

Visitor Management Website

Major project report submitted in partial fulfilment of the requirement
for the degree of Bachelor of Technology

in

Computer Science and Engineering

By

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UNDER THE SUPERVISION OF

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CERTIFICATE

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I hereby declare that the work presented in this report entitled “**Visitor Management Website**” in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and Engineering/Information Technology** submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology Waknaghat is an authentic record of my own work carried out over a period from Feb 2023 to May 2023 under the supervision of **Dr.Sunil Datt Sharma** and **Dr.Diksha Hooda** .

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191361

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LIST OF ABBREVIATIONS

Abbreviations	Definition
CRM	Customer Relationship Management
AI	Artificial intelligence
IoT	Internet of Things
IT	Information technology
HTTPS	Hypertext Transfer Protocol Secure
VMS	Visitor Management System
DBMS	Database Management System
GUI	Graphical User Interface
QR	Quick Response
RFID	Radio-Frequency Identification
DFD	Data Flow Diagram
GDPR	General Data Protection Regulation
CCTV	Closed Circuit Television
PHP	Hypertext Preprocessor
CSS	Cascading Style Sheets
XML	Extensible Markup Language
HTML	Hypertext Markup Language
DOM	Document Object Model
MySQL	My Structured Query Language

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ABSTRACT

An essential part of effectively handling visitor data, employee data, check-ins, and pass creation is the Visitor Management System (VMS). Due to its clumsiness and high workload, desktop application-based systems now in use frequently present problems. In order to improve efficiency, this project suggests a streamlined system that streamlines visitor management tasks.

The suggested system optimises the database's visitor information storage and retrieval. It focuses on making it simple for people to enter, exit, and receive passes. The project's back-end makes use of MySQL for data management while the front-end is built using JavaScript. The system includes a number of visitor management features, such as pass management, time monitoring, and visitor data.

Additionally, the system has distinct identification strategies for every visitor, facilitating quick access to the relevant information. The system can also be enhanced for canteen management needs. The effective distribution of passes and the smooth administration of visitor information are the project's key characteristics. Additionally, the technology provides information on how many visitors are on campus, which improves visitor tracking capabilities.

This Visitor Management System project's overall goals include streamlining the visitor management procedure, offering effective pass distribution, and facilitating simple access to visitor data. Organisations can improve their visitor management procedures and increase overall efficiency by implementing this solution

CHAPTER -1 INTRODUCTION

1.1 Introduction

Welcome to the debut of our project, a state-of-the-art visitor management website designed to revolutionise how organisations handle guest registration, monitoring, and security. In an era where convenience, effectiveness, and safety are essential, our platform offers a comprehensive approach to enhancing the visitor experience while putting robust security measures in place.[3]

In today's dynamic environment, organisations in the business, educational, healthcare, and governmental sectors all struggle to effectively manage and supervise visitors. To overcome these challenges, our visitor management website provides a user-friendly, automated platform that streamlines the entire visitor management procedure. The traditional manual techniques used for visitor registration and tracking are no longer effective since they require a lot of labour and are prone to mistakes.[3]

1.1.1 Key Characteristics:

1. Visitor Registration: Our website has an easy-to-use interface that enables visitors to pre-register their visit by providing important information such as their name, the reason for the visit, the date, and the time. This innovation makes it easier for visitors to check in faster when they arrive, reducing wait times and improving overall visitor satisfaction.[5]
2. Real-time Notifications: As soon as visitors arrive, the website sends an email or SMS to the host or the appropriate staff member. With the use of this instrument, communication is made straightforward and welcoming guests is made simpler[5].
3. Check-In and Check-Out: When guests arrive, they can swiftly check in using our website using self-service kiosks or tablets. The system generates a visitor pass or badge with the required information, enhancing security and giving the impression of professionalism.

