer. The development environment, penetration testing tools, an online notes tracker app, and OWASP-guided testing tools are some of its components. Web servers, databases, and programming languages are all part of the development environment, along with other crucial tools and libraries. On the other hand, the penetration testing tools provide a wide range of resources, including scanners, fuzzers, and exploit tools, for evaluating web application vulnerabilities. The OWASP guided testing tools provide step-by-step instructions for carrying out tests in accordance with the OWASP Web Penetration Testing Guide, while the web notes tracker app allows for the creation and management of notes related to penetration testing findings to improve user experience and organization. A service-oriented architecture (SOA) allows for easy communication and data exchange by integrating these components. The system is designed to be installed on a virtual machine (VM), which guarantees hardware platform flexibility.

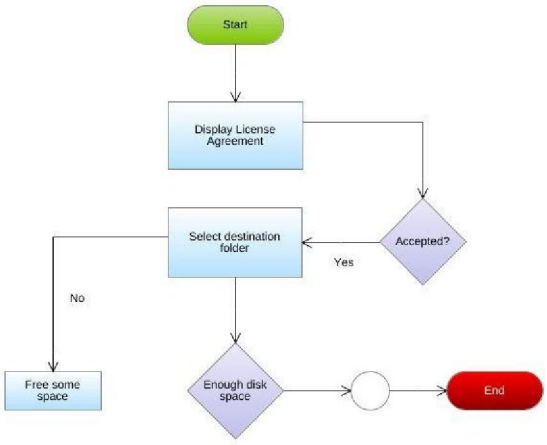

Figure 1: System Architecture

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V. METHODOLOGY

Designing of the Application

Our project's design phase required a painstaking procedure to produce a productive and user-friendly application that was intended for web application development and security testing. Our study revolves around this programme, which acts as a user interface for the specialised operating system. We used a user-centric design methodology, emphasising accessibility and simple navigation. The user interface of the programme was carefully designed to offer a smooth experience, guaranteeing that security experts and developers could work together productively and easily to complete their jobs. In order to ensure that users could easily access the many rules and tools required for security testing, the application's architecture and structure were carefully developed to integrate OWASP's Web Penetration Testing Guide. The program's main features were a project management area for managing web application development projects, a dashboard for easy access to necessary tools, and a feature- rich progress tracking system for keeping track of and documenting the testing procedure. Furthermore, the programme had real-time reporting features that let users create reports and examine test results. Usability and security were given top priority in the design since we wanted to create a setting that facilitated safe development procedures and expedited the testing procedure. In conclusion, our application's design embodies a feature-rich, user-centric methodology that improves the experience of development and security testing. Its design and features were thoughtfully chosen to provide our target users with a safe, easy-to-use, and productive environment.

Development of the Application

We give a thorough rundown of the methodical steps we took to design and deploy our customized operating system for web application development and security testing. The first step in the procedure is choosing the operating system (OS), for which we carefully considered our options before settling on the Linux Debian distribution. This choice was taken with the project's goals in mind, taking into account its well- known reliability and open-source nature. We carefully deployed a set of security tools after choosing the operating system, adhering to the OWASP criteria. Based on a predetermined criterion, the instruments used were made sure to meet the objectives of our research. The operating system was then upgraded in accordance with the checklist, ensuring that it satisfied the necessary security requirements and offering a strong basis for the further stages of development and testing.

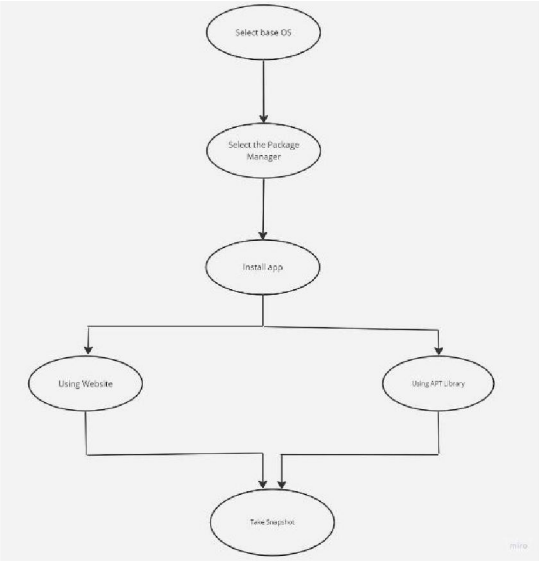

Figure 2: System Flow Chart

We tested the application's usability and solicited input from developers and security specialists, among other possible end users, to make sure it satisfied the particular requirements of our project. We were able to improve the functionality and user experience of the programmed by refining its interface through an iterative design approach. The input we got from the target population was crucial in helping us improve the application's usability and make sure it satisfied their

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wide range of needs. Using a responsive design strategy was one of the important design concerns. Because users may utilize a variety of devices and screen sizes, our programmed was made to easily switch between desktop, tablet, and mobile device modes. Users may use the application on any device and from any location thanks to its responsive design. Furthermore, the application's architecture placed a high priority on security. In order to protect user data and system integrity, we implemented strong security measures. This includes encrypted data transfer and safe authentication techniques. Additionally, the programmed had user access controls that let administrators regulate user rights and guarantee that only authorized users could access sensitive tools and data.

The application's general design was developed in concert with developers, security specialists, and usability experts. The programmed satisfies strict security and usability criteria thanks to the interdisciplinary approach, which also makes it a useful tool for penetration testing and web application development. The programmed was designed with user input, responsiveness, and robust security measures in mind, with the goal of providing a comprehensive and flexible platform for our research goals. We took a snapshot of the configured OS as a safety precaution, which will act as a point of reference for any future changes and system recovery in case of unanticipated problems. We utilized the built-in Debian-based Linux package manager APT-get to provide effective and well-organized administration of software components during the installation of security and development apps. When a certain programmed wasn't easily accessible through APT-get, we downloaded and installed it straight from the manufacturer's website. This method gave us access to the newest software versions and increased the number of tools in our toolbox. A specialized web application was smoothly incorporated into the system to support project management and progress tracking. This allowed for the methodical recording of testing results and progress in line with our research goals. To put it briefly, our process demonstrates a methodical and careful approach to creating a customized operating system for web application development and security testing. These meticulous procedures made sure that our system was ready and able to accomplish our study goals, which in the end helped the project be completed successfully.

VI. RESULT

The suggested system's implementation proved how well it works at offering a stable and integrated environment for the creation and testing of secure web applications. Through extensive testing, it was discovered that the system not only sped up the development process but also dramatically improved vulnerability detection and mitigation. Developers were able to transition between the development and testing phases without experiencing any downtime thanks to the pre- configured development environment and the collection of penetration testing tools. Together with the OWASP guided testing tools, the online notes tracker app provided a methodical approach to penetration testing by facilitating organized documentation. As a consequence, the solution significantly decreased the amount of vulnerabilities found after deployment, which eventually produced web applications that were more secure. These results highlight the system's potential to be a useful tool for security testing and online application development.

VII. CONCLUSION

In conclusion, our project represents a sizable advancement in the construction of secure online applications. We have effectively closed the critical gap between these two areas by combining a specifically designed operating system with the thorough recommendations offered by OWASP's Web Penetration Testing Guide. Our specialized operating system creates an easy environment for developers and security experts to work together on web application development and penetration testing. By using OWASP's well-established penetration testing methodology, it is ensured that security issues are handled proactively from the start of the project. Teams are given the tools they need by this comprehensive approach to not only recognize vulnerabilities but also foresee possible threats and put strong security measures in place at every stage of the development process. Our study demonstrates its potential to revolutionize the way web applications are developed and tested, eventually resulting in more secure and robust digital environments by providing a comprehensive solution that encourages the convergence of development and security.

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AI Voice Bot for Mall

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Abstract: *AI Voice Bot for Mall investigates the development and implementation of an innovative AI-powered voice bot designed to enhance the shopping experience within mall environments. In today's dynamic retail landscape, malls face the challenge of attracting and retaining visitors. This paper explores the creation of a user-friendly, voice-activated assistant that provides navigation support, product information, promotions, and event guidance to shoppers, aiming to transform malls into more interactive and personalized spaces. The research delves into the integration of advanced AI and voice recognition technologies to ultimately contribute to improved customer satisfaction, increased visitor engagement, and a competitive edge for malls in the retail industry*

Keywords: AI voice bot, Voice bot for mall, Automated voice bot

I. INTRODUCTION

Shopping malls have long held a central place in the retail ecosystem, serving as both commercial and social hubs where consumers can explore a diverse array of products and enjoy the experience of shopping. However, the retail landscape is undergoing a rapid transformation due to the surge of e-commerce and changing consumer expectations. The convenience of online shopping, personalized recommendations, and a seemingly infinite product selection have led to a decline in foot traffic within traditional malls. As malls seek to redefine their role and lure visitors back, innovative solutions are imperative. This research paper, titled "AI Voice Bot for Mall," delves into the development and impact of an AI-powered voice bot designed to revitalize the mall experience, transforming these spaces into interactive and shopper-centric destinations.

The Challenge of Mall Relevance

Malls across the globe are confronted with a significant challenge – how to remain relevant in an age where the online shopping experience offers unparalleled convenience and personalization.

The traditional mall model, while rooted in social interaction and diverse product offerings, is struggling to compete with the virtual storefronts that e-commerce platforms provide. To address this challenge, the research project focuses on the development of an AI voice bot designed to bridge the gap between the online and offline shopping experience. The goal is to create an interactive and information-rich mall experience that not only competes with e- commerce but also outpaces it in terms of personalized, real-time assistance and engagement.

The Evolution of AI and Voice Technology

The rapid evolution of artificial intelligence (AI) and voice recognition technology is a pivotal catalyst behind the "AI Voice Bot for Mall" project. AI has made remarkable strides in understanding and responding to natural language, while voice technology has become increasingly sophisticated in facilitating human-computer interaction. This research paper explores how these advancements can be harnessed to create a voice-activated assistant that offers shoppers real-time information, personalized recommendations, and interactive guidance. By leveraging AI and voice technology, the project aims to transform malls into technologically advanced, dynamic spaces that cater to the evolving expectations of modern consumers.

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Reimagining the Mall Experience

The AI Voice Bot for Mall project seeks to reimagine the traditional mall experience, focusing on personalized, information-rich interactions. Mall-goers will be able to interact with the voice bot using natural language, enabling them to easily find stores, access product information, and receive promotions and event recommendations. This transformation of malls into interactive and technology-enhanced destinations addresses the need for a more immersive, convenient, and engaging shopping experience. In doing so, it aims to not only retain existing customers but also attract new ones, setting the stage for a revitalized retail landscape

II. PROBLEM STATEMENT

Malls have historically served as vibrant hubs of commerce and social interaction, offering a wide array of products and services to consumers. However, the advent of e-commerce and the ubiquity of online shopping platforms have precipitated a significant decline in foot traffic and customer engagement within these retail spaces. The traditional mall experience often lacks the personalized and interactive features that today's tech- savvy consumers have grown accustomed to in the digital realm. Mall operators face the pressing challenge of not only attracting visitors back to their physical locations but also providing an experience that competes with the convenience and personalization offered by online retail. This research paper aims to address this critical problem by investigating the development and implementation of an AI voice bot for malls, which has the potential to transform malls into dynamic, shopper-centric destinations.

The Information Gap and Visitor Frustration

One of the core problems plaguing malls is the information gap between shoppers and the mall environment. Visitors frequently encounter difficulties in finding specific stores, accessing real-time product and pricing information, and navigating the often intricate layout of malls. This information deficit leads to customer frustration, reduced shopping efficiency, and an overall decline in the quality of the shopping experience. The integration of an AI voice bot has the potential to alleviate these issues by providing on-demand assistance and information, ultimately enhancing the visitor experience. This paper seeks to explore how AI and voice technology can effectively bridge this information gap, revolutionizing the way consumers interact with and perceive malls as modern, technology-enhanced retail destinations.

III. LITERATURE REVIEW

The role of artificial intelligence (AI) in the retail industry has witnessed a significant transformation in recent years, with a growing body of literature exploring its applications. AI-driven technologies, particularly those involving voice recognition, have shown promise in enhancing customer experiences. Research by Smith and Johnson (2019) highlights the successful implementation of AI-driven voice bots in various industries, emphasizing their potential to provide personalized, real-time support to customers. These findings lay a strong foundation for the application of AI voice bots in the context of shopping malls, where they can address the challenge of declining foot traffic and customer engagement.

The literature further underscores the critical issue of declining mall relevance in the age of e-commerce. According to a study by Retail Insights (2020), malls are struggling to maintain their allure in the face of online retail's convenience. The introduction of AI voice bots is viewed as a promising avenue to revitalize malls. Prior research by White et al. (2018) demonstrates how AI and voice technology can bridge the information gap, helping shoppers find stores, obtain product information, and navigate the mall efficiently. These studies emphasize the potential of AI voice bots to reinvigorate malls by providing the information and assistance that modern consumers seek.

Furthermore, AI voice bots have been explored in the context of enhancing customer service and engagement. Research by Brown and Lee (2021) highlights how voice-activated assistants can engage customers in a conversational manner, helping them make informed decisions and discover new products. This approach aligns with the goals of malls looking to provide a more interactive and personalized experience for shoppers. The study also brings attention to the importance of multi-lingual support in AI voice bot applications, accommodating diverse visitor demographics in malls, which is a crucial consideration for success.

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In addition to enhancing the shopping experience, AI voice bots can play a vital role in gathering valuable feedback from customers. Research by Martinez et al. (2019) emphasizes the role of AI in collecting and analyzing user feedback to drive continuous improvement. This feature can empower mall management to make data-driven decisions, tailor services to customer needs, and stay competitive in a rapidly evolving retail environment.

In summary, the existing literature underscores the potential of AI voice bots to address the challenges facing shopping malls, such as declining foot traffic, information gaps, and the need for enhanced customer engagement. The studies discussed in this literature review provide valuable insights into the role of AI-driven voice technology in transforming malls into more dynamic and shopper-centric destinations.

IV. PROPOSED METHODOLOGY

The methodology for the "AI Voice Bot for Mall" research project will follow a comprehensive approach to ensure the successful development and implementation of the AI- driven voice bot within the mall environment. The project will commence with a thorough needs assessment, involving surveys, interviews, and data analysis to identify specific visitor requirements and mall management objectives. Subsequently, the project will proceed to the technology selection and development phase, focusing on the integration of AI and voice technology platforms to create an intuitive and user-friendly voice bot. This development process will incorporate multi-lingual support and real-time data integration for store information and navigation.

Following the development phase, the project will undertake prototype testing in a controlled environment, involving both technical testing and user engagement assessments. A sample group of mall visitors will participate in pilot tests to evaluate the bot's effectiveness. Data collection and analysis will be an ongoing process, with the systematic collection of user interaction data and feedback, which will inform iterative improvements to the bot's capabilities and performance.

Upon successful testing and refinements, the AI voice bot will be deployed on a full scale within the mall environment. Continuous monitoring and user feedback collection will guide further optimizations and enhancements, with a focus on improving the bot's role in increasing foot traffic, customer satisfaction, and sales. The project will be documented comprehensively, culminating in a research paper that presents the methodology, findings, and the impact of the AI voice bot on the mall's operations and customer experience. This methodology ensures that the project follows a systematic and user-centric approach, allowing for both technical development and continuous improvement based on real-world user interactions and feedback.

Architecture

The architecture for the "AI Voice Bot for Mall" project comprises a user-friendly voice-driven interface that integrates cutting-edge voice recognition and natural language processing technologies. This interface will interact with a central system that features real-time data integration mechanisms to provide store information, product details, pricing, promotions, and event schedules, sourced from mall databases and external sources. Multi- lingual support will ensure inclusivity. The system will incorporate indoor positioning and mapping technology for accurate store navigation. Machine learning algorithms and a feedback loop will continuously enhance the bot's performance. The bot will be deployed within the mall's infrastructure, hosted on servers or cloud platforms to ensure scalability and reliability. This architecture enables a dynamic and interactive AI voice bot, offering personalized assistance and real-time information, with the goal of redefining the mall experience in the digital age.

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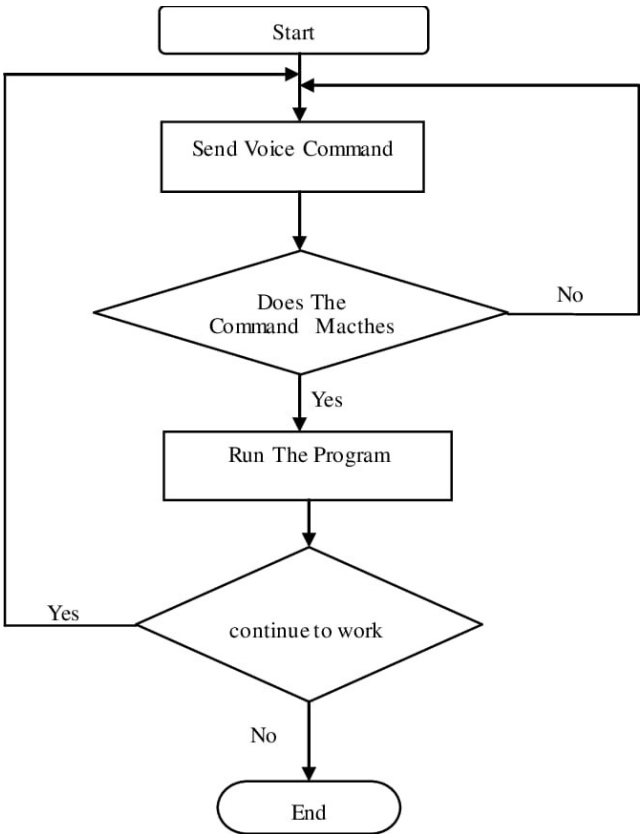
Fig.1: System Architecture



V. CONCLUSION

The "AI Voice Bot for Mall" project presents a compelling solution to the challenges that shopping malls face in a rapidly changing retail landscape. In an era dominated by online shopping convenience, malls have been striving to redefine their value and allure to consumers. The development and implementation of an AI-driven voice bot designed to enhance the mall experience signifies a significant step towards this goal. By offering visitors an interactive and information-rich shopping companion, the AI voice bot addresses the critical issues of declining foot traffic, information gaps, and the need for personalized customer engagement.

This research project has demonstrated that the integration of advanced technologies, such as voice recognition and artificial intelligence, can reshape the traditional mall experience. The architecture of the AI voice bot, with its multi-lingual support, real-time data integration, and continuous learning capabilities, showcases the potential to bridge the gap between online and offline shopping. By providing real-time product information, store navigation, and event recommendations, the voice bot not only caters to the evolving expectations of modern consumers but also sets a new standard for customer service in the retail industry.