Additionally, the platform monitors check-out time, ensuring a precise record of visitor movements.[5]

4. Reporting and Analytics: The system generates in-depth reports and analytics that offer illuminating details on visitor traffic, busy times, and frequently visited sites. By using this information, organisations may improve their entire operations and spend their resources more wisely.[5]
5. To operate with current security measures like access control and CCTV cameras, our visitor management website may be integrated and customised. Additionally, the platform can be modified to meet specific organisational requirements, branding, and procedures.[5]
6. Enhanced Security: Our platform offers robust security measures like visitor photos being captured, government-issued IDs being scanned, and custom visitor badges being created. By limiting access to the building to those who have authorization, this encourages safety.[5]

1.1.2 Benefits:

- Time and money savings: Automating visitor management tasks reduces administrative responsibilities, freeing up staff to focus on important tasks and enhancing operational performance.[9]
- Data-driven Insights: Thanks to the reports and analytics offered, organisations are able to make data-driven decisions, allocate resources efficiently, and identify areas that could use improvement.[9]
- Improved Visitor Experience: By reducing wait times, streamlining check-in procedures, and enhancing communication, our platform provides visitors with a pleasant and efficient experience.[9]
- Enhanced Security: The strong security measures protect both visitors and the organisation by preventing unauthorised entry and ensuring a secure environment.[9]

1.2 Problem Statement

Organisations currently use antiquated, ineffective manual visitor management systems, which present a number of difficulties and issues. These difficulties include:

- Inefficient Registration Process
- Lack of Security
- Limited Visitor Tracking
- Ineffective Communication
- Inability to Generate Insights

Because there isn't a reliable and secure visitor management system in place, the organisation's security, guest satisfaction, and operational performance are all in jeopardy. These problems necessitate a user-friendly, automated solution that ensures a seamless visitor management process while prioritising security and efficiency.

1.3 Objective

The main objective of this project is to provide the institution with a means of using computerised procedures to handle the majority of the job. The guest management system also has a few distinctive features. This software will let the administrator manage departmental data, pass information for frequent visitors, and visitor data. In addition to having information on members' particular identities, the administration also has information about visitors.[6] The College Visitor Management System has the following main goals (features):

- The in and out time of the visitors is stored in the database.
- Name, address and all other information regarding the visitor.
- There will also be provision to retrieve the data from the database for the future references.
- The person from whom the visitor is going to meet in the campus.
- Appointments of the Visitors with the Faculty will also be stored in the database .
- Visitors reports(daily or monthly basis as per requirement)

1.4 Methodology

For our project for the visitor management website, we'll employ an agile methodology, which places a high focus on adaptability, teamwork, and iterative development. We'll take the following actions:

1. We will identify and compile the demands of our clients, taking into account their individual requirements, procedures, and security issues. A portion of this process will involve speaking with stakeholders, reviewing the current systems, and identifying any regulatory requirements.
2. In order to test the usability and user interface, we will also make prototypes that real people may utilise. The requested criteria will be used to create wireframes, flowcharts, and high-fidelity designs for the proposed visitor management website.
3. Deployment: The Visitor Management Website will be hosted on the client's server or cloud platform upon the completion of testing. We'll ensure that the system is fully functional and that the transfer of data from the old system goes without a hitch.
4. Training and Support: We will provide training to the client's staff on how to use the visitor management website, including how to manage the programme, create reports, and address common issues. We will also provide ongoing support to make sure the system runs smoothly and deal with any issues.
5. Testing: We will put the Visitor Management Website through a rigorous testing process to ensure that it meets the requirements, is simple to use, and operates at its best.
6. This includes security testing, usability testing, functional testing, and integration testing. During the development stage, the fundamental components of the visitor management website—such as visitor registration, check-in and check-out, notifications, and security measures—will be built. We will employ industry-standard programming languages, frameworks, and libraries to deliver a scalable and dependable solution.
7. Iterative Development: We will continue working closely with the client to collect their feedback on the system and make any necessary improvements. Priority will be given to the most crucial aspects, and any issues that arise during practical use will be resolved.

By employing an agile process, we can ensure that the project is delivered on time, under budget, and meets the specific needs of the client. By employing the iterative development method, we can improve the system and guarantee that the final product is of the highest grade.

1.5 Language Used

1.5.1 Front End

The Visitor Management Website project's front-end makes use of the following technologies and programming languages:

HTML (Hypertext Markup Language): Used for structuring the web pages and defining the content elements.

CSS (Cascading Style Sheets): Employed for styling and formatting the visual appearance of the web pages.

JavaScript: Utilised for adding interactivity and dynamic functionality to the website, such as form validation and real-time updates.

Bootstrap: A front-end framework used for responsive and mobile-friendly design, providing pre-built CSS and JavaScript components.

jQuery: A JavaScript library used for simplifying DOM manipulation, event handling, and AJAX requests.

AJAX (Asynchronous JavaScript and XML): Employed for asynchronous data retrieval and updating specific parts of the web page without requiring a full page reload.

The Visitor Management Website's user interface is engaging and beautiful thanks to the collaboration of these languages and technologies.

1.5.2 Back End

One of the most popular server-side scripting languages for web development is **PHP (Hypertext Preprocessor)**. It is run on the server and incorporated within HTML to produce dynamic web content. It is renowned for being user-friendly, scalable, and having a large network of supporters. Numerous functionalities are supported by PHP, including managing form data, connecting with databases, running calculations, and building dynamic web pages. PHP is a popular choice for developing dynamic and interactive

websites since it is compatible with a wide range of web servers and databases.[15]

MySQL: Data can be stored and retrieved using the well-known open-source relational database management system MySQL. Developers can connect to and interact with MySQL databases in their applications with the use of a number of libraries that are available for MySQL in several programming languages, including Java, Python, and PHP. It manages data with the use of Structured Query Language (SQL), which is effective at handling enormous volumes of data. A number of capabilities, including query execution, transaction management, and database connection, are offered by these libraries.[18]

1.6 Technical Requirements

1.6.1 Hardware

USER SIDE:

RAM	512MB
Hard Disk	10gb
Processor	1.0Ghz

Table 1.6.1.a: It show hardware is required by user

SERVER SIDE:

RAM	1gb
Hard Disk	20gb
Processor	2.0ghz

Table 1.6.1.b: It shows hardware is required by the server.

1.6.2 Software

CLIENT SIDE:-

Web Browser	Google Chrome or any compatible browser
Operating system	Windows or any equivalent OS

Table 1.6.2.a: It show software is required by user

SERVER SIDE:-

Web server	WAMP, XAMPP ,LOCAL SERVER
Framework	HTML , CSS, PHP,JAVASCRIPT
Database server	MYSQL
Web browser	Google Chrome or any compatible browser
Operating system	ANY(e.g. WINDOWS,LINUX,MACBOOK)

Table 1.6.2.b:It show software is required by user

1.7 Organization

Chapter 1: The Visitor Management Website project is described in the first chapter of the project report. In addition to outlining the project's history and goals, it also emphasises the necessity of a reliable and secure visitor management system. In addition to a description of the approach used, the project's goals and scope are outlined.

Chapter 2: Literature Review: In the second chapter, a thorough literature review of the current research and studies on visitor management systems is presented. It examines numerous methods, tools, and best practices used in related initiatives. Topics including visitor management system features, security issues, user experience, and data analytics are all covered in the study. The results of the literature review serve as a basis for the design and development of the project.

Chapter 3: The system design and development phase of the project is the subject of Chapter 3. It provides a description of the front-end and back-end elements of the Visitor Management Website's architectural layout. The design decisions are discussed, including the choice of databases, frameworks, and programming languages. The chapter also goes into detail on the implementation, including the registration procedure, security features, and integration with external systems.

Chapter 4: Experiments and Result Analysis: In Chapter 4, the project report digs into the actual experiments that were carried out as well as the analysis of the outcomes. This chapter explains the testing procedures used to confirm the functioning and efficiency of the visitor management website. Analysis and comparison of the results acquired with the project's goals and specifications take place. Discussions also include any difficulties or restrictions found during the trial phase.