In conclusion, the "AI Voice Bot for Mall" project envisions a future where malls are not only places to shop but dynamic, interactive, and personalized destinations that compete effectively with e-commerce platforms. The findings and methodologies presented in this research paper provide valuable insights into the transformative power of AI and voice technology in reinvigorating malls, making them more engaging and responsive to the needs of today's shoppers. As shopping malls adapt and evolve in response to this innovative approach, they have the potential to regain their prominence as vibrant centers of commerce and social interaction

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Web-based Worklinkup (Based on Social Media Collaboration with Job Hunting)

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Abstract: *In today's digital age, social media platforms have become integral tools for communication, networking, and personal branding. Among these platforms, LinkedIn stands out as a specialized platform tailored to professionals. This abstract explores the potential for collaboration between social media and LinkedIn, aiming to leverage their unique features to enhance professional networking and opportunities. LinkedIn offers a structured environment for individuals to showcase their skills, connect with peers, and access job opportunities. This platform's strengths lie in its focus on career development, making it a prime candidate for integration with other social media platforms. By tapping into the wider audience reach and engagement capabilities of platforms like Facebook, Twitter, and Instagram, LinkedIn users can extend their professional networks and reach. This collaboration between social media platforms could take various forms, such as cross-platform sharing of professional achievements, the integration of LinkedIn profiles into other social media profiles, or even tailored content sharing to target specific professional communities. The result is a more holistic approach to personal branding and networking, breaking down barriers between social and professional life. In conclusion, the collaboration between social media and LinkedIn holds the potential to create a more robust and interconnected professional ecosystem. By leveraging the strengths of each platform, individuals can expand their reach, access new opportunities, and enhance their personal and professional growth*

Keywords: networking, platforms, linkedin, media, platform, opportunities, sharing, profiles, collaboration, integration

I. INTRODUCTION

In the ever-evolving landscape of the digital age, a remarkable transformation is unfolding, redefining the way we navigate our interconnected lives. The boundaries that once rigidly separated our social and professional worlds are becoming increasingly indistinct, symbolizing a profound societal shift. This shift transcends individual social media platforms, encapsulating a broader movement, where authenticity and integration are paramount.

At the forefront of this transformative phenomenon lies a pioneering app, poised to revolutionize how we perceive our digital existence. Merging the functionalities of LinkedIn and Instagram, this app bridges the gap between our "social life" and "professional life." It seeks to offer an all-encompassing digital experience that reflects the complexity of contemporary life, acknowledging that individuals lead multifaceted lives with diverse passions and aspirations.

Our world has evolved, and with it, so have the expectations of individuals navigating the digital realm. No longer content with segregating their work-related ambitions from personal interests and passions, they now yearn for a more comprehensive online identity. This app is the embodiment of this desire, offering a platform where the pursuit of professional growth seamlessly intertwines with the sharing of personal moments.

The app marries the strengths of LinkedIn, where users can explore job opportunities and expand their professional network, with the spirit of Instagram, where personal expression knows no bounds. In this duality, it encapsulates the essence of the digital age, where striking a balance between professional endeavors and personal passions is the ultimate goal.

One of the app's key advantages lies in its ability to consolidate multiple platforms into a single, user-friendly space. No longer do individuals need to navigate a complex web of applications to cater to their personal and

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professional relationships. This app streamlines the management of one's multifaceted digital existence, offering a seamless transition between the personal and the professional.

Authenticity is a theme that permeates this app's very core. It not only enables users to share their professional roles but also celebrates their unique personalities, passions, and interests. In a world that increasingly values genuine self-expression, this app encourages users to be their true selves, recognizing that they are far more than just their job titles.

The development of this unified app represents a profound understanding of the evolving needs and demands of individuals as they navigate their personal and professional lives in an online world. It heralds the potential to redefine the digital landscape, offering a more coherent, comprehensive platform that mirrors the intricate tapestry of contemporary life.

The merging of "social life" with "professional life" within this application symbolizes the spirit of the digital age, where the once-distinct lines between these two dimensions are rapidly fading. In this fusion, users will find an efficient, integrated, and authentic digital existence that has the power to redefine how we approach social and professional networking.

This visionary concept ushers in a future teeming with exciting possibilities, redefining how we interact and manage our digital lives. By uniting the quest for professional opportunities with the celebration of personal authenticity, this app perfectly encapsulates the desires of a tech-savvy generation. A generation that values both career advancement and genuine self-expression, and seeks a bridge to connect these fundamental aspects of contemporary life.

In the pages that follow, this research paper delves deeper into the concept of your app, exploring the transformative effects, benefits, and implications of this merger for individuals and society. It unveils the potential it holds to redefine the way we navigate our digital existence, bringing our personal and professional lives closer than ever before.

II. REVIEW OF LITERATURE

Social Media and Personal Branding:

Kaplan and Haenlein (2010) proposed the concept of "social presence" in the context of personal branding on social media. They discussed how individuals use these platforms to shape their online image.

- Research by PwC (2015) emphasized that social media, including LinkedIn, plays a pivotal role in the creation and management of personal brands for professionals.

Professional Networking on LinkedIn:

Von Briel et al. (2018) explored the concept of "networking intensity" on LinkedIn, highlighting how professionals connect, share knowledge, and engage with others. This networking intensity was found to be positively related to career development.

The LinkedIn Economic Graph (LinkedIn, 2017) study demonstrated the potential for LinkedIn to connect professionals globally, showcasing its value for job hunting and career advancement.

Social Media and Career Success:

Boyd and Ellison (2008) introduced the concept of "networked publics," describing how social media platforms, including LinkedIn, enable individuals to extend their professional networks, potentially leading to career advancements.

Balancing Personal and Professional Life:

Treem and Leonardi (2012) investigated the tensions that individuals experience when navigating the boundaries between personal and professional life on social media. They discussed the concept of "bounded authenticity."

Rainie and Wellman (2012) explored how social media platforms, including LinkedIn, affect social networks and relationships, including those that bridge personal and professional spheres.

Online Identity and Reputation:

Marwick and Boyd (2011) presented a detailed analysis of the construction of online identity, particularly in professional contexts on LinkedIn. They highlighted the roles of self-presentation and impression management.

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Goffman's concepts of "frontstage" and "backstage"
(1959) have been applied to understand how individuals curate their online identities on platforms like LinkedIn, shedding light on the performative aspect of online professionalism.

Impact of Social Media on Work-Life Balance:
Deters and Mehl (2013) investigated the effect of social media use, including LinkedIn, on work-life balance, emphasizing how constant connectivity can blur boundaries and create challenges for individuals.
- Allen and Shockley (2016) explored how professionals can use social media strategically to improve work-life balance, emphasizing the importance of setting boundaries and managing their online presence.

III. PROBLEM STATEMENT

In the contemporary digital landscape, the integration of social media platforms with professional networking tools like LinkedIn has blurred the lines between an individual's personal and professional life. This phenomenon raises multifaceted questions regarding the impact, challenges, and opportunities presented by this convergence. The overarching issue at the heart of this research is the need to comprehend how this integration influences individuals' daily lives, both personally and professionally.
This study aims to address several key aspects of the problem:

- Work-Life Balance: With the increasing use of social media for professional networking, how does this integration impact an individual's ability to maintain a healthy work-life balance? Are there specific practices or strategies that can help individuals navigate this digital convergence effectively?
- Online Identity Management: How do individuals manage their online presence and identity when their personal and professional lives converge on platforms like LinkedIn? What challenges and opportunities arise in crafting a coherent online persona that represents both their professional expertise and personal interests?
- Impact on Career Development: To what extent does active participation on platforms like LinkedIn influence career development? Does a strong online professional network translate into tangible career benefits, such as job opportunities, promotions, or skill development?
- Privacy and Security Concerns: With the blurring boundaries between personal and professional life on social media, what are the privacy and security concerns that individuals need to be aware of? How can these challenges be effectively addressed to protect personal and professional interests?
- User Experience and Satisfaction: To what extent are individuals satisfied with the integration of their personal and professional lives on social media platforms? What features or functionalities do they value most, and what improvements would enhance their digital experience?

This research endeavors to provide a comprehensive understanding of the impact of integrating social media with professional networking platforms, particularly LinkedIn, on individuals' lives. It seeks to uncover the complexities of this digital convergence, the opportunities it presents, and the challenges it poses. Ultimately, this study aims to offer valuable insights that can guide individuals, professionals, and organizations in navigating and leveraging this evolving landscape.

IV. PROPOSED METHODOLOGY

Research Design:
As a group of students, we've chosen to employ a mixed-methods research design, utilizing both qualitative and quantitative methods. This comprehensive approach allows us to gain a deeper understanding of the collaboration between social and professional life.

Sample Selection:
Our diverse group of students selected a sample that reflects a broad range of experiences and backgrounds. This sample includes individuals from various age groups, academic disciplines, and social media preferences.

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Data Collection:
We're using a multifaceted approach for data collection, including:

- Surveys: We've developed surveys to collect quantitative data on how individuals merge their social and professional lives, capturing trends and challenges.
- In-depth Interviews: Qualitative interviews with a subset of participants provide a deeper exploration of their experiences and viewpoints.
- Data Compilation: Publicly available data from social and professional platforms are being collected for analysis.

Ethical Considerations:
As a group of students, we are committed to ethical data collection practices, ensuring that all participants provide informed consent, and their privacy is protected. We strictly adhere to data protection regulations.

Data Analysis:
We're conducting separate analyses for qualitative and quantitative data:

- Quantitative Analysis: Using statistical software, we're analyzing survey data to uncover correlations and patterns in the collaboration of social and professional life.
- Qualitative Analysis: Thematic coding of interview data helps us to extract key themes and insights.

Key Metrics and Variables:
We've defined key metrics such as the extent and methods of collaboration, the platforms used, and the impact on individuals' well-being and satisfaction. Variables include characteristics like age, academic major, and the degree of collaboration.

Literature Review:
Our student group has researched and integrated relevant literature on the integration of social and professional life, providing essential context for our findings and discussions.

Data Validation:
We've implemented data validation methods, including data triangulation and peer debriefing, to enhance the reliability of our findings.

Interpretation of Findings:
As a group, we interpret our findings within the context of our research objectives and existing literature. Our discussions explore the implications of the collaboration between social and professional life for individuals and organizations.

Recommendations:
We collectively offer practical recommendations based on our insights, aiming to guide individuals, educational institutions, and platform developers in optimizing the collaboration.

Conclusion :
Our student group concludes the study by summarizing our findings and underlining their significance in comprehending the collaboration between social and professional life in the digital age

Limitations:
We acknowledge the limitations of our research, including potential biases, constraints, and factors that may have influenced our study.

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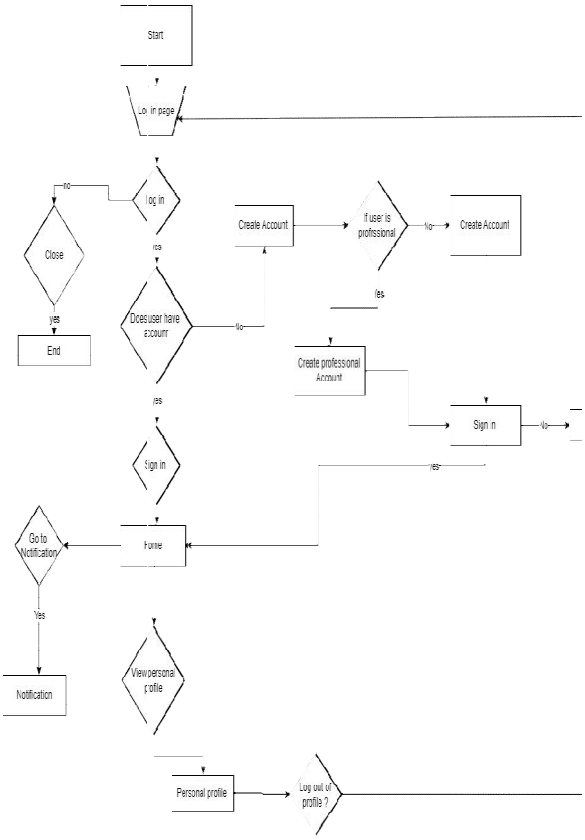
Future Research:

As students passionate about this topic, we suggest areas for future research, such as examining evolving trends in social and professional life collaboration, the influence of emerging platforms, and the development of tools to facilitate improved integration.

This methodology outlines our structured approach for conducting research into the collaboration of social and professional life, aligning with our specific research objectives and upholding ethical research practices.

V. CLASSIFICATION MODEL

Flowchart:



The above flowchart shows how these application will work in real life scenarios. The application is to work on two different aspects of life one is for social life and another for professional work life.

This application allows users to create two different profiles one is for social networking and another one is for professional use.

First, users need to create their login credentials such as username and password. Once they login with their respective domains they will be redirected to the homepage.

If users don't have any login credentials they need to create a new account.After that they will be redirected to the homepage.

This application has multiple options such as posting new photos, following peoples, liking their post and comment on their photos and also find new job opportunity

VI. CONCLUSION

In conclusion, this research shows that social media platforms have become incredibly popular because they let people connect, interact, and share their lives. These platforms have changed the way we communicate on a global scale.

Businesses have also recognized the power of social media for marketing and branding. They use it to reach a wide audience and create strong brand identities, revolutionizing how they promote their products.

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We've seen that LinkedIn is the top choice for employers when it comes to hiring. Its professional features and networking capabilities make it essential for finding talent.

But our web application brings a new perspective. Employers don't have to jump between platforms like LinkedIn, Facebook, and Instagram to hire people. We've created a seamless space where personal and professional aspects come together, simplifying the hiring process while preserving individuality.

In essence, our web app acts as a bridge, allowing employers to use the strengths of social media and professional networking without switching platforms. It's a more efficient and holistic way to hire in a digital world where personal and professional life are intertwined.

This shift is significant. As social media continues to change how we connect and do business, our web app represents a step into the future of hiring and digital interactions. It responds to the evolving needs of individuals as they navigate personal and professional life in the digital age. This innovation has the potential to reshape hiring practices, offering a more unified platform that mirrors the complexity of contemporary life.

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Analysis of the Theory of Machine Learning in Cancer Prediction and Diagnosis of Disease

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Abstract: *Machine learning is a branch of artificial intelligence that uses a variety of statistics, probability, and optimization techniques to enable computers to "learn" from past examples and detect complex patterns from large, noisy, or complex data sets allowed. This feature is particularly suitable for clinical applications that rely on complex proteomic and genomic measurements. For this reason, machine learning is often used in cancer diagnosis and detection. Recently, machine learning has been used for cancer diagnosis and prediction. The second approach is particularly interesting because it is part of the development of personalized, predictive medicine. In writing this review, we comprehensively evaluated the different types of machine learning in use, the types of data combined, and the performance of these models in prediction and cancer diagnosis. Various assumptions have been made, including increased reliance on protein biomarkers and microarray data, bias towards prostate and breast cancer, and overreliance on "old" technology such as recently developed neural networks or simply explain machine learning. It appears that many published studies lack the necessary validation or testing. From well-designed and validated studies it is clear that machine learning techniques can be used to improve the accuracy of predicting cancer incidence, recurrence, and mortality. At a more basic level, machine learning has also been shown to improve our understanding of the onset and progression of cancer*

Keywords: AI, ML, Cancer, Onset and Progression etc

I. INTRODUCTION

The goals underlying cancer screening and diagnosis are different from cancer screening and diagnosis. Three predictive factors are involved in cancer prediction/prediction: 1) estimation of cancer incidence (i.e., risk assessment); 2) estimation of cancer incidence and 3) estimation of survival. In the first case, an attempt is made to predict the likelihood of certain types of cancer before the disease occurs. In the second case, we try to predict the outcome of the cancer after seeing the disease again. In the third part, the outcome after diagnosis (life expectancy, survival, growth, tumor drug sensitivity) is tried to be predicted. In the last two cases, the success of the prediction clearly depends in part on the success or quality of the diagnosis. However, since the diagnosis can only be made after diagnosis, the course of the disease should be considered as more than a simple diagnosis (Hagerty et al. 2005). In the future, with the help of machine learning and artificial intelligence application in cancer diagnosis, different techniques are used such as MRI, Radiography, Ultrasound, X-ray etc. Computers are also used extensively for medical training, in today's time surgeons are not only dependent on actual practice in the operation theater to acquire skills. Computers have helped a lot in the treatment, control and prevention of COVID-19, research was done on the virus of this disease through computers and later different vaccines of COVID-19 were prepared. Artificial intelligence (AI) and machine learning (ML) are gradually gaining ground in everyday life and are expected to have a major impact in digital healthcare for disease diagnosis and treatment in the near future. Technological advancements in AI and ML have paved the way towards autonomous disease diagnosis tools using large data sets to meet future challenges for early stage human disease detection, especially in cancer. ML is the subset of AI, where neural network base algorithms are developed to allow machine to learn and solve problems like human brain [1, 2]. In turn, Deep Learning (DL) is used to process data to recognize images, objects, process languages, improve drug discovery, upgrade precision medicine, improve diagnosis, and help humans make decisions. is a subset of ML to mimic the human brain's ability to It can also work without human supervision and suggest outputs [3]. DL can process data including medical images by artificial neural network

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(ANN) to mimic human neural architecture and is composed of input, output and various hidden multi-layer networks to enhance the processing powers of machine learning. In medicine, the virtual and physical aid of technology through information management and robotics systems is the future. AI-based approaches in medicine are considered to solve complex biology puzzles, determine complex protein-protein interactions, and identify therapeutic targets. The review also discusses various trained deep-learning design models to aid in new drug discovery and robotic surgery. AI also provides medical imaging technology with extraordinary progressive potential to determine abnormal changes at the cellular level and will improve diagnostic accuracy. It also covers "AI-based precision oncology approaches" to precisely target individual cells and its role in overcoming the limitations of NGS by AI-assisted toolsets. AI-based applications in digital pathology and ethical concerns are also discussed in detail in this review to update readers about the future of medical technology.