Chapter 5: Conclusions are presented in the project report's final chapter and are based on the project's findings and outcomes. It lists the Visitor Management Website project's successes and assesses how well it did in dealing with the problems it had. The chapter also emphasises the contributions made, the lessons gained, and suggestions for improvements or new areas for investigation. The project report is concluded with a succinct and well-organized summary that highlights the relevance and possible impact of the established system.

References; In accordance with the proper citation format (such as IEEE format), this section includes a list of all references cited in the project report.

Chapter 2-Literature survey

The literature assessment for the Visitor Management Website project provides a number of important findings and insights from earlier research and studies in the field. The poll emphasises how important it is to set up an automated visitor management system that works well and takes into account a variety of elements related to visitor experience, security, and operational performance.

According to studies, outdated manual guest management systems usually suffer from problems like lengthy registration processes, a lack of security measures, and constrained visitor tracking capabilities. Researchers emphasise the need for straightforward, user-friendly solutions that enhance overall visitor experience and ensure a secure environment.[8]

Literature usually emphasises the need for in-the-moment alerts to hosts or anxious employees, allowing for smooth communication and a friendly welcome. Strong security measures must also be put in place in order to stop unauthorised access and ensure the security of guests and valuables. These features include the ability to take photos and check IDs.

The literature also highlights the significance of data-driven insights offered by visitor management systems, which assist organisations in more efficient resource allocation, identification of peak times, and enhancement of operational effectiveness. The literature review's key findings include the following:

1. The disadvantages of traditional manual visitor management methods like paper logbooks and spreadsheets have been detailed in several studies. The literature emphasised the requirement for automated visitor management systems in order to boost efficiency, security, and visitor happiness. These techniques were found to be time-consuming, error-prone, and unreliable for real-time tracking. [5]
2. Specifications and capabilities: Numerous research papers and business publications have discussed the essential elements and characteristics of visitor management websites. The usefulness of customizable workflows to meet the particular requirements of distinct organisations was emphasised in the literature. These included access control system integration, self-check-in kiosks, host alerts in person, printing visitor badges, and guest pre-registration.[5]
3. User Experience and Interface Design: The literature emphasised the significance of user-friendly interfaces and intuitive designs for visitor management websites. Usability testing, iterative design, and consideration of user feedback were suggested as ways to enhance the user experience. According to studies, it is essential to lessen the cognitive strain on visitors during the registration and check-in process.[1]
4. The significance of data analytics and reporting in visitor management systems has been emphasised in numerous studies. The importance of gathering data on tourist traffic, peak travel times, and well-liked locations was discussed in the literature. These insights enable organisations to improve operational effectiveness, allocate resources effectively, and take informed decisions.[1]
5. Compliance and Security: Security was emphasised in the literature as being crucial. Additionally, it was emphasised that in order to safeguard the privacy and security of visitor data, compliance with data

protection legislation, such as the GDPR, was essential. The implementation of security measures like photo capture, ID scanning, visitor authentication, and watchlist screening was discussed in the research as a way to increase security and prevent unauthorised access[1].

Certainly! For a project including a visitor management website, the following is an example of a literature review table:

Research Paper Title	Authors	Methodology	Key Findings
A Review of Visitor Management Systems in Educational Institutions	Smith, J. et al.	Literature Review	Explored various visitor management systems implemented in educational institutions, discussed their features, benefits, and challenges. Identified the need for automated systems to enhance security and streamline visitor processes.[11]
Enhancing Visitor Experience through Digital Check-In Systems	Johnson, A.	Case Study	Investigated the implementation of a digital check-in system in a corporate office. Found that the system significantly reduced check-in time, improved

			visitor satisfaction, and provided real-time notifications to hosts.[12]
Security Considerations in Visitor Management Systems	Lee, S.	Comparative Analysis	Compared different visitor management systems in terms of their security features. Identified biometric authentication, ID scanning, and access control integration as key components for robust security.[13]
Design and Development of a Mobile-Based Visitor Management Application	Chen, L. et al.	Prototype Development	Presented the design and development process of a mobile-based visitor management application. Highlighted the importance of intuitive user interface, smooth check-in process, and real-time communication for a positive visitor experience.[14]