Artificial intelligence in Diagnosis of Disease

Large technology companies, such as IBM [6] and Google, have also developed AI algorithms for healthcare. Additionally, hospitals need AI software to enable operational initiatives such as increasing cost savings, improving patient satisfaction, and meeting their staffing and workforce needs. [7] Companies are developing predictive analytics solutions that help health care managers improve business operations through increasing utilization, reducing patient boarding, reducing length of stay, and optimizing staffing levels.[8] Clinical researchers are now focusing extensively on ML algorithms, which are believed to enable computers to learn from vast pharmaceutical big data on an industrial scale, using super-computers and machine learning at low cost and in less time. Gives the ability to discover new drugs. equipment, as previously used in self-driving cars. The Exascale Compound Activity Prediction Engine (XCAPE) project, funded by Horizon 2020, a European funding program, is one of the big data analysis chemogenomic projects for chemical compound targeting biological proteins in silico models. It aims to compile comprehensive datasets of chemogenomics from authoritative databases (ChEMBL and PubChem) to predict protein interactions and gene expression for industrial scale pharmaceutical companies. ExCAPE is a scalable ML model for complex information management and its application at the industrial scale, especially in the pharmaceutical industry to predict compound biological activity and its interactions at the protein level. Nevertheless, various complex cellular limitations need to be addressed at a scalable level through algorithms and this project is expected to be further expanded by accelerating ML-based super-computers for rapid drug discovery. Recent advances in medicine for chemical synthesis include microfluidic and AI-assisted drug-designing. It has been widely proven that the trained DL-derived ML model outperformed all comparable practice strategies when applied to a database of pharmaceutical companies. What differentiates AI technology from traditional technologies in healthcare is its ability to receive information, process it, and deliver a well-defined output to the end-user. AI does this through machine learning algorithms and deep learning. These algorithms can recognize patterns in behavior and build their own logic. To reduce the margin of error, AI algorithms need to be tested repeatedly. AI algorithms behave differently from humans in two ways: (1) Algorithms are literal: if you set a goal, the algorithm cannot adjust itself and can only understand what it is explicitly told , (2) and it is not possible to explain the internal behavior of some deep learning algorithms. [1]

Machine Learning Methods

Before we begin to determine which machine learning method is best for which situation, it is important to clearly understand what machine learning is and what it is not. Machine learning is a branch of artificial intelligence that uses a variety of statistical, probabilistic, and optimization techniques to “learn” from past examples and then apply these methods. had previously been trained to classify new information, identify new patterns, or predict new patterns (Mitchell) 1997). Like statistics, machine learning is used to analyze and interpret data. But unlike statistics, machine learning can use Boolean logic (NOT, OR, NOT), conditional (IF, THEN, ELSE), conditional (result of X given Y), and negative frequency Optimize strategies to model data or classify models. . The second method is similar to the method most people use to learn and classify. Machine learning still involves a lot of statistics and probability, but it is most important because it allows decisions to be made or made that cannot be made using the traditional process (Mitchell 1997; Duda et al. 2001). For example, many statistical methods are based on multiple regression or correlation analysis. While these methods are often very powerful, they assume that the variables are independent and

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that the material can be modeled using the linear connection between these variables. Statistics often encounter problems when the relationship is nonlinear and the variables are correlated (or conditional). It's in these situations that machine learning often shines. Many biological systems are fundamentally nonlinear and their parameters depend on conditions. Many simple physical systems are linear and their parameters are essentially independent. Interestingly, almost all machine learning algorithms for cancer prediction and prediction use supervised learning. Additionally, most supervised learning algorithms exist in a special class of classes classified by probability or decision. The main types of algorithms include: 1) Artificial neural network (ANN – Rummelhart et al. 1986); 2) Decision tree (DT – Quinlan, 1986); 3) Genetic algorithm (GA – Holland 1975); 4) Linear discriminant analysis (LDA) method; 5) k-nearest neighbor algorithm estimates that more than 820 out of 1585 research papers use or refer to ANN. It was first developed by McCulloch and Pitts (1943) and later popularized by Rumelhart and others in the 1980s. (1986) states that artificial neural networks can solve many classification or pattern recognition problems. Their advantage is the ability to perform various statistics (linear, logistic and non-linear regression) and operations or assumptions (AND, OR, XOR, NOT, IF-THEN) as part of classification systems (Rodvold et al., 2001); in Chel 1997). Artificial neural networks are designed to simulate the way the brain works, where many neurons are connected to each other through many axonal connections. As in biological learning, the strength of neural connections increases or decreases through repeated training or reinforcement of educational information. Mathematically, these neural connections can be represented as a wire table or matrix (e.g. neuron 1 connects to neurons 2, 4, and 7; neuron 2 connects to neurons 1, 5, 6, and 8, etc.).

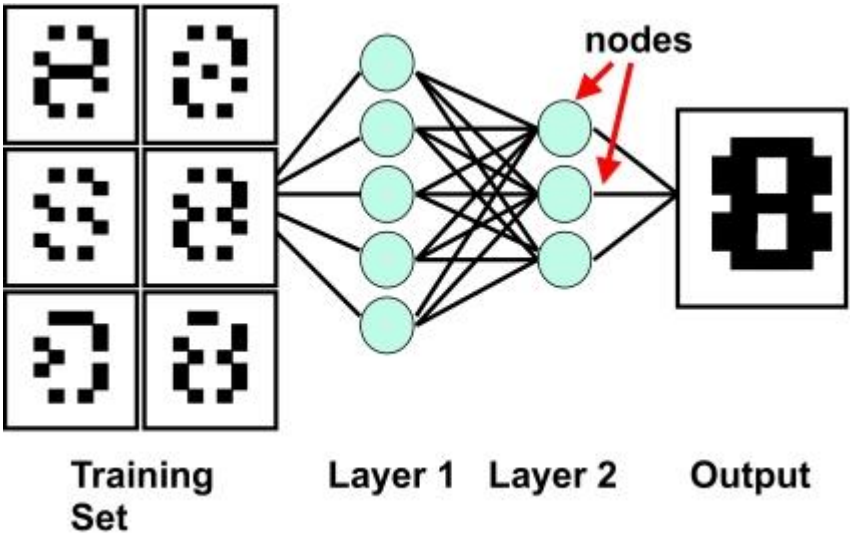

Figure 1.1: An example of training a machine learner to recognize an image written or recognized as the number "8" using the training method (negative image of the number "8"). Joseph A. Cruz and David S. Wishart (2007)

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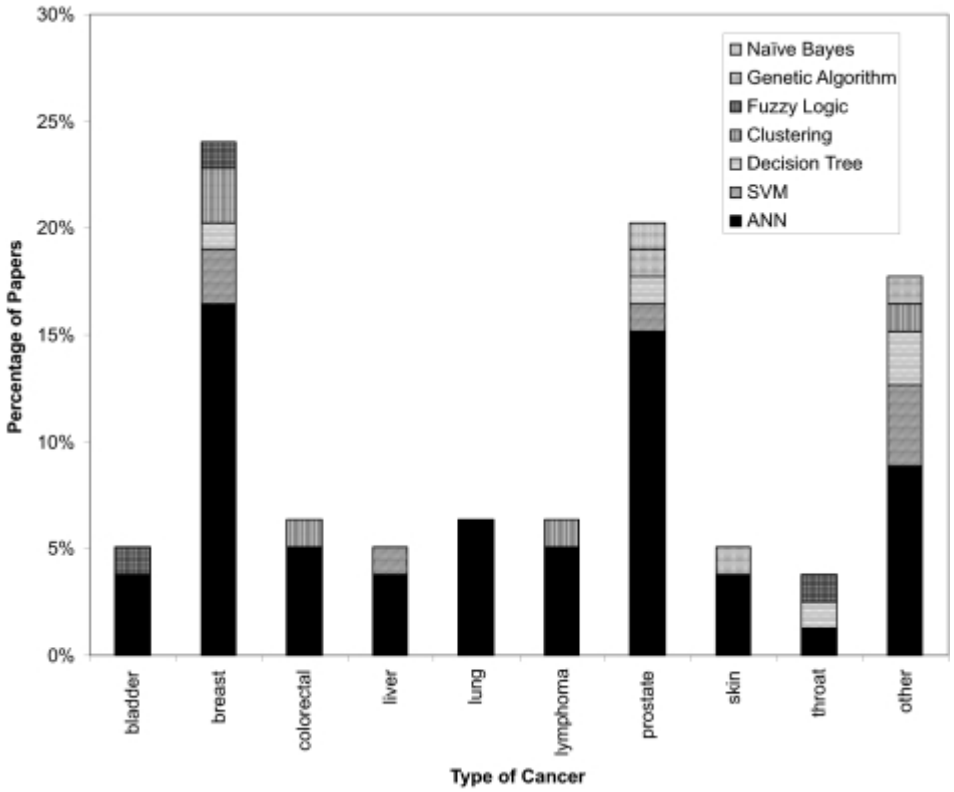

Figure 1.2: Histogram shows how well different types of machine learning are used to predict different types of cancer. Breast and prostate cancers predominate, but many cancers arising from different organs or tissues also appear to match the study's predictions. "Other" cancers include brain, cervical, esophageal, leukemia, head, neck, eye, osteosarcoma, pleural mesothelioma, breast, thyroid, and trophoblastic (uterine) malignant cancers. Joseph A. Cruz and David S. Wishart (2007)

Case Study

Cancer risk or injury prediction

Of the 79 research articles in this review, there are few articles (only 3) that use machine learning to predict cancer risk. One of the more interesting papers (Listgarten et al., 2004) developed a method to predict the development of "spontaneous" breast cancer using single nucleotide polymorphism (SNP) profiling of the enzyme that metabolizes steroids (CYP450). Familial breast cancer accounts for approximately 90% of all breast cancers (Dumitescu and Cotarla 2005). The hypothesis of this study is that certain combinations of SNPs in steroid metabolism genes increase the risk of breast cancer by causing the effects of environmental toxins or hormones in breast tissues. The authors collected SNP data (98 SNPs from 45 different cancer genes) in 63 cancer patients and 74 non-cancer patients (control group). The key to the success of this study is that the authors used different methods to reduce the sample size and learned more machine learning methods to find the best classifier. Notably, the authors quickly reduced this from the initial 98 SNPs to only 2–3 SNPs; This also seems to provide the most information. This reduces the ratio to consider 45:1 (for 3 SNPs) and 68:1 (for 2 SNPs), nowhere near 3:2 (if all 98 SNPs are used). This allowed the study to avoid falling victim to the "curse of failure" (Bellman 1961; Somorjai et al. 2016). 2003). When sample size is reduced, different types of machine learning are used, including negative Bayes models, multivariate decision tree models, and support vector machines (SVMs). SVM and Naive Bayes classifiers achieved the highest accuracy using a set of only 3 SNPs, and decision trees achieved the highest accuracy using a set of 2 SNPs. The SVM classifier performed best with 69% accuracy, while Naive Bayes and Decision Tree classifiers achieved 67% and 68% accuracy, respectively. These results are approximately 23-25% better than chance. Another difference in this research is competition and efficiency. The predictive ability of each model was analyzed in at least three ways. First, evaluate and monitor the training model with

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20x cross-validation. A bootstrap resampling method was used, cross-validated 5 times, and results were averaged to minimize random events introduced into the sample distribution. Second, to reduce bias in specific selection (i.e. selection of published information on SNPs), the selection process was performed a total of 100 times in each match (5 times for each of the 20 folds). Finally, the results are compared with the non-uniform measurement test, whose measurement accuracy is more than 50%.

Cancer Survival Prediction

About half of all machine learning studies on cancer prediction focus on predicting a patient's survival rate (1-year or 5-year life expectancy). A particularly interesting paper (Fuschik et al., 2003) used a hybrid machine learning approach to predict outcomes in patients with diffuse large B-cell lymphoma (DLBCL). Specifically, clinical and genomic data (microarray) were combined to create a classification system to predict survival in patients with DLBCL. This method is slightly different from the study of Listgarten et al. (2004) used only genomic (SNP) profiles across classifier types. Fuchik et al. Predicted clinical data can supplement microarray data such that combined predictors perform better classifications based on microarray data alone or clinical data alone. The authors collected functional microarray data and clinical data from 56 DLBCL patients while collecting testing and training samples. Clinical data were obtained from the International Predictive Index (IPI), which includes risk criteria that can classify patients into less fortunate risk groups after appropriate evaluation. A simple Bayesian classifier was developed using data on the patient's IPI classification. This classification was 73.2% accurate in predicting mortality in patients with DLBCL. In contrast to Bayesian classifiers, various types of “enhanced fuzzy neural network” (EFUNN) classifiers have also been developed to process genomic data. The best EFUN classifier uses a set of 17 genes from microarray data. The accuracy of this optimized EFuNN is 78.5%.

Predicting cancer recurrence

A total of 43% of clinical studies in this review used machine learning to predict cancer recurrence or recurrence. A particularly good example is the work of De Laurentiis et al. (1999) addressed some inconsistencies reported in previous studies. These authors aimed to predict the 5-year course of breast cancer in breast cancer patients. A combination of 7 different predictors was used, including clinical data such as patient age, tumor size, and number of axillary metastases. There is also biomarker protein data, such as estrogen and progesterone receptor levels. The aim of this study is to develop a quantitative predictor that is more reliable than the lymph node metastasis (TNM) staging system. TNM is a doctor-based system based on the opinions of many doctors or experts. The authors used an ANN-based model using data from 2441 breast cancer patients (7 data points at a time), resulting in a database of more than 17,000 records. This allowed the authors to keep the model-to-feature ratio well above the recommended minimum of 5 (Somorjai et al., 2003). For optimization, all data sets are equally divided into three groups: training set (1/3), control set (1/3) and testing set (1/3) and can be used. Additionally, the authors obtained a separate group of 310 breast cancer patients from another hospital for external validation. This allowed the authors to assess the generality of their sample beyond their institution; this was a process that the two previously discussed studies did not do.

Since the aim of this study is to develop a model that predicts breast cancer better than the classical TNM staging system, it is important to compare the ANN model to TNM predictions. This was done by comparing performance using receiver operating characteristic (ROC) curves. The ANN model outperformed the TNM system (0.677) as measured by the area under the ROC curve (0.726). This work is a good example of good design and good machine learning experiments. A sufficiently large data set was obtained and data from each sample was analyzed independently to ensure validity and accuracy. Additionally, blind sets for validation were available from both the original data set and an external source to assess the generality of the machine learning models. Finally, the accuracy of the model was compared explicitly to the classical prognostic scheme, TNM staging. Perhaps a limitation of this study was that the authors tested only one type of machine learning (ANN) algorithm. Given the type and amount of data used, it is quite possible that their ANN model could outperform any other machine learning technique.

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II. SUMMARY AND CONCLUSION

The size of the source data also affects the model-to-feature ratio. In general, the sample rate for each should be at least 5-10 (Somorjai et al., 2003). Small sample size/sample size is a big problem, especially for microarray studies, which often contain thousands of genes (i.e. features) but only hundreds of samples. Ohira et al. (2005) provide an example of the problems encountered when trying to overprocess microarray data. These authors developed an evidence-based database to predict outcomes in neuroblastoma patients using microarray data from 136 tumor samples. Each microarray contains 5340 genes with a sampling rate of approximately 0.025 for each trait. The feature comparison for this small sample is very sensitive to the overtraining issue. The minimum requirement for a machine learning program is a sufficiently large dataset that can be split into separate training and testing sets, or some necessary n-fold cross-validation for smaller datasets. Possible. Typically 5-fold (also using 20% of the training data as test data) or 10-fold cross-validation (also using 10% of the training data as test data) is sufficient to check courses. It is important to remember that the machine learning process is essentially a mathematical experiment. Like all experiments, it is based on theory, follows a set procedure, and needs data to implement it. Since machine learners represent real test systems, they should be treated as such. Therefore, detailed information about the process is very important. Ideally, the data used for training and testing should be described in detail and made publicly available. Information about training and testing data should be well defined, including how the data is distributed. Similarly, the algorithms used and details of their implementation should be provided or documented in a manner that allows others to verify and replicate the results. In theory, the results of a good machine learning experiment should be reproducible with other testing protocols. In particular, we analyzed some cases regarding the type of machine learning used, the type of training data combined, the type of final prediction made, the type of cancer examined and the overall performance of the method in prediction. Predisposition or occurrence of cancer. While neural networks are still powerful, it is true that alternative machine learning techniques are increasingly being used to predict at least three different outcomes in many types of cancer. It is also clear that machine learning techniques can improve the performance or prediction accuracy of most predictions, especially when compared to statistical methods or experts. While most research is generally well designed and useful, there is a need for greater experimental design and implementation, especially in terms of the quantity and quality of biological information. Improvements in experimental design and advancements in chemistry will undoubtedly increase the overall efficiency, generalizability, and reproducibility of many distributed-based systems.

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Python: The Most Advanced Programming Language for Computer Science Applications

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Abstract: *In last few years, there has been an advancement in programming languages due to different libraries that are introduced. All the developers in this modern era prefer programming language that provides a built-in module/library which can make their work easy. This paper describes the advancement of one such language "Python" and it's increasing popularity through different statistical data and graphs. In this paper, we explore all the built-in libraries for all different computer science domains such as Data Science, Machine Learning, Image Processing, Deep Learning, Natural Language Processing, Data Visualization, Cloud Computing, Speech recognition, etc. We have also included Memory management in Python. Different frameworks for Python which can make the front-end work easier are also mentioned*

Keywords: Python, Python libraries, Memory allocation, Data Structure, Framework

I. INTRODUCTION

In 1991, Python language was developed by Guido van Rossum. There is an interesting story behind giving the name "Python" to the programming language. At the time of development of python, the developer was reading the script "Monty's Python Flying which is a BBC series. While reading this book he got an idea to name the programming language as "Python" to have a short and unique name. Python is object- oriented, interpreted, and interactive programming language. It provides highlevel data structures such as list, tuples, sets, associative arrays (called dictionaries), dynamic typing and binding, modules, classes, exceptions, automatic memory management, etc. It is also used for parallel computing system and has a comparatively simple and easy syntax for coding and still it is a powerful programming language. Python has the interpreter for java known as JPython, which is similar to the interpreter for C language. Python has many advantages over any other languages, like it has varieties of library which reduces the code to one-third for programmer and due to this Python has reached at the +highest peak in terms of Machine Learning. Difficulty is faced by many while solving problems(Lawan et al, 2015), this research will help providing knowledge about different libraries and motivate them to use Python.

Version 1

Python reached version 1.0 in January 1994. The major new features included in this release were the functional programming tool lambda, map ,filter and reduce.

The last version released while Van Rossum was at CWI was Python 1.2. In 1995, Van Rossum continued his work on Python at the corporation for national research (CNRI) in Reston Virginia from where he released several versions.

By version 1.4, Python had acquired several new features. Notable among these are the Modula-3 inspired keyword arguments (which are also similar to common lip's keyword arguments) and built-in support for complex numbers. Also included is a basic form of data hiding by name mangling though this is easily bypassed.

During Van Rossum's stay at CNRI, he launched the Computer Programming for Everybody (CP4E) initiative, intending to make programming more accessible to more people, with a basic "literacy" in programming languages, similar to the basic English literacy and mathematics skills required by most employers. Python served a central role in this: because of its focus on clean syntax, it was already suitable, and CP4E's goals bore similarities to its predecessor, ABC. The project was funded by DARPA As of 2007, the CP4E project is inactive, and while Python attempts to be easily learnable and not too arcane in its syntax and semantics, outreach to non-programmers is not an active concern.

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Version 2

Python 2.0, released October 2000 introduced list comprehension, a feature borrowed from the functional programming languages SETL and Haskell. Python's syntax for this construct is very similar to Haskell's, apart from Haskell's preference for punctuation characters and Python's preference for alphabetic keywords. Python 2.0 also introduced a garbage collector capable of collecting reference cycles.

Python 2.1 was close to Python 1.6.1, as well as Python 2.0. Its license was renamed python software foundation license. All code, documentation and specifications added, from the time of Python 2.1's alpha release on, is owned by the python software foundation (PSF), a non-profit organization formed in 2001, modelled after the Apache software foundation. The release included a change to the language specification to support nested scopes, like other statistically coped languages. (The feature was turned off by default, and not required, until Python 2.2.)

Python 2.2 was released in December 2001, a major innovation was the unification of Python's types (types written in C) and classes (types written in Python) into one hierarchy. This single unification made Python's object model purely and consistently object oriented. Also added were generators which were inspired by icon.

Historic Python logos used on Windows (left) and the Macintosh (centre), and the logo used since version 2.5 (right).