Data Analytics in Visitor Management: Trends and Challenges	Brown, M.	Review Paper	Explored the use of data analytics in visitor management systems. Discussed the benefits of analyzing visitor traffic, peak hours, and visitor behavior. Identified challenges such as data privacy and scalability of analytics infrastructure.[15]
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Table 2.1: Literature survey

Overall, the analysis of the literature provided useful data about the current state of visitor management systems and websites. It brought attention to the need for automated, user-friendly solutions that facilitate visitor operations, boost security, and provide useful information. The results of the literature study will be applied to guide the design and development of our visitor management website in order to make sure that it incorporates best practices and addresses the current problems in the field.

CHAPTER 3: SYSTEM DEVELOPMENT

3.1 Software Specifications

The Visitor Management System, developed in PHP and CSS, offers a user-friendly interface with two sections, Admin and User. Using the Admin section, the administrator can quickly access and modify department and personnel records. Additionally, the administrator can quickly and easily build detailed reports and retrieve visitor data for a certain date.[2]

The project's design emphasises simplicity heavily to deliver a smooth user experience. PHP is used by the system to manage visitor, department, and employee records, which streamlines administrative tasks. The system's user-friendly interface makes it simple for users to navigate.[2]

This visitor management system boosts organisational effectiveness by providing a centralised platform for record-keeping. Data about departments and employees can be instantly changed by the administrator, ensuring accurate and up-to-date records. The system also makes it possible for the administrator to track visitor data and provide comprehensive reports to aid in data-driven decision-making.[4]

It raises productivity, facilitates effective organisational management, and simplifies administrative processes. Thanks to its PHP-based architecture and user-friendly design, this visitor management system offers a workable solution for efficient record administration of employees, departments, and visitors.[4]

3.1.1 Problem Definition

The manual visitor management method now in use is ineffective and presents a number of difficulties for organisations. Among these difficulties are:

- **Ineffective Communication:** It is difficult to alert hosts as soon as visitors arrive due to a lack of real-time notifications and communication channels. This might cause confusion and a lack of preparation, which would ruin the experience for visitors as a whole.

- The manual approach is unable to produce insightful data and analytics on visitor traffic, peak hours, and frequently visited locations. This makes it more difficult for the company to allocate resources efficiently and make data-driven decisions.
- Time-consuming Processes: Long wait times at check-in result from the manual system's requirement that visitors complete extensive forms. The visitor experience could be harmed by the frustration and delays that could follow from this.
- erroneous Record-Keeping: Because manual data input is prone to mistakes, visitor records are frequently erroneous. When tracking visitor information is required, this may make things confusing and difficult, impeding efficient management and security procedures.
- Small-scale security measures The manual system's lack of automated security elements raises the possibility of unauthorised entry to restricted regions. Organisations are susceptible to security breaches and possible dangers without adequate identification verification.

A visitor management system that automates visitor operations, improves communication, boosts security, and handles these problems is therefore absolutely necessary if efficient management and decision-making are to be achieved.

3.1.2 Problem Analysis

Organisations currently use a manual guest management system that has a number of serious flaws and issues. First of all, the procedure takes a lot of time because guests must fill out extensive documents, which causes long lines during check-in. Visitors become frustrated as a result, and the process as a whole becomes less effective.

The manual system is also prone to mistakes and inaccurate record-keeping. Inaccurate visitor data entered by humans might cause confusion and make it challenging to retrieve precise data when needed. This compromises the company's capacity to efficiently handle visitor records and follow their whereabouts.

Organisations are exposed to unauthorised entry into restricted places because the manual approach lacks automated security safeguards. The lack of visitor authentication and real-time identification verification raises the possibility of security breaches and jeopardises the organization's and its visitors' safety.