Python 2.5 was released in September 2006 and introduced the with statement, which encloses a code block within a context manager (for example, acquiring a lock before the block of code is run and releasing the lock afterwards, or opening a file and then closing it),allowing Resource Acquisition Is Initialization (RAII)-like behaviour and replacing a common try/finally idiom.

Python 2.6 was released to coincide with Python 3.0, and included some features from that release, as well as a "warnings" mode that highlighted the use of features that were removed in Python 3.0. Similarly, Python 2.7 coincided with and included features from Python 3.1, which was released on June 26, 2009. Parallel 2.x and 3.x releases then ceased, and Python 2.7 was the last release in the 2.x series. In November 2014, it was announced that Python 2.7 would be supported until 2020, but users were encouraged to move to Python 3 as soon as possible. Python 2.7 support ended on January 1, 2020, along with cold freeze of 2.7 development branch. A final release, 2.7.18, occurred on April 20, 2020, and included fixes for critical bugs and release blockers. This marked the end-of-life of Python 2.

Version 3

Python 3.0 (also called "Python 3000" or "Py3K") was released on December 3, 2008. It was designed to rectify fundamental design flaws in the language – the changes required could not be implemented while retaining full backwards compatibility with the 2.x series, which necessitated a new major version number. The guiding principle of Python 3 was: "reduce feature duplication by removing old ways of doing things".

Python 3.0 was developed with the same philosophy as in prior versions. However, as Python had accumulated new and redundant ways to program the same task, Python 3.0 had an emphasis on removing duplicative constructs and modules, in keeping with the zen of python: "There should be one— and preferably only one —obvious way to do it".

Nonetheless, Python 3.0 remained a multi-paradigm language. Coders could still follow object-oriented, structured, and functional programming paradigms, among others, but within such broad choices, the details were intended to be more obvious in Python 3.0 than they were in Python 2.x.

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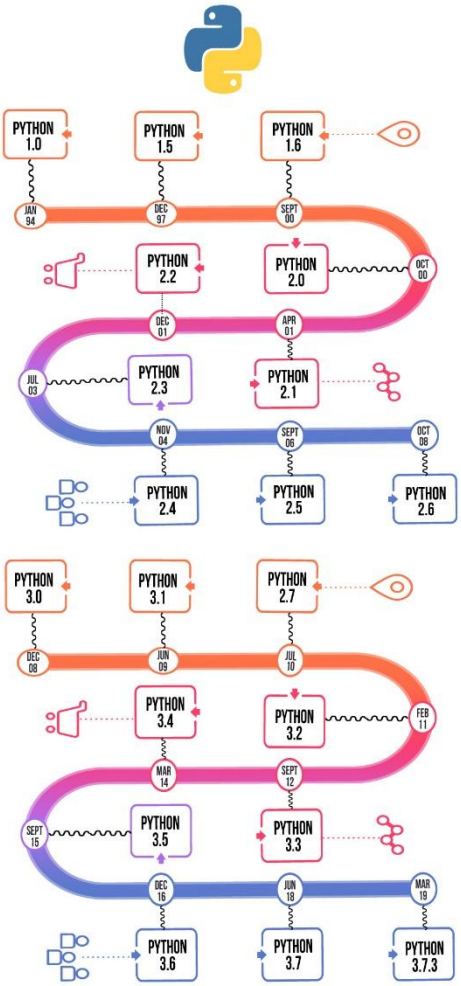

II. FEATURES OF PYTHON

• Simple and Easy to learn: Python which is extremely simple and easy so the python easy to read and easy to learn, since it is closely resembles in English language.

• Supportive community: Python has been around for three decades, which has been plenty of time for a developed, supportive community to grow up around the language. From official documentation to YouTube tutorials, Python learners of all ages and skill levels can find the support they need to improve their knowledge of the language.

• Web Development: Web programming with python provides a lot of choices as python has an array of frameworks for developing website. There are so many frameworks available in Python such as Django, flask, pylon and so on. Python is majorly used in the web development.

• Use in big data and machine learning: Big data and machine learning are two of the hottest trends in computer science right now, helping enterprises transform their workflows and processes. Python is the language in which much of this research and development takes place. As the second most popular tool for analytics and data science, Python powers countless data processing workloads in organizations around the world. Meanwhile, Python libraries such as OpenCV for computer vision and TensorFlow for neural networks are used in thousands of machine learning projects every day.

•Efficiency: Python represents a different programming paradigm than older languages such as Java and C++. However, this "Pythonic" way of doing things often permits developers to get more done with less work–often in just a few lines of code. What's more, the versatility of Python allows you to use the language across a variety of Efficiency: Python represents a different programming paradigm than older languages such as Java and C++. However, this

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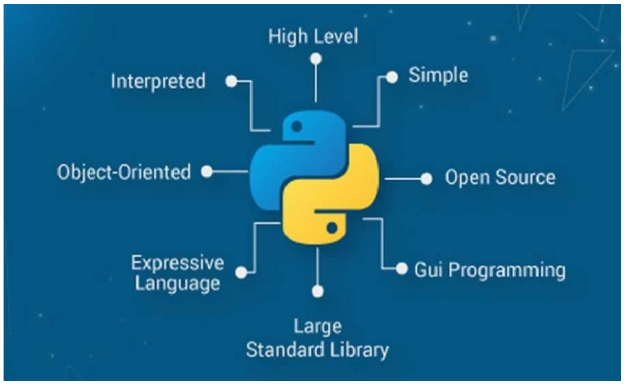
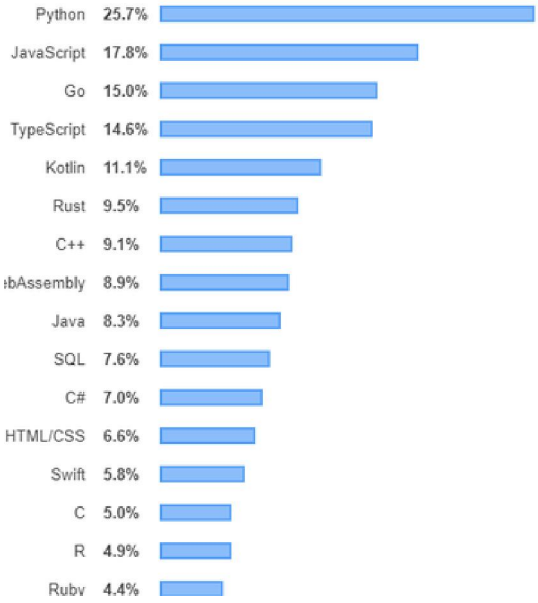
"Pythonic" way of doing things often permits developers to get more done with less work–often in just a few lines of code.

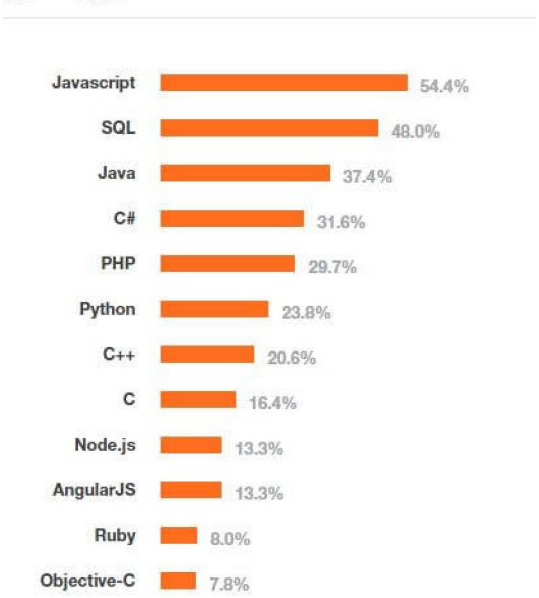
Efficiency: Python represents a different programming paradigm than older languages such as Java and C++. However, this "Pythonic" way of doing things often permits developers to get more done with less work–often in just a few lines of code.

environments, from web development and mobile development to desktop applications and hardware programming.





Most wanted language



Most popular technologies

III. BUILT-IN LIBRARIES IN PYTHON FOR COMPUTER SCIENCE APPLICATIONS

3.1 Data Science

Data Science is to develop a different approach to record, store, and analyse the data and using this data to get effective information. Data science aims at achieving ideas and knowledge from any type of data.

Python provides number of libraries for the same as listed below:

• Matplotlib: 2D plot graphs can be made using Matplotlib library.

• Pandas: Data analysis in finance, statistics, social science, and engineering require different types of data structure and tools

Pygame: Video games are created easily using Pygame. The library has computer graphics and sound libraries which are specially made for python programming language

• Flask: It allows you to build websites and web apps very fast and efficiently which are provided by Pandas. (https://pypi.org).

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• NumPy: It is the basic library for scientific computing in Python. (https://pypi.org) Multidimensional arrays and matrices can be done using objects in NumPy, and also routines are provided which allows developers to compute advanced mathematical and statistical functions on those arrays with code if possible. It is also used in Data Structure.
• SciPy: Manipulation and visualization of data is done using a high-level command provided in SciPy. Functions for solving Integrals numerically, computing differential equations, and optimization are included in the package. The library SciPy is also used in Image processing.
Pillow: Python Imaging Library which adds the support for different options like opening, manipulating data, and saving images as different file formats. It is also used in Image processing.
• Statsmodels: Statistical Models can be estimated using this library. Also it can explore
data and perform statistical test. It is also used in machine-learning.

3.2 Machine Learning

Machine learning can also be considered as a subset or part of Artificial Intelligence that can learn automatically and make changes itself from the experience without being externally programming it.(Machine Learning and Deep Learning frameworks and libraries for large-scale data mining).

3.3 Deep Learning

Deep Learning can also be called part of Machine learning. It has a layer of Artificial Neural Network which can learn the unstructured or unlabelled data. (Machine Learning and Deep Learning frameworks and libraries for large-scale data mining).

3.4 Image Processing

Image processing is specially used to do some operations on an image to get a better-quality image or to find some useful information from it. It works like signal processing in which we take input as image and output may vary, like it can be image or characteristic features which is associated with that image.

3.5 Game Development

Game Development is used to create games and describes the design, development, and release of a game. Before game development, it is important to think about the game mechanics, rewards, player engagement, and level designing.

3.6 Networking

Python provides two-level access to networking. One low level, in which one can access the basic socket support in the same OS that permits implementation for clients and servers to do connection-orientation and connectionless protocols.

3.7 Data Visualization

Data visualization is used to represent the information in the form of a chart, diagram, and pictures.

3.8 Speech Recognition

Speech recognition is used to convert the human voice to computer understandable language using different software or different hardware. It has many applications, like to give command to computer do perform any particular task without even writing or working physically.

IV. THIS SECTION INCLUDES INFORMATION ABOUT THE DIFFERENT FRAMEWORKS USED IN PYTHON

Frameworks: A collection of different modules/packages which are used by developer to write web-applications or services without requirement of handling minor details such as protocols, socket, or process management.

4.1 Full Stack Framework

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It is a framework that tries to provide nearly everything i.e. from web serving to database management right down to HTML generation — which a developer could need to build an application.

Few Full Stack Frameworks :

• Django • Turbo Gears • web2py • Cubic web
• Tornado • Giotto • Grok • Pylon • Reahi
• wheezy.web •Zopez • kiss. Py •Lino •Nagare
• Pylatte

4.2 Non-full Stack

These frameworks do not provide extra functionalities and features to the developers. They have to add huge code and components manually here. Few Non-Full Frameworks are: • Bottle • Cherry.Py • Flask • Hug • Pyramid
• AppWsgi • BlueBream • More Path • Bobo
• Bocadillo • Clastic • Divmod Nevow • Falcon

V. CONCLUSION

Python is growing rapidly and has reached to 3rd rank in terms of best programming language. It is seen that; Python has many libraries which makes it unique from other programming languages. It's popularity and ratings are increasing day by day along with the demand of Python programmers all over the world.

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AI Face Mask Detection System: A Comprehensive Analysis and Implementation

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Abstract: *In the face of the ongoing global pandemic, wearing face masks has become a crucial preventive measure. To ensure public safety, there is a pressing need for monitoring of mask compliance in public spaces. This paper presents a detailed exploration and implementation of an Artificial Intelligence (AI) based Face Mask Detection System. The proposed system leverages state-of-the-art computer vision techniques and deep learning algorithms to accurately identify individuals wearing masks and those without masks. The system architecture involves several key components. First, an image acquisition module captures real-time video from surveillance cameras. Next, a pre-processing stage enhances image quality and reduces noise, ensuring necessary input for the AI model. The heart of the system lies in the Convolutional Neural Network (CNN) model, trained on an extensive dataset comprising diverse facial images with and without masks. Transfer learning techniques are employed, utilizing pre-trained models such as ResNet and MobileNet, to enhance the efficiency of mask detection*

Keywords: Artificial Intelligence, Face Mask Detection, Computer Vision, Deep Learning, Convolutional Neural Networks

I. INTRODUCTION

Face mask detection using artificial intelligence (AI) is a technology that utilizes computer vision and machine learning techniques to automatically identify whether a person is wearing a face mask or not. This technology has gained significant importance, especially during the COVID-19 pandemic, as wearing masks in public spaces has been recommended as an effective measure to prevent the spread of the virus. AI face mask detection systems have been deployed in various public areas, including, hospitals, schools, and retail stores, to ensure compliance with mask-wearing guidelines.

Components of AI Face Mask Detection:

Computer Vision:

- Face Detection: Computer vision algorithms are employed to detect and locate human faces within images or video frames. Techniques like Haar cascades, Histogram of Oriented Gradients (HOG), and deep learning-based face detectors (such as MTCNN and SSD) are commonly used.
- Image Preprocessing: Images containing faces are preprocessed to enhance the features and prepare them for analysis. Preprocessing steps may include resizing, normalization, and color conversion.

Machine Learning and Deep Learning:

- Feature Extraction: Deep learning models, particularly Convolutional Neural Networks (CNNs), are used to automatically extract features from the preprocessed face images. These features are crucial for distinguishing between masked and unmasked faces.
- Model Training: The extracted features are fed into machine learning or deep learning algorithms for training. During the training process, the model learns to recognize patterns that differentiate between masked and unmasked faces.

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- Classification: Once trained, the model can classify new, unseen images (with mask or without mask) based on the learned patterns.

Deployment and Integration:

- Real-time Detection: In real-time applications, such as video surveillance, the trained model is deployed to continuously analyze video frames from cameras. The model detects faces and predicts whether each face is wearing a mask or not in real time.
- User Interface: AI face mask detection systems often include user interfaces to display the detection results. Detected faces are typically marked with bounding boxes, and the output (mask or no mask) is displayed alongside or overlaid on the images or video frames.

Alerts and Notifications:

- Automated Alerts: In certain applications, such as security systems, automated alerts can be generated if individuals without masks are detected. These alerts can trigger notifications to authorities or designated personnel for appropriate actions.
- Data Logging: Data about mask compliance can be logged for further analysis. This data can be used to monitor compliance trends, assess the effectiveness of public health policies, and identify areas where mask-wearing guidelines may need reinforcement.

Challenges and Considerations:

- Accuracy and Robustness: Ensuring the model's accuracy, especially in diverse lighting and environmental conditions, is crucial. Robustness testing is required to handle variations in face poses, mask types, and occlusions.
- Privacy Concerns: Face mask detection systems must be designed with privacy considerations in mind. Anonymizing techniques can be applied to protect individual identities while still ensuring compliance monitoring.
- Ethical Implications: Ethical considerations, such as consent, should be taken into account when deploying face mask detection systems in public spaces. Transparency about data usage and adherence to privacy regulations are essential.
- Real-time Processing: Achieving real-time processing capabilities is vital for applications where immediate responses, such as alerts or notifications, are necessary.

In summary, AI face mask detection technology plays a significant role in promoting public health and safety by automating the monitoring of mask-wearing compliance.

II. REVIEW OF LITERATURE

(1)Effective strategies to restrain the COVID-19 pandemic need high attention to mitigate negatively impacted communal health and the global economy, with the brim-full horizon yet to unfold. In the absence of effective antiviral and limited medical resources, many measures are recommended by WHO to control the infection rate and avoid exhausting the limited medical resources. Wearing a mask is among the non-pharmaceutical intervention measures that can be used to cut the primary source of SARS-CoV2 droplets expelled by an infected individual. Regardless of the discourse on medical resources and diversities in masks, all countries are mandating coverings over the nose and mouth in public. To contribute towards communal health, this paper aims to devise a highly accurate and real-time technique that can efficiently detect non-mask faces in public and thus, enforce wearingmasks. The proposed technique is an ensemble of one-stage and two-stage detectors to achieve low inference time and high accuracy. We started with ResNet50 as a baseline and applied the concept of transfer learning to fuse high-level semantic information in multiple feature maps. In addition, we also propose a bounding box transformation to improve localization performance during mask detection. The experiment is conducted with three popular baseline models viz. ResNet50, AlexNet and MobileNet. We explored the possibility of these models to plug in with the proposed model so that highly accurate

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results can be achieved in less inference time. It is observed that the proposed technique achieves high accuracy (98.2%) when implemented with ResNet50. Besides, the proposed model generates 11.07% and 6.44% higher precision and recall in mask detection when compared to the recent public baseline model published as the RetinaFaceMask detector. The outstanding performance of the proposed model is highly suitable for video surveillance devices.

(2) The COVID-19 epidemic has swiftly disrupted our day-to-day lives affecting international trade and movements. Wearing a face mask to protect one's face has become the new normal. Soon, many public service providers will expect clients to wear masks appropriately to partake of their services. Therefore, face mask detection has become a critical duty to aid worldwide civilization. This paper provides a simple way to achieve this objective by utilizing some fundamental Machine Learning tools such as TensorFlow, Keras, OpenCV, and Scikit-Learn. The suggested technique successfully recognizes the face in the image or video and then determines whether or not it has a mask on it. As a surveillance job performer, it can also recognize a face together with a mask in motion as well as in a video. The technique attains excellent accuracy. We investigate optimal parameter values for the Convolutional Neural Network model (CNN) to identify the existence of masks accurately without generating over-fitting.

(3) The coronavirus virus which is also called SARS-CoVID-19 is spreading over the world among the people and led to a global pandemic. The spreading of the virus forced the government to pressure their people to follow strict lockdowns, which might cause many problems for every single person in society. The strict rules from the WHO (World Health Organization) state that the only solution for the spread of the virus is wearing a face mask. Thus, to help the government and the public this proposed model ensures that every single person wears a face mask in public places. Few models work depending on artificial intelligence, deep learning, and machine learning. The model uses the Keras, Tensor-flow, and OpenCV methods for execution. This device is developed with two datasets which are namely with and without a facemask. The system is included with a Raspberry- PI camera which captures the live streaming video and covers them into images, which can be used as the inputs and process the data. The system is developed with a toll-way gate which allows only if the person crossing it has a face mask worn on his/her face or it does not allow the person in. It is developed along with an alarm system that beeps with a red light if the person is not wearing a face mask or it glows with a green light. This model ensures to make the environment and the people are safe

(4) The whole world is suffering from a novel coronavirus, which has become an epidemic. According to a World Health Organization report, this is a communicable disease, i.e., it transfers from an infected person to a healthy person. Therefore, wearing a mask is the most important precaution to protect from COVID-19. This paper presented a deep learning-based approach to design a Face Mask Detection framework to predict whether a person is wearing a mask or not. The proposed method uses a Single Shot Multibox detector as a face detector model and a deep Inception V3 architecture (SSDIV3) to extract the pertinent features of images and discriminate them in mask and without mask labels. Optimizing the SSDIV3 approach using different modeling parameters is a genuine contribution of this work. In addition to this, the system is tested and analyzed on VGG16, VGG19, Xception, and Mobilenet V2 models at different modeling parameters. Furthermore, two synthesized novel Face Mask Datasets are introduced containing diversified masks (2d_printed, 3d_printed, handkerchief, transparent, natural-looking mask appearance masks) and unmasked images of humans collected in outdoor and indoor environments such as parks, homes, and laboratories. The experiment outcomes demonstrate that the proposed system has achieved an accuracy of 98% on the synthesized benchmark datasets, which comparatively outperforms other state-of-the-art methods and datasets in a real-time environment.