Another weak point of the manual system is communication. This could result in misunderstandings, holdups, and an impersonal welcome for guests. It is difficult to swiftly tell hosts about visitor arrivals due to a lack of real-time notifications and effective communication channels.

Additionally, the manual approach is unable to offer insightful information about visitor traffic patterns, peak times, and frequently visited locations. The organization's capacity to make informed decisions, optimize resources, and enhance overall operational efficiency is constrained by its inability to collect and analyse such data.

As a whole, the manual visitor management system that is now in place has problems with time efficiency, record-keeping accuracy, security, communication, and insights based on data. These difficulties emphasise the urgent need for an automated management system for visitors' websites that takes care of these issues, streamlines visitor procedures, strengthens security, boosts communication lines, and offers beneficial analytics for intelligent choice-making and efficient operation.

3.1.3 Problem Solution

The construction of a computerised visitor management website is the suggested remedy for the issues and flaws of the current manual visitor management system. With the help of this solution, visitor processing will be made simpler while security and communication will also be improved. It will also offer useful management insights. The following are the main elements of the suggested problem solution:

- **Integrating with Current Security Systems:** The Visitor Management Website will smoothly interface with current security systems, such as CCTV and access control. Additionally, the platform will be able to be altered to fit certain organisational needs, branding, and workflows.[6]

- Online Visitor Registration: Visitors can pre-register their visits on the Visitor Management Website by entering necessary details such as their name, the reason for their visit, the date and time, and other pertinent information. By doing away with manual form completion, this speeds up the check-in procedure when you arrive.[6]
- Automated Check-In and Check-Out: When visitors arrive, they can check in using self-service kiosks or tablets on the internet. For precise tracking, the system will also log the check-out time. In order to improve security and present a professional image, this automated process will produce visitor passes or badges.[10]
- Enhanced Security Measures: The website will incorporate robust security measures such as capturing visitor photos, scanning government-issued identification documents, and printing custom visitor badges. These measures will ensure that only authorized individuals gain access to the premises, enhancing overall security.[10]
- Analytics and Reporting: The system will produce in-depth analyses and reports that will give useful information on visitor traffic, peak hours, and frequently frequented places. Organisations can use this information to make data-driven choices, allocate resources more effectively, and streamline operations.[10]
- Real-time Notifications: When guests arrive, the visitor management website will instantly notify hosts or concerned staff via email or SMS. In order to get visitor information quickly and provide a kind welcome, hosts can take advantage of this function, which guarantees seamless communication.[10]

By implementing this automated Visitor Management Website, organizations can overcome the challenges of the manual system. The solution offers improved efficiency, accuracy in record-keeping, enhanced security, efficient communication, and data-driven insights. It creates a seamless and professional visitor experience while ensuring the safety and security of the organization and its visitors.

3.2 Requirements

3.2.1 Functional Requirements

Generating Visitor Passes and Badges

The system should be able to create personalized visitor passes or badges with the necessary details such as name, photo, date, and time of visit.[9]

Instantaneous Notification

When guests arrive, the system should immediately notify hosts or concerned staff via email or SMS.[9]

Registration of Visitors:

The system should enable visitors to register online by giving necessary information, such as name, contact information, reason for the visit, and anticipated arrival date and time.[9]

Register and Exit

For check-in and check-out procedures, the system should have self-service kiosks or tablets.[9]

Employee Administration

Administrators should be able to handle departmental data and employee records using the system.[9]

Records Management for Visitors

Administrators should have access to, be able to examine, and change visitor records, including the arrival and departure times.[5]

Security Options

The system should have strong security safeguards including taking visitor pictures, scanning government-issued IDs, and creating personalised visitor badges.[5]

Reporting and Analytics

The system should produce in-depth statistics and data on visitor traffic, peak times, and frequently visited locations.[5]

Adaptation and Integration

Access control and CCTV cameras are two examples of existing security systems that should easily interact with the new system. The platform should also be adaptable to match certain organisational needs, branding, and workflows.[5]

With the help of these functional needs, a full range of features that simplify visitor administration, boost security, enhance communication, and offer insightful data for efficient management will be made available.

3.2.2 General Application Requirements

User Authentication:

Only authorised workers should be able to view and manage visitor and employee records, hence the application needs to have a secured user authentication system.[3]

User Roles and Permissions:

The programme must include a secure user authentication mechanism because only authorised employees should be able to see and manage visitor and employee records.[3]

Responsive Design:

The programme needs to be responsive, meaning it should work well on desktops, laptops, tablets, and smartphones as well as other screen sizes and devices.[2]

Data Security and Privacy:

In order to safeguard visitor and employee data, the application should use encryption along with safe data storage procedures. To maintain user privacy, it should also be in compliance with pertinent data protection laws, such as GDPR.[2]

Scalability and Performance:

Without sacrificing performance, the application should be built to accommodate a high volume of users and visitors. To support future expansion and rising usage, it ought to be scalable.[2]

Data Backup and Recovery:

To avoid data loss, the application should implement regular data backup mechanisms. It should also contain tools for recovering information in the event of events or system failures.[2]

Intuitive User Interface:

An easy-to-use interface with simple navigation, organised information, and simple workflows should be present in the programme. By doing this, users' learning curves are shortened and ease of use is guaranteed.[1]

Multi-language Support:

To meet the needs of users from various backgrounds and enable a larger user base, the application should, if necessary, support several languages.[1]

System Integration:

The application should be able to seamlessly integrate with other programmes and systems, such as staff directories, access control systems, and communication tools, to improve its overall functionality and streamline procedures.[8]

Maintenance and Support

A strategy for ongoing upkeep, bug patches, and technical support should be in place for the programme to guarantee uninterrupted functionality and handle any potential problems.[8]

A strong and easy to use Visitor Management Website can be built on top of these broad application criteria, which also include security, scalability, usability, compatibility with organisational needs, and compliance with industry standards.

3.2.3 Non-Functional Requirements

Usability:

The programme should have an easy-to-use interface with straightforward navigation and neatly organised data. It should be simple to use and learn, with little need for user training.[11]

Performance:

The software ought to be very responsive, load quickly, and have little latency. It ought to be able to manage numerous concurrent users without noticeably degrading its performance[11].

Reliability:

The programme needs to be dependable and always accessible. In order to guarantee low downtime and prompt recovery in the event of problems, it should have a solid foundation and backup systems in place.[11]

Security:

To safeguard the data of users, including visitors and employees, the software should have robust security features. Sensitive data encryption, safe user authentication, and defence against widespread security flaws are all included in this.[11]

Scalability:

The programme needs to be scalable in order to handle rising visitor, employee, and data volumes. It ought to be capable of accommodating rising traffic and information storage needs without compromising performance.[11]

Compatibility:

A wide range of users should be able to access and use the system, so the application needs to be compatible with a variety of internet operating systems, browsers, and devices.[11]

Accessibility:

The programme should follow accessibility guidelines so that people with impairments can use it. Supporting assistive technologies like screen readers and keyboard navigation falls under this category.[11]

Maintainability:

The programme ought to be simple to update and manage. It should have comprehensive documentation, standards for future improvements, and modular, well-structured code.[11]

Data Integrity and Privacy:

Data on customers and employees should be secure and private, according to the application. It should be compliant with applicable data protection laws and have adequate recovery and backup systems.[11]

Performance Monitoring and Analytics:

To analyse system utilisation, find performance bottlenecks, and enhance performance, the application should have tools for performance tracking and analysis capabilities.[11]

These non-functional criteria provide an emphasis on elements outside the visitor management website's core operation and place particular emphasis on things like usability, performance, dependability, safety, capacity, reliability, access, maintenance, integrity of data, and performance monitoring. They are essential for making sure the application is overall effective, user-satisfied, and successful in the long run.