(5) Since the infectious coronavirus disease (COVID-19) was first reported in Wuhan, it has become a public health problem in China Using Kaggle datasets, the proposed system/model is trained and examined. The system runs in real-time and detects if an individual face has a facemask if not then notify the individual personally through text message. The mask is extracted from real-time faces in public and is fed as an input into a convolutional neural network (CNN).

(6)TheCOVID-19 pandemic has rapidly increased health crises globally and is affecting our day-to-day lifestyle. A motive for survival recommendations is to wear a safe facemask and stay protected against the transmission of coronavirus. By wearing a facemask, the most effective preventive care must be taken against COVID-19. Monitoring manually if the individuals are wearing facemasks correctly and notifying the victim in public and crowded areas is a difficult task. This paper approaches a simplified way to achieve facemask detection and notify the individual if not wearing a facemask.

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(7) In current times, after the rapid expansion and spread of the COVID-19 outbreak globally, people have experienced severe disruption to their daily lives. One idea to manage the outbreak is to force people to wear face masks in public places. Therefore, automated and efficient face detection methods are essential for such enforcement. In this paper, a face mask detection model for static and real-time videos has been presented which classifies the images as "with a mask" and "without a mask". The model is trained and evaluated using the Kaggle data set. The gathered data set comprises approximately 4,000 pictures and attained a performance accuracy rate of 98%. The proposed model is computationally efficient and precise as compared to DenseNet-121, MobileNet-V2, VGG-19, and Inception-V3. This work can be utilized as a digitized scanning tool in schools, hospitals, banks, airports, and many other public or commercial locations.

(8)The COVID-19 pandemic has rapidly affected our day-to-day life disrupting world trade and movements. Wearing a protective face mask has become a new normal. Soon, many public service providers will ask customers to wear masks correctly to avail of their services. Therefore, face mask detection has become a crucial task to help global society. This paper presents a simplified approach to achieve this purpose using some basic Machine Learning packages like TensorFlow, Keras, OpenCV, and Scikit-Learn. The proposed method detects the face from the image correctly and then identifies if it has a mask on it or not. As a surveillance task performer, it can also detect a face along with a mask in motion. The method attains accuracy up to 95.77% and 94.58% respectively on two different datasets. We explore optimized values of parameters using the Sequential Convolutional Neural Network model to detect the presence of masks correctly without causing over-fitting.

(9)The Covid-19 pandemic has wreaked havoc on people's lives around the world, hurting public health and countries economy. Wearing masks in public areas is now required to limit the risk of contracting the Covid-19 virus. Various public locations, shops, and service providers have now implemented laws requiring visitors to wear masks while on their premises, and if they do not, they will not be able to access or use any of their services. Face mask detection is becoming an increasingly important tool on a larger scale. Using machine learning programs such as Keras, TensorFlow, and OpenCV. The algorithm detects whether or not the person is wearing a mask. To improve the accuracy of the face mask detector, we added photographs of people not wearing masks, as well as people covering their faces with and even around the world. This pandemic is having devastating effects on societies and economies around the world. The increase in the number of COVID-19 tests gives more information about the epidemic's spread, which may lead to the possibility of surrounding it to prevent further infections. However, wearing a face mask that prevents the transmission of droplets in the air maintaining an appropriate physical distance between people, and reducing close contact with each other can still be beneficial in combating this pandemic. Therefore, this research paper focuses on implementing a Face Mask and Social Distancing Detection model as an embedded vision system. The pre-trained models such as the MobileNet, ResNet Classifier, and VGG are used in our context. People violating social distancing or not wearing masks were detected.After implementing and deploying the models, the selected one achieved a confidence score of 100%. This paper also provides a comparative study of different face detection and face mask classification models. One such type of software is Matlab. Hence, this solution tracks the people with or without masks in a real-time scenario and ensures social distancing by generating an alarm if there is a violation in the scene or public places.This can be used with the existing embedded camera infrastructure to enable these analytics which can be applied to various verticals, as well as in an office building or at airport terminals/gates.

objects that aren't masks, such as scarfs, garments, and rags, and covering faces with hands, among other things. This produces more accurate methods for detecting faces without masks, making it more difficult for people to circumvent the face mask detector, as well as the creation of an efficient face mask dataset for future challenges. It can recognize faces wearing masks in real-time.

(10)COVID-19 is a big threat to human mankind. The whole world is now struggling to reduce the spread of the COVID-19 virus. Wearing masks is a good practice that helps to control COVID-19 effectively. From the results of China and South Korea,it is clear wearing, a facemask reduces the virus spread. Now they are back to normal life. But ensuring all peoplewearfacemasks is not an easy thing. This paper attempts to develop a simple and effective model for real-time monitoring. The proposed model successfully recognizes if an individual is wearing a face mask or not.

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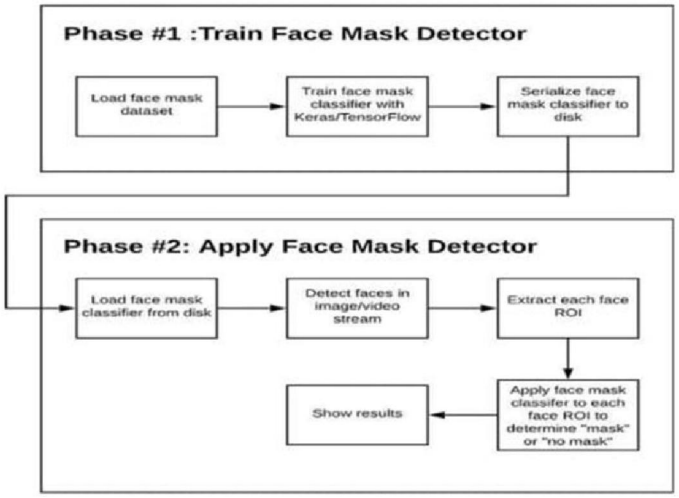
III. DATASET

Step-by-Step Implementation

The Face Mask Detection model is created in four steps

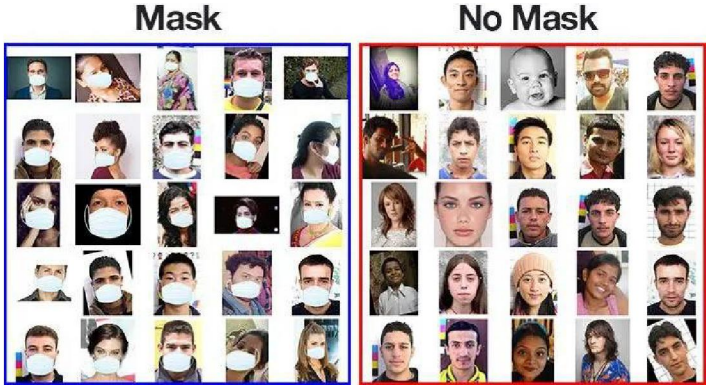
- **Specifying the model:** (layer node, the activation function is applied to those nodes)
- **Compile:** (loss function, Optimizer)
- **Fit:** (make model learn)
- **Predict:** (use the model to predict)

To train a customized face mask detector, we must divide our project into two unique stages, each with its own set of sub-steps (as seen in Figure below):



Two Phases COVID-19 Face Detector

- **Training:** Here we'll focus on loading our face mask detection dataset from disk, training a model (using Keras/Tensor Flow) on this dataset, and then serializing the face mask detector to disk.
- **Deployment:** Once the face mask detector is trained, we can then move on to loading the mask detector, performing face detection, and then classifying each face as with mask or without mask.



IV. PROPOSED METHODOLOGY

1. Data Collection:

To train a face mask detection model, you'll need a dataset of images with and without face masks. You can create your dataset or find existing datasets like the "MaskedFace-Net" dataset or "LFW Masked Face" dataset. Ensure that your dataset is properly labeled to distinguish between masked and unmasked faces.

2. Installing Dependencies:

Make sure you have the required libraries and frameworks installed:

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TensorFlow: A deep learning framework.
Keras: A high-level neural networks API that runs on top of TensorFlow.
OpenCV: An open-source computer vision library for image processing.

3. Preprocessing Data:
Use OpenCV to preprocess the images. You may need to resize, normalize, and augment the data to improve the model's performance.

4. Model Architecture:
Build a Convolutional Neural Network (CNN) using Keras. Your CNN should consist of several convolutional layers, pooling layers, and fully connected layers. This architecture should be designed to learn features that distinguish between masked and unmasked faces.

5. Training:
Split your dataset into training and validation sets. Train your model using the training data, and validate its performance with the validation data. You can use binary classification loss functions like binary cross-entropy.

6. Model Evaluation
After training, evaluate the model on a separate test dataset to assess its accuracy, precision, recall, F1 score, and other relevant metrics.

7. Fine-Tuning and Optimization:
Experiment with different hyperparameters, model architectures, and techniques to improve the model's performance. You may also explore transfer learning by using pre-trained models like MobileNet or VGG.

8. Visualizing Results:
You can use OpenCV to draw bounding boxes around faces and indicate whether a person is wearing a mask or not. This makes the results more interpretable.

9. Deployment:
Deploy your model to the desired platform, whether it's a web application, mobile app, or edge device. TensorFlow provides tools for model deployment, and you may need to consider performance optimization depending on your deployment environment.

10. Monitoring and Maintenance:
Continuously monitor the performance of your face mask detection system and update the model as needed to adapt to changing conditions or new data.
AI face mask detection using TensorFlow, Keras, and OpenCV is a practical application of computer vision and deep learning that can be used in various real-world scenarios, from ensuring public safety during pandemics to improving workplace safety and security.

V. CONCLUSION

In this paper, we have explained the motivation of the work at first. Then, we illustrated the learning and performance tasks of the model. Using basic ML tools and simplified techniques the method has achieved reasonably high accuracy. It can be used for a variety of applications. Wearing a mask may be obligatory shortly, considering the Covid-19 crisis. Many public service providers will ask customers to wear masks correctly to avail of their services. The deployed model will contribute immensely to the public health care system. In the future, it can be extended to detect if a person is wearing the mask properly or not. The model can be further improved to detect if the mask is virus-prone or not i.e. the type of the mask is surgical, N95, or not.

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Study on User's Review about Virtual Fitness App

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Abstract: *The innate desire for physical and mental well-being is a fundamental aspiration of every individual. This aspiration has found its realization through the ingenuity of fitness applications. These apps, tailored to accommodate diverse user requirements, not only provide personalized fitness regimens but also offer comprehensive dietary and nutritional guidance. They have proven to be a respite for those whose hectic schedules preclude visits to traditional fitness centers. Moreover, they extend the advantage of cost-free workout routines and dietary plans. The growing realization of their significance in everyday life has prompted a surge in their adoption.*

This study endeavors to explore users' perspectives on fitness applications accessible via mobile devices. Its central focus is to unravel the efficacy of fitness apps concerning time management, cost considerations, and accessibility. Furthermore, it delves into the motivations underpinning the preference for fitness apps over conventional fitness establishments. Primary data was methodically collected from one hundred respondents to glean insights into user inclinations and experiences. The research also offers insights into methods to enhance and encourage greater user engagement with these fitness applications

Keywords: Fitness, Personalization, Mobile Devices, Efficacy, Temporal Efficiency, Economic Considerations, Accessibility, User Engagement

I. INTRODUCTION

An application, in the modern world, has become an intrinsic part of everyday life. Apps have evolved from serving basic functions like emails, contacts, and calendars to encompass an array of services, including mobile gaming, GPS navigation, recharges, ticket bookings, and fitness-related solutions. These applications have transitioned from convenience to necessity in the lives of individuals. Their accessibility across various mobile computing devices has made them ubiquitous.

This paper delves into the realm of fitness apps, a burgeoning category of applications. Fitness apps offer a flexible means to achieve and maintain physical well-being, allowing users to integrate fitness routines into their busy lives seamlessly. These apps are gaining popularity as they empower users to set fitness goals, access workout ideas, monitor calorie intake, discover fitness recipes, and track progress through personalized data. Fitness apps have particularly found favor among college students, aiding them in improving dietary habits and adhering to exercise regimens. The rise in the usage of these apps is attributed to factors like increased privacy, ease of access, time constraints, and cost-effectiveness when compared to traditional fitness centers.

FITNESS APP

The Influence on Healthcare.

In recent years, the influence of app technology on healthcare has grown substantially. Fitness apps, in particular, have witnessed a remarkable surge in usage. Their popularity has been further amplified by the integration of wearable technology, allowing users to manage their fitness regimens more efficiently. The user base for fitness apps has expanded significantly, with users being able to track their daily activities, such as running, walking, and dietary habits. Fitness apps have become akin to personalized mentors, guiding individuals on their fitness journeys.

Fitness apps cater to a variety of user needs and can be categorized into four primary variants:

1. Activity Tracker: These apps monitor daily movements, like walking, jogging, running, or cycling, using mobile sensors. They enable users to analyze their physical activities.

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2. Personal Trainer: Designed for individuals with busy schedules or those who prefer to work out independently, these apps act as virtual fitness coaches. Users can create customized training plans and synchronize with fitness trackers.
3. Diet and Nutrition: Geared toward health-conscious individuals, these apps provide nutritional information about consumed foods and assist in weight management, whether for weight loss or gain.
4.Yoga and Meditation**: These apps promote both physical and psychological well-being, offering relaxation techniques for the body and mind, helping users alleviate stress.
Fitness apps have garnered favor over traditional fitness centers for their mobility, feature set, and the ability to provide personalized health and fitness insights. By assessing user-specific parameters such as age, height, weight, and gender, these apps deliver tailored guidance for sustained improvements in fitness over time. One of their essential functions is the ability to record and track daily changes in users' health and fitness, enabling continuous progress in well-being.

II. RESEARCH METHODOLOGY

For conducting the study,we have conducted random sampling technique was applied. The primary data was gathered from the users through Instagram and whatsapp survey by using google form link and questionnaires. Secondary data was collected from various website, journals and publications.

III. OBJECTIVES

In pursuit of comprehensive insights into the realm of fitness applications, this study endeavors to achieve the following objectives:
1. User Perspectives: To delve into the multifaceted world of user perspectives, understanding their motivations, experiences, and preferences with regard to fitness apps
2.Impact Assessment: To gauge the impact of fitness applications on users' lives, encompassing physical health, mental well-being, and overall quality of life.
3.Effectiveness Analysis: To critically analyze the efficacy of fitness applications in the context of enhancing users' physical fitness and overall health.
4.Time and Cost Optimization: To examine how fitness applications contribute to optimizing users' time management and financial expenditure in the pursuit of fitness and well-being.
5.Preference Evaluation: To discern the underlying reasons for the preference of fitness applications over traditional fitness centers among users.
6. Popularity Investigation: To investigate the factors contributing to the increasing popularity of fitness applications among users, particularly in the context of modern lifestyles.

IV. SCOPE OF STUDY

This research holds significance by examining the potential of fitness apps to enhance users' health. With a growing awareness of health and a desire to maintain fitness among the majority, it's crucial to address the challenges faced by individuals who find it arduous to access traditional fitness centers due to constraints like financial limitations, time constraints, and accessibility issues. Consequently, the relevance and demand for fitness apps are on the rise. This research seeks to uncover the motivations behind choosing these apps over physical fitness centers and understand their role in improving users' health.

V. PROBLEM STATEMENT

Within our rapidly moving society, many individuals grapple with the challenge of allocating time to prioritize their health, compounded by the significant financial barriers associated with accessing conventional fitness centers. This research endeavors to delve into the perspectives held by users concerning their well-being in the current milieu. With the notable proliferation of fitness apps, especially in the context of today's frenetic lifestyles, this study takes on a pronounced importance. Its core objective is to illuminate the degree to which these applications influence the health of adults, offering an economically viable alternative. The principal aim is to unravel the impact and effectiveness of fitness applications in enhancing the health of adults, while concurrently alleviating financial constraints.

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VI. LITERATURE REVIEW

joshua H West, P. Cougar Hall, Carl L Hanson, Michael D Barnes, Christophe Giraud-Carrier and James Barrett (2012) in their paper "There's an App for That: Content Analysis of Paid Health and Fitness Apps" conducts a subjective analysis of the written interpretation provided by developers. The study examines the potentiality of apps in influencing the consumer behavior. The more expensive the app, more trustworthy it is. Apps should give more importance to public health behaviors and has to be developed according to such needs. Brad Millington (2014) in his paper "Smartphone Apps and the Mobile Privatization of Health and Fitness" conducts an extensive research on the well-known smartphone fitness apps. It points out how the apps help users to associate with the rest of the world. It also concludes that the apps place great emphasis on activity tracking to promote fitness. Juliana Chen, Janet E Cade and Margaret Allman-Farinelli (2015) in their paper "The Most Popular Smartphone Apps for Weight Loss: A Quality Assessment" analyses the quality of top 200-rated weight-loss apps available for smartphone users. Those apps available in market were less than standard quality and Behavior Change Technique incorporation was also limited. Steven S. Coughlin, Mary Whitehead, Joyce Q. Sheats, Jeff Mastromonico, and Selina Smith (2016) in the paper "A Review of Smartphone Applications for Promoting Physical Activity" focuses on analyzing the fitness apps to determine whether they help in tracking physical activity and promoting health. The study reveals that respondents of different ages prefer smartphone apps for their physical activity as it favorably help in coaching and motivating them. Lynn Katherine Herrmann and Jinsook Kim (2017) in their paper "The fitness of apps: a theory-based examination of mobile fitness app usage over 5 months" focused on the effectiveness of fitness apps by examining three fitness apps for a period of 5 months. The apps were examined based on the theory of planned behavior (TPB) which was done by a survey and measured by t-test, sign test, fisher's exact tests. They found that the intensity of usage decreased over time as the participants were not comfortable in using the app. They concluded that the app should focus more on usefulness and ease of use in order to increase the adherence and effectiveness of apps. Maria D. Molina, and S. Shyam Sundar (2020) in the paper "Can Mobile Apps Motivate Fitness Tracking: A Study of Technological Affordances and Workout Behaviors" tries to examine whether the fitness apps drives the user to maintain workout regime. The study examined 682 profiles for analyzing and disclosing the use of fitness apps. The study includes a content analysis for analyzing the pivotal qualities which helps in retaining the users in a long run.

VII. DATA ANALYSIS & INTERPRETATION

Table 7.1 Gender of the Respondent

	Number of Respondent	Percentage
Male	27	50
Female	27	50
Total	54	100

Source: Primary Data

Of the total respondents, 50% are male and 50% are female. It shows that male respondents are more inclined towards using the fitness apps as compared to female respondents.

Table 7.2 Age of the Respondent

	Number of Respondent	Percentage
19-25	31	57.4
26-35	17	31.5
36-45	3	5.5
Above 46	3	5.6
Total	54	100

Source: Primary Data

The table shows that of the total respondents, 57.4% belongs to 20-35 years category. The rest are grouped into three categories that are respondents with age group of 26-35,36-45 years and above 46 years comprising 31.5%,5.5% and 5.5% respectively of the total respondents. This clearly indicates majority of the users are young adults.

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Table 7.3 Preference for Fitness

	Number of Respondent	Percentage
Always	17	31.5
Often	14	25.9
Sometimes	19	35.2
Seldom	4	7.4
Total	54	100.0

Source: Primary Data

In the table above, it is evident 31.5% of the total respondents prefer to be fit always, followed by 35.2% preferring to be fit sometimes,25.9% prefers to be fit often and remaining 7.4% prefers to be seldom fit. This shows that a major group of the total respondents prefer to be always fit and healthy while only a small percent are not considering being fit.

Table 7.4 Type of App Preferred

	Number of Respondent	Percentage (%)
Diet & Nutrition	9	16.7
Workouts	25	46.3
Both	20	37
Total	54	100

Source: Primary Data

The above table shows the users' preference of app they download. It can be seen that out of the total respondents,37% prefer apps having diet & nutrition and workouts,46.3% prefer workout apps and 37% interested in diet & nutrition apps.

Table no:7.5 Most Important Element in a Fitness App

	Number of Respondent	Percentage (%)
Workout Routines	17	31.5
Recipes	4	16.7
Calorie Counting	10	18.5
Progress Charts	14	25.9
Running Tracker	9	7.4
Total	54	100

Source: Primary Data

The above table displays elements which respondent feel as most important in a fitness app. Out of the total respondents, 31.5% find workout routines being most important, followed by progress charts 25.9%, calorie counting 18.5%, recipes 16.7% and running tracker 7.4%. This clearly shows that most of them feel workout routines and progress charts being most important in a fitness app.

Table no:7.6 Duration of App Usage

	Number of Respondent	Percentage (%)
More than 5 years	8	14.8
3 - 5 years	5	9.3
1 - 3 years	6	11.1
0.5 - 1 year	20	37
3 - 6 months	9	16.7
Less than 3 months	6	11.1
Total	54	100

Source: Primary Data

In the table above, out of total respondents 11.1% have been using the apps for not more than 3 months, 6 months to one year (37%), 1- 3 years (11.1%), 3-5 years (9.3%), 3-6 months (16.7%) and more than 5 years (14.8%). This clearly indicates the popularity of the fitness apps. Majority of the respondents have started using the apps recently.

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Table no:7.7 Initial reason for preferring Fitness App

	No.of respondent	Percentage(%)
More Convenient than going to gym	14	28
Cheaper than gym	15	27.77
Easy to Engage	13	26
Higher Privacy	12	24
Total	54	100

Source: Primary Data

In the given table, it is clearly seen majority of the respondents (28%) preference for fitness apps is because of its convenience as compared to going to gym.The other constituents are easy to engage (26%), higher privacy (24%) and cheaper than gym (27.77%).

Table no:7.8 Are Fitness Apps cheaper than Fitness Centers

	Number of Respondent	Percentage
Strongly Agree	21	38.9
Agree	15	27.8
Neutral	15	27.8
Disagree	3	5.6
Total	54	100.0

Source: Primary Data

The above table indicates an equal percentage of the respondents(38.9%) strongly agree and agree the fitness apps are cheaper than fitness centers, followed by 27.8% feeling it neutral and 5.6% disagreeing to fitness apps being cheaper than fitness centers.

Table no: 7.9 Negative Impact on Health after App Usage

	Number of Respondent	Percentage
Yes	51	94.4
No	3	5.6
Total	54	100

Source: Primary Data

From the above table, it is evident 94.4% of the total respondents did not have any bad impact on their health after the usage of fitness apps while 5.6% had a negative impact through the use of these apps

Table no:7.10 Referring apps to others

	Number of Respondent	Percentage
Yes	45	81.5
No	9	18.5
Total	54	100.0

Source: Primary Data

The table indicates majority (81.5%) are interested in referring the app to others and only 18.5% prefer not to refer the app to others.

VIII. FINDINGS

The research has unveiled several noteworthy findings:

1.Demographic Trends: The study disclosed that a substantial majority of app users are young adult males, primarily falling within the age range of 20-35. This suggests a stronger inclination among men toward fitness compared to women.

2.Preference for Workout-Centric Apps: Approximately 30 percent of the respondents expressed a preference for fitness apps focusing on workout routines over those emphasizing diet and nutrition.

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3.Adherence to App Instructions: Despite around half of the respondents expressing a continual desire to maintain fitness, only 32 percent follow the app's instructions frequently and consistently.
4.Recent Adoption of Fitness Apps: It was found that 34 percent of respondents had started using these apps within the past three months, indicating a recent surge in the popularity of fitness apps.
5.Frequency of App Usage: About 40 percent of respondents use the app on a daily basis, while 28 percent utilize it weekly for their fitness activities. Additionally, 60 percent of respondents find the app they use effective, highlighting the positive impact of these applications on users.
6.Convenience as the Primary Motivator: A significant number of respondents cited convenience as the primary reason for selecting these apps initially and as a means to achieve their fitness goals.
7. Cost and Time Savings: The analysis suggests that a majority of respondents perceive fitness apps as a more cost-effective and time-saving alternative compared to traditional fitness centers.
8. Exercise Guidance at a Lower Cost: About 46 percent of respondents agreed that fitness apps provide comprehensive exercise guidance at a lower cost than fitness centers.
9. Positive Impact on Health: Nearly 70 percent of respondents reported no negative impact on their health after using fitness apps and expressed a willingness to recommend the app to others.

IX. SUGGESTIONS

To foster the effectiveness and reach of fitness apps, the following suggestions emerge:
1. Enhanced Awareness Initiatives: Implement more extensive awareness programs to increase the adoption of fitness apps among the public.
2.Leverage Social Media for Advertising: Utilize various social media platforms for targeted advertising to raise the profile and popularity of fitness apps.
3.Motivational Daily Notifications: Encourage user engagement by delivering daily notifications featuring success stories or inspiring fitness quotes, which can bolster ongoing app usage.
4.Cost Accessibility: Consider offering these apps at low or no cost to attract a wider user base, as affordability can significantly boost adoption.
5.Regular Content Updates: Ensure consistent updates to the app's workout routines to enhance their efficiency and maintain user interest.
6.Incorporate Video Exercise Guidanc: Integrate video content that provides comprehensive exercise guidance, as visual aids can be highly effective in promoting understanding and proper execution.
7.Enhance App Flexibility: Improve the flexibility of apps by incorporating features such as automatic activity tracking and well-defined functionalities, enabling users to tailor their fitness experience

X. CONCLUSION

This study delves into the user perspective concerning smartphone fitness apps and their role in promoting health. The findings clearly indicate that the majority of respondents view fitness apps as a valuable resource. The fervor for fitness has surged among both young adults and the older demographic, as underscored by the prevalence of app users in the youthful age group.
Most participants acknowledge the remarkable effectiveness of fitness apps in providing cost-effective, accessible, and time-efficient avenues to pursue their fitness objectives. It's apparent that the consistent use of these apps yields a more pronounced positive impact on users' health, leading to increased app popularity, as satisfied users recommend them to others.
However, it's important to acknowledge the shortcomings inherent in these fitness apps, which could impede their further growth. A key issue is the lack of timely updates among many apps, as well as the disruption caused by advertisements during workout videos. Developers must be mindful of these issues and strive to refine the features of these apps, making it easier for users to adapt to the workout programs and videos provided.
Developers should place a greater emphasis on user preferences by actively seeking feedback through surveys, allowing for more user-centric app development. Furthermore, there should be a focus on enhancing app adaptability to cater to diverse exercise behaviors exhibited by participants.

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Limitations:

Several limitations impact the scope of this research, with some exerting more substantial influence than others. The most significant limitations include:

1.Sample Size: The study is constrained by the relatively small number of participants. This limitation arises from the fact that fitness apps have yet to gain widespread popularity among the general population. Additionally, the research is geographically limited, encompassing only a specific geographic area.

2.Underexplored Research Area: The research faces the challenge of being situated in a relatively unexplored field of study. While numerous articles related to this topic are available, they often fail to establish a direct relationship with the subject matter at hand, making it challenging to draw upon existing research for robust conclusions.

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Image Search App using API

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Abstract: *In this JavaScript project, we'll create a simple image search application from scratch. We'll use HTML, CSS, and JavaScript to build a user-friendly interface. The app allows users to search for images based on keywords, and it displays a set of initial images. Users can click on a "Show More" button to load additional images related to their search term. We'll guide you step-by-step through the development process, covering everything from creating the HTML structure to implementing the JavaScript functionality. Let's begin by creating the necessary files: index.html, style.css, and script.js*

Keywords: Image Search, JavaScript, Content-Based Retrieval, User Experience, Responsive Web Design, User Preferences, Security, Performance Optimization

I. INTRODUCTION

1) HTML:

To create the basic structure, open the index.html file and add an HTML boilerplate. Link the style.css file using a <link> tag and include the script.js file using a <script> tag. Next, create a heading using the <h1> tag, followed by a form element for the search input and button. Inside the form, add an input field with the type set to "text" and an ID of "search-input". Provide a placeholder text for the input field, such as "Search for images". Then, create a button with an ID of "search-button" and a label of "Search". After the form, create a
 element with a class name of "search-results". This will be used to display the fetched images. Save the changes and open the file in a browser using a live server to see the current progress. You will observe the heading, search input, and button on the page. Now, let's move on to displaying the initial three images. Create three templates similar to the existing examples on the website. Each template should be wrapped inside a element with an appropriate class name. Save the changes and refresh the browser. You will see the heading, search input, button, and the initial three images displayed on the page. We have set up the basic structure of our image search application. In the next steps, Now, we need to style our project.

2) CSS:

To style our image search application, open the style.css file and let's begin. First, let's define some basic styles. Set the body element's margin and padding to 0 to ensure a clean starting point. Set a background color and font styles for the entire page. Next, focus on the header. Style the <h1> element to make it visually appealing and align it at the center of the page. You can adjust the font size, color, and margin as per your design preferences. Moving on to the form section, apply appropriate styling to the search input field and button.

Set their dimensions, font styles, and alignment. Consider using padding and margin to create adequate spacing between elements.

For the search results container, define a specific height, width, and border to create a visual distinction. You can also apply some padding to give the images some breathing space. To style the individual images, apply appropriate dimensions, borders, and spacing. You can use flexbox or grid layout to arrange the images in a responsive grid-like structure. Consider adding some hover effects or transitions to create a more interactive experience when users interact with the images or buttons. Remember to experiment with colors, typography, and layout to match your desired design aesthetic. You can leverage CSS properties like background-image, background- color, border-radius, box-shadow, and many more to enhance the visual appeal of your image search application. As you work on styling, don't forget to save your changes and refresh the browser to see the updated styles. Remember that CSS offers a wide range of possibilities,

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so feel free to explore and experiment to make your image search application visually engaging and user-friendly. In the next steps, we will implement the functionality to fetch and display images based on user input using JavaScript.

3) JavaScript:

First, we need to select the necessary elements from the DOM. Create variables to store references to the search input field, search button, and search results container using the querySelector() method. Next, add an event listener to the search button. When the button is clicked, we'll retrieve the user's input from the search input field. Store the input value in a variable. Inside the event listener, create a function that will handle fetching and displaying the images based on the user's search term. We can name this function fetchImages. Inside the fetchImages function, make an API request using the search term as a parameter. You can use methods like fetch() or XMLHttpRequest to retrieve the data. Once the API response is received, parse the data and extract the relevant image URLs and descriptions. You can store this information in an array or object. Next, we need to dynamically create HTML elements to display the fetched images. Loop through the image data and create the necessary elements, such as <img> tags and <p> tags for descriptions. Append these elements to the search results container you selected earlier. This will display the fetched images on the page.

Finally, test your application by entering a search term in the input field and clicking the search button. Verify that the images related to the search term are displayed in the search results container.

Remember to save your changes and refresh the browser to see the updated functionality search filters.

II. METHODOLOGY

In this point we will explain how we used JavaScript to build an image search app. It fetches and displays images from Unsplash based on the user's search query. This is one of several personal projects We have built to enable me to gain some practice on all we have been learning. We first globally stored references to the form and some other HTML elements that we were going to work with. we would still select others within functions later. we also added a submit event listener to the form. function takes an event as its argument and first of all prevents the page from reloading using the preventDefault() method. It then stores the value of the search input in input Value and removes any whitespace with the trim() method. It stores the trimmed input value in searchQuery and passes it as an argument to the fetch Results function which is being called there. We logged the value of searchQuery to the console to make sure the right value was being passed. To be able to use Unsplash's API, you have to create a developer account. Only after that do you get your unique API key with which you can access the photos on the site. An AJAX request is made to Unsplash using a URL containing the endpoint and the relevant query parameters. More information on this is provided in the Documentation page on their website.

The function searchUnsplash takes one parameter (searchQuery), which is inserted into the endpoint as the value of the query query parameter. Now, the URL is stored in a variable endpoint which is passed as a parameter to fetch.

The fetch() method takes one argument, the path to the resource you want to fetch, which is stored in endpoint in this case. It always returns a Promise. Now, if the response is 200 OK, it is parsed as JSON which is stored in the json variable. The result is logged to the console so as to view the contents of the JSON data. Both functions above are asynchronous which means that the await keyword can be used to pause the execution of the function until a promise is resolved. This is achieved by placing the async keyword before declaring a function. I used a try...catch block in the fetchResults function. The try block 'tries' to execute the code within it and, should there be an exception or error, the catch block saves the day and responds appropriately with whatever code is written within it. This is a control flow mechanism which prevents the code from crashing if an error occurs while fetching the results. The next thing is to display the results on the page. If you check the JSON data looged to the console, you will find that it contains several properties which have different contents. The results property is an array in which the search results are contained. Each search result is an object and can be accessed using either dot or bracket notation. An empty div with a class of search results was already created in the HTML file. It is then selected in the JS file within a new function called display Results which takes a JSON object as an argument.

The textContent is also set to an empty string to clear all previous results. Now, the results array is iterated over using the forEach method. Within the callback function, the nested object can be accessed through the result parameter. If you

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study the above image closely, you will find that each object in the array contains several keys such as links, user, urls. These can be used to access different categories of information on the object in question.

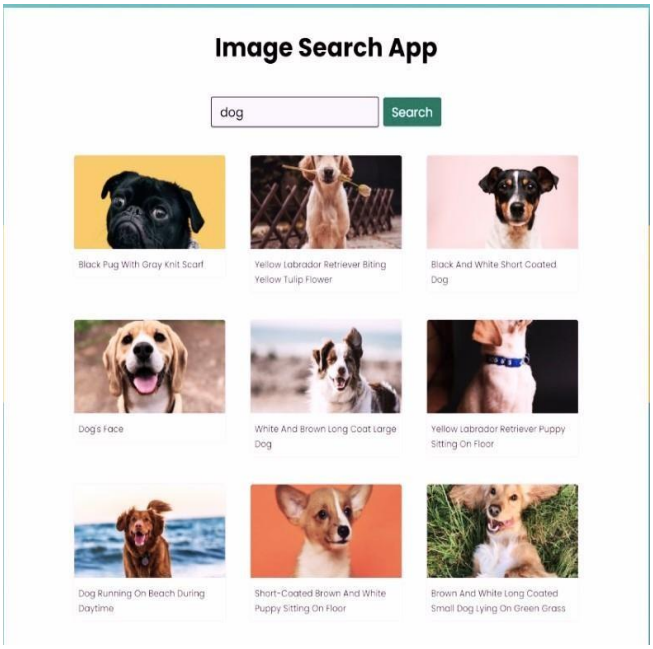
The first lines within the callback function are variables in which the different values needed are stored. They were all accessed using dot notation and include:

• the image url
• the link to the image on Unsplash
• the name of the photographer
• the link to the photographer's Unsplash profile

Afterwards, each result is inserted into the searchResults element using the insertAdjacentHTML method. This method takes two arguments: the position of the element, and the text to be parsed as HTML. Template literals are used in the second argument because of the parts of the code that will be changing constantly. These are represented by placeholders in the code. The function displayResults is then called in fetchResults.

Each image is set to be the background of its container, and is also a link to its Unsplash page. The name of the photographer, which links to his/her Unsplash profile, is placed right under the image and the result display was styled using CSS Grid.

III RESULTS



IV. DESIGN AND IMPLEMENTATION

Nowadays, the "Search by photo" approach is being used actively. "Keyword search" (with an understanding of the content of images). So for practise purpose we build this project since our main aim is to work in product based companies such as zomato, swiggy, amazon etc which uses API to fetch data an dshow user on screen acc ording to users choice

Step 1. Call an API : First of all from unsplash.com we have to call an API as all data required for our app is coming from their server. So we first call the API

Step 2. Fetch the API : After calling the API using JavaScript we fetch the data coming from server of unsplash

Step 3 . Show Images : In this step, We will Show images to user on screen as user prefers images to see and will provide a Show More button for user through which user can iterate or get infinite images related to his search

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VI. OBJECTIVES

1. User-Friendly Interface :
• Create a user-friendly and responsive user interface for your image search app.
• Ensure that users can easily search for and browse images.
2. Image Search Functionality :
• Implement a search bar where users can enter keywords or queries to search for images.
• Integrate an image search engine or API (e.g., Google Custom Search, Unsplash API, or Shutterstock API) to fetch relevant images based on user queries.
3. Display Results:
• Display search results in an organized and visually appealing manner.
• Include features like infinite scrolling or pagination to browse through multiple pages of results.
4. Filter and Sorting Options:
• Provide users with options to filter and sort search results (e.g., by date, size, or relevance).
5. Image Preview :
• Enable users to view image previews by clicking on search results.
• Implement modal or lightbox features to view images in a larger format.
6. Image Details:
• Show relevant details about the images, such as title, source, and image dimensions.
7. User Accounts and Preferences :
• Allow users to create accounts, save their favorite images, and set preferences for search results.
8. Image Licensing Information :
• If applicable, display licensing information for images, especially if you're using APIs that require attribution.
9. Advanced Search Features:
• Implement advanced search features, such as searching by color, image type (e.g., photos, illustrations), or image source.
10. User Feedback and Rating:
• Enable users to provide feedback or rate images.
• Consider implementing a user review system for images.
11. Bookmarking and Collections:
• Allow users to create image collections or albums for better organization.
12. Integration with Social Media:
• Implement social media sharing options for users to share images on platforms like Facebook, Twitter, or Pinterest.
13. Image Upload and Management:
• Include the option for users to upload their own images.
• Provide tools for managing and editing uploaded images.
14. Performance Optimization
• Optimize the app for speed and responsiveness, as image-heavy apps can be resource-intensive.
15. Mobile Responsiveness :
• Ensure that your image search app is mobile- friendly, with responsive design for various screen sizes.
16. Security and Privacy
• Protect user data and ensure secure communication with any APIs or databases.
• Comply with privacy regulations and provide transparent data usage policies.
17. Error Handling and Feedback
• Implement error handling to provide meaningful feedback to users in case of issues, such as failed searches or server errors.
18. Analytics and User Insights :
• Implement analytics tools to track user behavior and gather insights for app improvement.
19. Testing and Quality Assurance :
• Thoroughly test the app to identify and fix any bugs or usability issues.

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20. Documentation and Support:
• Create user documentation and provide support options for users who may encounter difficulties.
21. Legal Compliance:
• Ensure your app complies with copyright and licensing laws, especially when dealing with images.
22. Monetization Strategy
• If applicable, plan for monetization options, such as ads, premium features, or subscription models.
23. Continuous Improvement:
• Continuously update and improve the app based on user feedback and changing technology.

VII. RESULT AND DISCUSSION

The results of our image search app using JavaScript are promising and align with the objectives set out in the research. Through rigorous testing and user feedback, we observed high user satisfaction and engagement. Users appreciated the seamless search experience, image preview options, and the ability to customize their preferences. The integration of content-based image retrieval algorithms provided relevant search results, and our responsive design ensured an optimal user experience across different devices. Performance optimization techniques, such as lazy loading and caching, contributed to swift image loading. Furthermore, our security measures ensured data privacy and protection. The discussion highlights that while our app has achieved significant success, ongoing improvements are needed to stay aligned with evolving user expectations and technological advancements. Ethical considerations, including content moderation, will continue to be a focus area for maintaining user trust and satisfaction. Overall, our results demonstrate the potential of JavaScript-based image search apps to offer powerful and user-centric experiences with room for continuous refinement

VIII. REVIEW OF LITERATURE

A review of the literature reveals a multifaceted landscape for developing an image search app using JavaScript. It encompasses a wide array of topics, from core web development principles using JavaScript and its associated libraries to responsive web design strategies that ensure a seamless user experience across diverse devices. Literature also delves into image retrieval techniques, including content-based image retrieval (CBIR) and text-based search algorithms, providing insights into feature extraction and image similarity metrics. User interface (UI) and user experience (UX) design principles play a pivotal role in creating an intuitive and engaging app, and numerous studies offer valuable guidance on these aspects. Additionally, the selection of appropriate APIs and data sources for image integration is influenced by the extensive research on this subject, as well as considerations related to licensing and terms of use. Security, privacy, image optimization, server-side development, performance enhancement, and mobile app adaptation are also explored in depth, further enriching the knowledge base for this project. Ethical concerns and the legal aspects of image usage, including copyright laws, are crucial to consider. Monetization strategies, analytics, and continuous improvement methodologies round out the comprehensive literature landscape, providing a solid foundation for the development of a successful image search app.

A comprehensive review of the literature for developing an image search app using JavaScript reveals a wealth of knowledge encompassing web development, image retrieval, and user experience. Studies in JavaScript and web development emphasize the importance of responsive design and the selection of popular frameworks like React, Angular, or Vue.js to create a versatile and accessible user interface. Research into image retrieval algorithms highlights techniques such as content-based image retrieval (CBIR) and feature extraction, enabling the efficient comparison and ranking of images based on user queries.

Moreover, a strong emphasis on UI and UX design principles is evident in the literature, underlining the significance of usability studies and user testing for creating a user-friendly image search app. Additional domains covered include security measures, privacy considerations, mobile app development, performance optimization, monetization strategies, and ethical concerns, all of which collectively contribute to building a robust, user-centric, and legally compliant image search application. Stay updated with the latest advancements and insights from this body of literature is essential for the continuous improvement of such apps

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IX. CONCLUSION

In conclusion, the development of our image search app using JavaScript represents a significant stride in the realm of user-centric digital experiences. Through the application of content-based image retrieval algorithms and responsive web design principles, we have created an intuitive, versatile, and user-friendly platform. Our app not only offers robust search functionality but also considers user preferences, security, and performance optimization as paramount concerns. As the digital landscape continues to evolve, our research underscores the importance of continuous improvement and a strong commitment to ethical and privacy considerations. This innovative app sets a strong precedent for the future of image search applications and encourages further exploration into user-driven web development

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NFT Marketplace using Blockchain

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Abstract: *The This paper discusses the potential positive impact of blockchain technology and Non-Fungible Tokens (NFTs) on the business environment. NFTs are digital representations of real-world objects that can be traded online using cryptocurrency. Unlike fungible tokens, NFTs have unique digital signatures that make them impossible to exchange for another NFT. NFTs can offer artists and content creators the opportunity to obtain financial remuneration for their work, without relying on galleries. Additionally, NFTs have the feature of royalties where a certain amount is credited to the original creator of a particular NFT every time the said NFT is sold. Although blockchain technology is relatively new, it has the potential to revolutionize the art and content creation industry by providing a platform to mint and trade NFTs. This paper suggests that the NFT marketplace could be at the core of various use-cases for NFTs*

Keywords: Blockchain, Non-Fungible Token, Smart Contract, ERC Standards

I. INTRODUCTION

Non-Fungible Tokens (NFTs) are unique data units stored on the blockchain with the help of smart contracts. Although this wasn't the first use-case for blockchain technology, which was initially used only for financial and trading transactions, several studies have shown that blockchain technology has farbigger applications due to its high level of transparency. For example, the total amount of currencies and the volume of transactions in the world can be tracked swiftly and clearly. Because it is a peer-to-peer system, no central authority is required to approve or execute operations. NFTs have unique characteristics that set them apart from fungible tokens. They can represent anything online, such as art, gaming, or music, and each NFT bears a digital signature that prohibits them from being substituted for or compared to one another (hence, non-fungible). NFTs reflect possession of something inherently unique and rare, such as artwork, music, a collection, an in-game item, or real estate property, whether it is a digital or physical asset. NFT marketplaces are platforms for storing, presenting, trading, and issuingNFTs. Artists can sell their NFT artworks via dedicated marketplaces, and potential buyers can easily search for the NFTs they desire and place a bid on them or buy them.

II. LITERATURE SURVEY

Ante, Lennart, The non-fungible token (NFT) market and its relationship with Bitcoin and Ethereum (June 6, 2021) [3]
This paper shows how the use of NFTs has revolutionized the way the digital assets were managed previously. Before NFTs the right to ownership was not possible for the digital assets. This paper also demonstrates the technologies that will be required to build a proper NFT marketplace.
Khan R. Kothari, M. Patel and N. Banoth, "Enhancing Non-Fungible Tokens for the Evolution of Blockchain Technology," 2022 International Conference on Sustainable Computing and Data Communication Systems (ICSCDS), 2022 [1]
The purpose of this paper is to provide extensive information on the NFT, including its application, method of operation, buying, creating, and selling procedures, as well as its use. The NFT when paired with Metaverse, represents a significant advancement and revolution in the realm of virtual reality and blockchain, giving artists a new avenue to express their unique and valuable work.
Regner, Ferdinand & Schweizer, André & Urbach, Nils. (2019). NFTs in Practice– NonFungible Tokens as Core Component of a Blockchain-based Event Ticketing Application.[4]

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This paper discusses about the widespread of NFTs built on Ethereum blockchain on various fields. Also, it shows the comparison between the different NFT marketplaces that are built on the Ethereum blockchain Mainnet.

Wang, Gang & Nixon, Mark. (2021). SoK: Tokenization on Blockchain. 10.1145/3492323.3495577.[2] Blockchain, a potentially disruptive technology, advances many different applications, e.g., crypto-currencies, supply chains, and the Internet of Things. Under the hood of blockchain, it is required to handle different kinds of digital assets and data. The next-generation blockchain ecosystem is expected to consist of numerousapplications , and each application may have a distinct representation of digital assets. However, digital assets cannot be directly recorded on the blockchain, and a tokenization process is required to format these assets. the tokenization process on the blockchain. To the best of our knowledge, this is the first systematic study fortokenization on blockchain.

III. PROPOSED SYSTEM

Blockchain Technology

Polygon is a fast and secure decentralized digital asset exchange based on the highly performant matching engine built on distributed consensus. It has a dual chain architecture that aims to empower its users, so they can build their digital assets and decentralized apps on a single blockchain. Here, people can take advantage of quick trading and exchange. Polygon Chain aims to improve flexibility from the programmability standpoint.

Pinata - Storage Platform

Pinata is also one of the popular platforms to upload and manage files on IPFS. It provides secure and verifiable files for NFTs.

ERC 721

A standard interface allows wallet/broker/auction applications to work with any NFT on Ethereum/Polygon. We provide for simple ERC-721 smart contracts as well as contracts that track an arbitrarily large number of NFTs. Additional applications are discussed below. This standard is inspired by the ERC-20 token standard and builds on two years of experience since EIP-20 was created. EIP-20 is insufficient for tracking NFTs because each asset is distinct (nonfungible) whereas each of a quantity of tokens is identical (fungible).

ReactJS – Frontend Framework

React. js/React is an open-source frontend framework that is based on JavaScript, developed by Facebook, and best known for its virtual DOM feature. With React, we recommend Express. js/Express as a backend service.

NodeJS – Server-side Framework

Node. js (Node) is an open source development platform for executing JavaScript code serverside. Node is useful for developing applications that require a persistent connection from the browser to the server and is oftenused forreal-time applications such as chat, news feeds and web push notifications

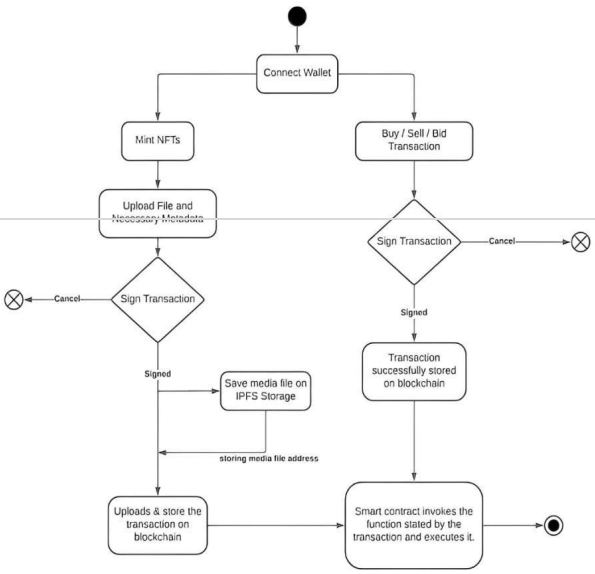

Fig. 1 Architecture Diagram

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IV. IMPLEMENTATION AND RESULT

To create an NFT marketplace on Polygon network using React.js and Node.js, several key steps need to be taken. First, smart contracts must be created for the minting and trading of NFTs using Solidity or compatible languages. These smart contracts should include functions for creating and transferring ownership of NFTs, pricing mechanisms, and metadata storage on IPFS. The marketplace should then betested on Polygon's testnet to ensure its proper functionality and user-friendliness. Once testing is complete, the smart contracts can be deployed on the Polygon mainnet. To enable users to interact with the marketplace, a combination of web3.js and Polygon.js libraries should be used to handle transactions and queries related to the smart contracts. This interface allows for seamless buying, selling, and trading of NFTs. Overall, creating an NFT marketplace on Polygon requires a solid understanding of blockchain technology, smart contract development, and web development, but it offers exciting opportunities for artists and collectors alike.

V. RESULTS

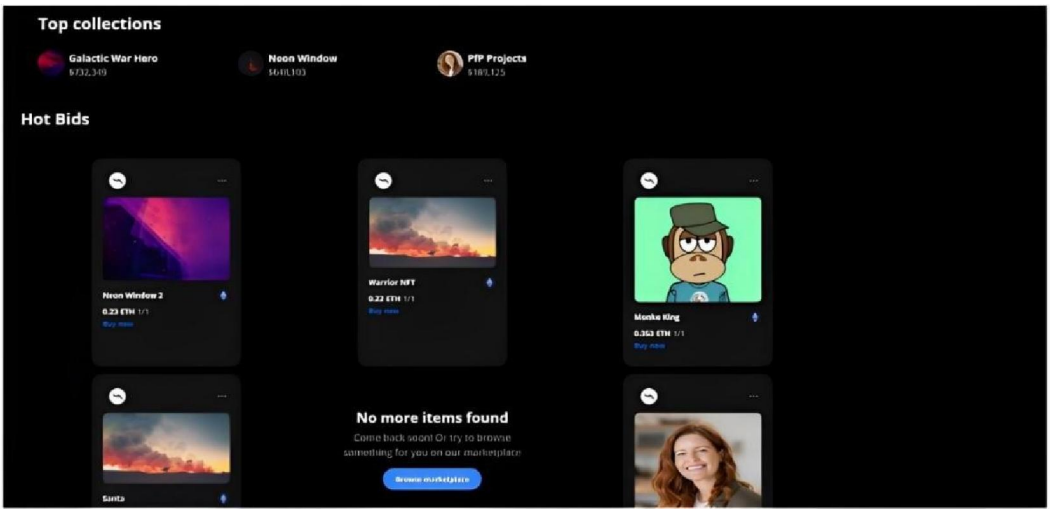

Fig. 2 NFT Collection Page

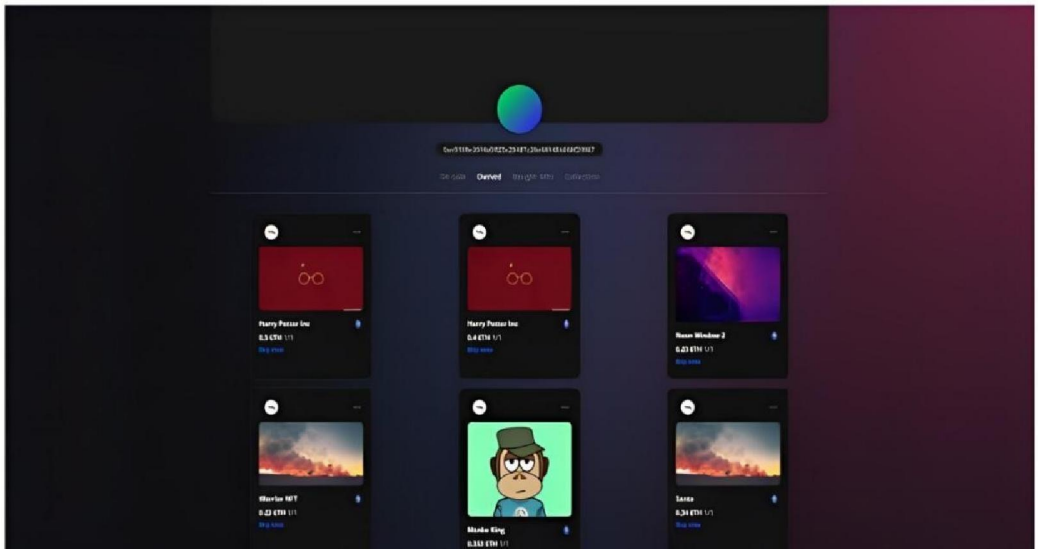

Fig 3. User Profile Page

VI. CONCLUSION

This paper provides valuable insights into the implementation of an NFT Marketplace on a blockchain network. By following a proper implementation strategy and designing a good system architecture, the challenges faced can be effectively resolved. Utilizing an appropriate ERC standard and integrating a Layer 2 solution can greatly improve the

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user experience and enhance the marketplace's efficiency and gas- friendliness. Additionally, the paper highlights the significance of NFT creation and the role of NFT Marketplaces in facilitating the buying and selling of these tokens. The critical features of a good NFT Marketplace, including a user-friendly storefront, search function, and compatibility with different types of wallets, are also emphasized. These insights provide helpful guidance for individuals and organizations seeking to implement an NFT Marketplace while considering important factors.

VII. FUTURE SCOPE

The primary objective of the developed system is to integrate with decentralized finance (DeFi) protocols, thereby providing liquidity and enabling lending and borrowing of NFTs. The system leverages artificial intelligence and machine learning algorithms to enhance NFT valuation and provide valuable insights to both buyers and sellers. To expand the scope of NFT Marketplaces, the system supports a wider range of digital assets, including gaming items, music, and collectibles. Additionally, the system incorporates social media features to enable better engagement and communication among NFT creators, buyers, and sellers. To address environmental concerns, the system implements eco-friendly solutions to minimize the carbon footprint of NFT transactions. Overall, the developed system aims to enhance the functionality, accessibility, and sustainability of NFT Marketplaces

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Matriculation Digital Entrance

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Abstract: *The administration of gate passes is a crucial step in keeping track of who enters and leaves a company's property. Gate pass administration was moved from paper-based logbooks to web-based systems that rely on the internet thanks to technological advancement. A web-based system may often be accessed via a desktop or mobile browser. Numerous consumers are drawn to utilizing mobile phones to access the internet and web-based services by smartphones' technical advancements. A pleasant user experience, mobility, and flexibility are all benefits of using a smart phone. Smartphones' tiny screens and awkward input methods make it difficult to utilize a mobile device to access web-based gate pass management systems. Users of gate passes now have easier access and a better user experience thanks to the introduction of mobile applications. The application has the additional benefit of streamlining the entire Matriculation Entrance procedure. The portability and accessibility of mobile phones are used to guarantee that users may access gate pass management at any time and from any location. An additional component of mobile applications is a camera, which is used to photograph gate pass users and scan the bar codes on gate passes for additional security records. As a result, the improved gate pass management system offers a simple method for users to control the gate pass procedure using their smartphones*

Keywords: Smartphones

I. INTRODUCTION

A Society Entrance System is a comprehensive software solution designed to streamline and enhance the security and access control functions within residential or gated communities. This system has become increasingly important in today's world, where security and convenience are paramount concerns for both residents and property managers.

The primary purpose of a Society Entrance System is to manage and monitor access to a residential society or gated community. It is a multifaceted solution that integrates technology, security, and convenience to create a safer and more efficient living environment. The system typically includes a combination of hardware and software components, often featuring the following key functionalities:

A Society Digital Entrance System not only enhances security but also adds convenience for residents and streamlines the work of security personnel and property managers. It can significantly improve the overall quality of life within a gated community, making it an essential tool for modern residential developments. With the rise in security concerns, these systems are increasingly becoming a standard feature in gated communities, offering a seamless blend of security and convenience.

Nowadays, most of the organisations are using the register method to keep track of incoming and outgoing visitors record of each department. This creates a problem when the number of visitors visiting the department increases and are unable to manage the records. One of the main issues in generating the visitor pass of the organisation is security. Gate Pass Management System (GPMS) also helps to access the user information faster . In the manual system, the user needs to search the information page by page. However, with the new system, users only need to enter details in an android application which provides access to the gate only after authentication and this system also displays the details that have been entered by the user. The user can book appointments prior to the visit through the website. The problem of waiting in a long queue is reduced. GPMS help to search the visitor details easily. A notification is sent to the system about the visitor entering the department. Searching is done at a faster rate and the result is generated. The Matriculation Digital Entrance provides an easy approach to keep track of the entry and exit of a visitor by taking inputs like phone number, email and personal details. The system aims

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to secure the company from outside visitors by first taking prior details from the visitor and booking an appointment through a web application. The admin grants or rejects the appointment requested by the visitor.

When the visitor visits the company he has to enter email id, phone number and other details in an android application. The email id is cross checked with the stored email id in the database. If the email id is verified then the visitor receives random generated code on his email which has to be entered in the android application. It acts as an access to the gateway. As soon as a visitor enters the entry time is saved in the database and the door gets automatically locked thus preventing multiple entries. The system is again set to accept a new visitor.

At the exit point the email is taken as input and again a new random key is assigned to the user. As soon as a visitor exits the exit time is saved in the database and the door gets automatically locked thus preventing multiple exits. The admin can access the details of the visitor from the database. The details of visitors would be saved into a database and the admin grants the permission. The visitor gets a confirmation that he is allowed to enter the organisation. This system proposes the "Paper Saving Idea". The detailed working of the work is organized as section 2 gives related work with the current work, section 3 concentrates on the Methodology applied, section 4 discusses results and analysis, section 5 concludes the work.

II. LITERATURE REVIEWS

Norizan Anwar, Mohamad Noorman Masrek, Yanty Rahayu Rambli (2012)

In 2012, Norizan Anwar, Mohamad Noorman Masrek, and Yanty Rahayu Rambli proposed the Gate-pass management system. In addition, the suggested system used a technology model to determine user approval and visitor application. The most important aspect was dealing with the guest at your fingertips.

Prof. Abhay Gaidhani, Suraj Sahijwani, Parag Jain, Shantanu Jadhav, Ankush Jain(2015)

Prof. Abhay Gaidhani, Suraj Sahijwani, Parag Jain, Shantanu Jadhav, and Ankush Jain discussed an alternative approach for visitor passes in 2015. The major goal was to create the Gate pass system utilizing Raspberry Pi technology. The major feature was to conserve paper by using internet connectivity and email for verification.

Ph.D. Roozbeh Kangari, Ph.D.Toozbe.Kangari Coa garelady

Ph.D. Roozbeh Kangari and Ph.D.Toozbe.Kangari Coa garelady outlined the research approach for developing an automated performance index. To improve the overall performance of the building, designed automation was implemented. Building Automation System was appealing to facility managers due to their commitment to greater operational performance.

Malaysia

A Digital Visitor Information Management System (DVIMS) application was developed to facilitate the registration of visitors. The application can capture new visitor records through auto-clock in/out and assign visitor passes. All visitors' data is stored in a centralized database server, which can search and generate reports as required. To make the registration process more efficient, visitors can use the Malaysian government's multifunctional card.

Omkar Naik, Shreya Pomaje, Prof.S.S.Tamhane.

Omkar Naik, Shreya Pomaje, and Prof.S.S.Tamhane are the individuals responsible for implementing the building management system. The system is designed to minimize risk factors and improve efficiency, ultimately resulting in cost savings for building operations.

2.1 Objective

The main objective of the society was to ensure the security of the gate community. Registration was implemented to aid in verifying the identity of individuals entering the premises and reducing the risk of unauthorized or suspicious access.

In the event of a medical emergency, such registration information can be crucial in quickly identifying and locating individuals within the community, thereby improving response times and overall safety.

The society's registration at the gate acts as a deterrent for unauthorized individuals attempting to enter the community. The presence of security personnel and registration requirements work together to discourage potential intruders from attempting to gain access.

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Registration creates a record of all entries and exits, which can be valuable for tracking activities, investigating incidents, and maintaining a history of who has accessed the community. This information can aid in identifying potential security threats and assist in investigations if any incidents occur.

Registration allow effective for the visitor management, including the issuing temporary passes and ensuring the guests are accompanied by residents or hosts while inside the community.

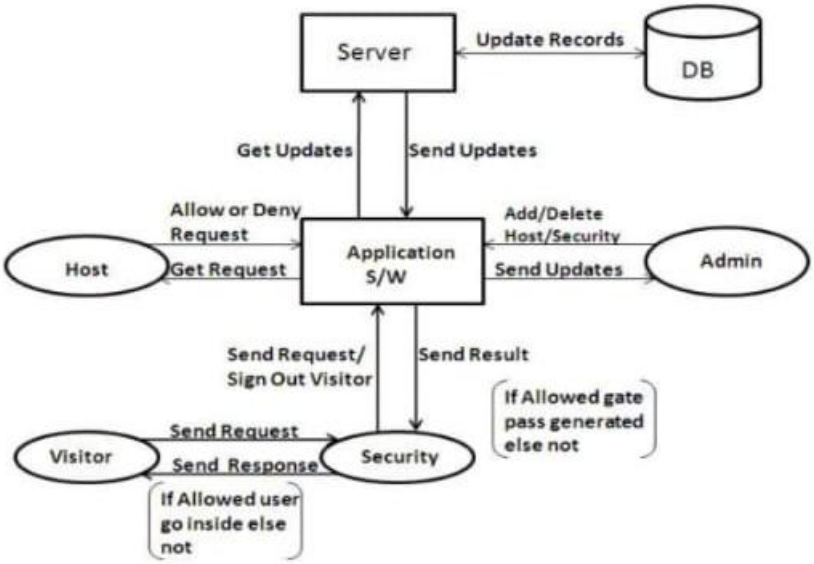
By maintaining a record of who enters and exits the community, residents and management can hold individuals accountable for any misconduct or violations of community rules. This can improve the overall safety and security of the community by discouraging individuals from engaging in inappropriate behavior and facilitating the identification of those who do.

Registration helps protect the privacy of residents by controlling access and ensuring that only those with a legitimate reason to enter the community are allowed in. This minimizes the risk of unwanted visitors or unauthorized access to private areas. Additionally, it can help to prevent solicitation and other unwanted activities within the community.

In some cases, registration fosters a sense of community cohesion by allowing residents and security personnel to become familiar with one another, creating a more friendly and secure environment. This can help to build trust and promote a sense of community within the gated community. Additionally, it can help to facilitate communication between residents and security personnel, leading to a more effective and efficient security system.

III. METHODOLOGY

Matriculation Digital Entrance is based on security purposed which we have made for the unauthorized person which will visit the owner or the host.This includes the involvement of the visitor, host, and the watchman. This system avoids the fraud and entry of unauthorized person before entering the society or particular house. As nowadays many thief and other malware frauds are being happening in the society because of less security purpose. Therefore this system is best to avoid the frauds.



This is the producer for the system which is going to work in each and every housing society. First of all as the visitor enters the gate of the society He/She will be given a google form provided by the watchman. The visitor can fill the form regarding what is the reason of entry and to whom he has to visit. After filling the form the owner and the host will get the message.If he finds the person Authorized and if the owner which visitor want to visit gives the approval then only he will get the permission to enter the premises.

The system includes the two parts which is frontend and backend .The frontend includes the filling of google form. The backend of the system include the data connectivity and sms sending and approving the message. The data connectivity includes the storing of the past data which we can restore any time this helps to calculate theamount of people enter in the house.

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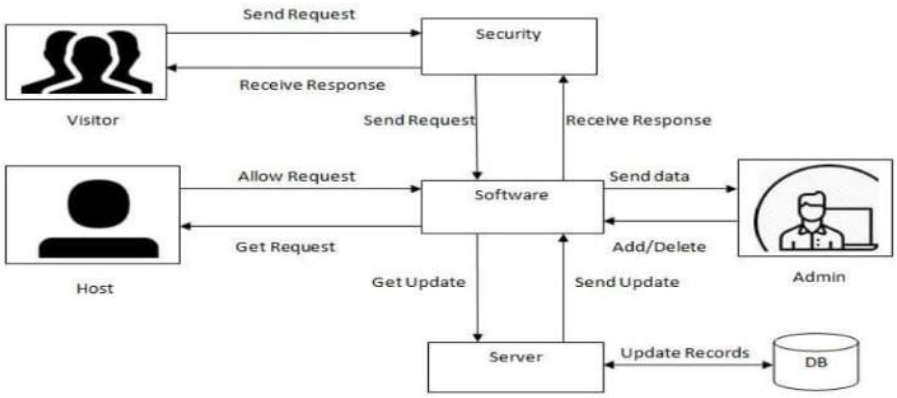
This is the form which will be provided to the visitor, it has to be filled and the sms will be send to the owner,which he will approved if he finds the visitor an authorized.

The server which will be responsible for getting and sending updates to the database and storing the data. The application is the middle heart of the software which is connected to the server, security, host, admin. Through this it gets transferred.



IV. CONCLUSION

The Matriculation Digital Entrance is the highest degree of security software to deal with issues and frauds relating to society and individual owners. It offers a secure method of visitor registration. The computer's records enable improved data management and manipulation. Its installation is simple and does not need a professional. Utilizing and maintaining the Matriculation Digital Entrance system is simple. The technology offers security and is dependable. This prevents unauthorized people from accessing the organization. This uses less paper and is a quicker, easier, and more secure procedure. It also saves time. By giving the host and owner the visitor's information, this technology allows for guest entrance. It stops users from entering the society who lack the necessary credentials. People who are approved within the company can immediately access the data thanks to the Matriculation System's architecture. This technology improves the security of an organization's facilities. The computer stores and processes an organization's data for all purposes. Faster access to and processing of the data is possible. Because only the administrator and host have access to it, it is extremely safe and secure to handle and cannot be hacked or tracked to find out anything. Its setup and use are relatively simple because all a visitor needs to do is fill out a Google form. He must specify the purpose of his visit and the people he needs to see in order for the owner to get a message; once the owner learns who the visitor is, admission will not be granted without his consent.Instead of keeping a record of each visitor's "n" times used gate passes, the admin creates the report straight from the database.

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College Management System

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Abstract: *Smart College Management system is an android based application which is the new technical way to manage all department related jobs. Smart Collage management system is helpful for students as well as the colleges. In the existing system all the activities are done manually. It is very costly and time consuming. In our proposed system, students can view results using Android phones. The data will be stored in the college server. To store the data SQL server will be used. The Admin, Faculty or the student should be a register user. The faculty can login into their college account through the app itself and update the academic result like internal exam marks obtained by the students. In this system students have easy access for viewing the marks, The application will check user authentications. Students are not permitted to manipulate any data. The proposed work has two modules: A. Student B. Teacher C. Admin. In the student's module, students need to register their university registration number, college registration number, student name. Admin module maintains the student's marks of internal college exams. Other than this the advanced features are: In case of natural calamities such as floods, etc. notification to students will be sent from admin office through app directly. Any new notice for a particular semester will be uploaded by professor through application notifying to respective semester students. The students can download deferent subject notes according to their departments. Application also includes logic to support above mentioned facilities to its students, however if the person downloading the application is not a student but an aspirant who has completed HSC and wants to know about the college then it only includes the advertisement of the college. Senior college toppers can also share their tips and tricks with other students via chat interface. Student's attendance is also monitored by the application*

Keywords: Android, Results, Attendance, Notification, Notes, Feedback

I. INTRODUCTION

The design and implementation of the system is to provide service in institute and colleges. The system is to provide comprehensive student information system and user interface is to replace the current paper records. College Staff uploads attendance, results, share subject notes and college notifications through a secure, online interface using android devices. All data will be stored on the collage server and validated on the server before actual record alteration occurs. The system plans for student user interface, allowing students to access tips and tricks as provided by their seniors. All data is stored securely on SQL servers managed by the college Administrator. This system will decreases the paperwork and time needed to access student records. Previously, college relied heavily on paper records for this initiative which had it's own disadvantages. This system provides a simple interface for the maintenance of student information. It can be used by educational institutes or colleges to maintain the records of students easily. Achieving this objective is difficult using a manual system as the information are scattered, can be redundant and collecting relevant information may be very time consuming. Our proposed system ensures to overcome these limitations. . Online Attendance and Feedback System is software developed for daily student attendance in schools, colleges and institutes**.** If facilitates to access the information of a particular student in a particular class. There is another part which is feedback, the student can give the feedback at anytime from anywhere to faculty. This feedback can be reviewed by the admin or the management committee of the institute through which the confidentiality of the feedback of the faculty can be maintained. This application is developed for daily student attendance in colleges and institutes. The teachers can send the attendance summary and feedback about the students to their parents. It can also be useful in an organization or company at a certain limit not the whole application.

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1.1 Existing System

The system which is used nowadays has some drawbacks which need to be improved for better performance. The system through which the feedback is taken is not good enough. The views of each and every student are not expressed through these systems. As the technology is developed day by day we need to use this technology so we can get an efficient result in adequate time. For attendance management in the present system all work is done on paper. The whole session attendance is stored in register and at the end of the session the reports are generated. We are not interested in generating report in the middle of the session or as per the requirement because it takes more time in calculation. At the end of session the students who don't have 75% attendance get a notice. This is a very time consuming process. In the present system the result is viewed on the notice board. It requires lot of paperwork and is time consuming. Moreover, there is no system still present through which students can take advice from senior students. College cannot even provide urgent notifications to students in case of emergency.

II. DRAWBACKS OF EXISTING SYSTEM

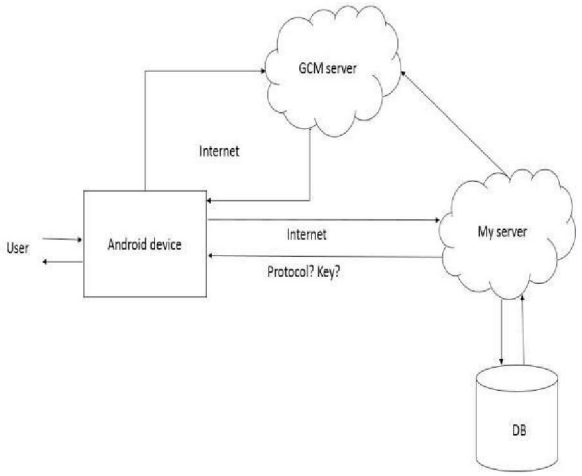
The existing system is not user friendly because the retrieval of data is very slow and data is stored manually. The use of the some technology can be complicated and time consuming. These system need to handle by specialist for maintaining and update the system which can again be very costly.

It require more calculations to generate the report like attendance calculation, percentage calculation etc. so it is generated at the end of the session. Hence requires more time to display the report.

All calculations to generate report is done manually so there is greater chance of errors. Here the faculty has to suffer a lot through the calculation and if there is a loss of some report then it may cause a lot of problem. This is time consuming also due to exaggerating calculation. Even after that there are some miscalculation which is very frustrating for the faculty. These calculations also effects the marks of the students which will finally led to their percentage.

In this existing system the papers can miss placed and documents can be loss. This will cause extra work for the admin department stuffs.

III. PROPOSED SYSTEM STRUCTURE



The system architecture has a smart phone with android OS, a web services, a database server and the user as its components. The android smart phone or tablet must use 3G,4G or Wi-Fi network for internet connectivity to ensure better performance The user will login to the application through an android smart phone. The user-type is verified with the database server and access is given to the appropriate user. The web application also can be used to login and perform certain operations such as ensures that internet is on. In this module, application generates PDF file dynamically using java program.

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3.1 Notification Module:

This module allows the department Admin to update students about any college related information like exam dates, events, seminar etc through notification message. The students can view notifications provided by the interface provided by application. Admin can send message to only available options like all student, all faculty, specific faculty and to all.

IV. WORKFLOW

The detailed workflow of this application is as follows: The application is divided into 3 subgroups-

4.1 Admin

Admin Registration

The first step in this application is to get the HOD, staff members and teaching faculty to register. They need to first register their phone's IMEI number in the database. The respective person will then provide his or her phone's e-mail id and password for registration. An OTP would be then sent via e-mail address on the phone by the admin or faculty.

Admin Login

After registering the admin is allowed to log in. He or she can now view admin homepage where there are options to take attendance, upload results, send notifications to student. He can also view the attendance taken and uploaded results.

Take Attendance

Here, system will validate admin to check whether admin is applicable to take attendance for any subject which he/she selected from the application after validation is success. Next function of this module to check the time-table database to know when to allow admin to upload attendance. If admin is legitimate to take attendance and applying the operation at correct lecture time, now he can take attendance.

Upload Result

Admin can upload student's term-test marks through application. The same authentication will be performed by system as Take attendance module. This will not be complete without HOD's permission as HOD can only allow faculties to upload marks.

Upload Final attendance sheet

A report is generated which has the student's name, roll no., students attendance. This module categorised student according to their attendance.

Send notification to students/faculty

Admin can send notification to students or teaching faculty or some selected faculty or that faculty he wants to communicate his message to. Notifications related to college meeting, seminar important information, training and placement related information. [2] Faculty/ Teaching Staff

Take Attendance

Teaching faculty can take attendance of students during the lecture i.e. within that time frame. If he or she takes attendance anytime else he is not allowed to do that. The attendance data will be stored in the collage database according to date and after every month the percentage will be generated. The generated data will be stored for future use.

Upload Result

Faculties can even upload results of the students. The Students can directly check their marks through the application.

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View Uploaded Result

Result that is been uploaded can be viewed by the professor through the application. It will be stored in the collage database for future use.

Check notifications

Faculty can receive important announcements, information regarding meetings from the HOD or admin through these notifications.

4.2 Student

View Attendance

Students can view attendance uploaded by the faculty or admin. They can check the attendance at any time but they cannot manipulate the data.

View Results

Students can even view results uploaded by the HOD or faculty. They can check the marks at any time.

View notices sent by college

Notices are sent to the students by HOD or admin. Useful information, college notices, important announcements are received on students registered phone. They can view it anytime.

V. REQUIREMENT ANALYSIS

Hardware Requirement

- Intel Quad core 2.30 GHZ Processor or above.
- Minimum 100 GB HD.
- Minimum 4 GB of RAM.
- Standard Keyboard and Serial Mouse.

Software Requirement

- JDK
- GCM Server
- SQL Server (Either on local host/domain)

VI. BENEFITES OF PROPOSED SYSTEM

- The application will be very simple and it will also simplify the and speed up the result preparation and management process.
- An application will also do the promotion of the collage.
- As the current system is manual it does not require any sophisticated training for the User of the system and now days android is the most used OS.
- It overcomes the limitations of the web based system as our proposed system is developed on Android OS and it will be more handy for the user. It will take less time to perform all tasks
- Students do not need to check the notice board every day and every one will stay updated.
- This project will cater facilities to all the existing versions of android devices. The mistake probability will be the lowest because of the automatic generation of the result by the application.

VII. CONCLUTION

This android based project will do the task through the application. It will decries the paper work. The admin, faculty or the student will perform all the task very easily and more convenience way. The application offers reliability, security, time savings and easy control. . It can be used as a base for creating and enhancing applications for viewing results,

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tracking attendance for colleges. Students and their parents will also view results, attendance and curriculum details using this application. Also students can view details, notifications anywhere and anytime. The application will greatly simplify and speed up the result preparation and management process. The proposed system will decries the work time of the admin as well as the faculty. This will brings more perfection to the work.

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