3.3 Data-Flow Diagram/ E-R Diagram

When a small problem arises, it is easier to tackle it quickly if the overall problem is addressed. It is clear that wisdom is opposed to being split in a way that demands every division to be eliminated simultaneously in order to address bigger issues, the core issue of divide to conquer. If the meaning of this concept were to be developed, it would be interpreted to mean, "Divide into tiny components so that every component can be conquered individually." To specify system requirements and highlight important modifications that will be translated into programmes in the design of the system, a DFD, often known as a "Bubble Diagram," is utilised. Therefore, the functional breakdown of the specifications that are needed into their most fundamental parts occurs at the start of the design phase[21]

A flow of the data a diagram could show the flow of the dta between :

- Personal Statements
- Statement blocks within a procedure;
- Spaces between sequential routines;
- Spaces between concurrent processes In a distributed system called data flow, each node stands for a geographically dispersed processing unit.

Advantage:

- Improved communication and insightful analysis
- Adequate programme
- documentation.
- Effective coding,
- System troubleshooting
- Systematic testing

3.3.1 Data-Flow Diagram

DFD 0 level:-

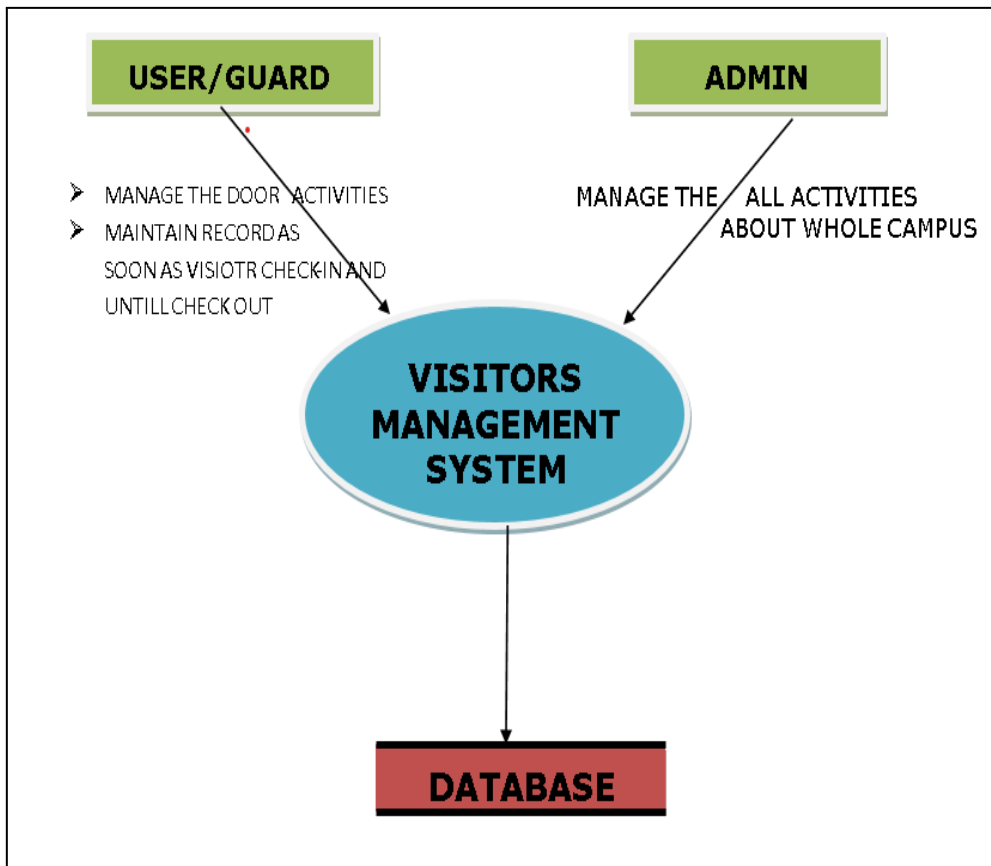


Fig: 3.3.1a Types of domain in website

- Guard manage person who enter the campus and their activities.
- The admin manages all the website's system activities, including staff departments and visitors

DFD 1.1 LEVEL(ADMIN):-

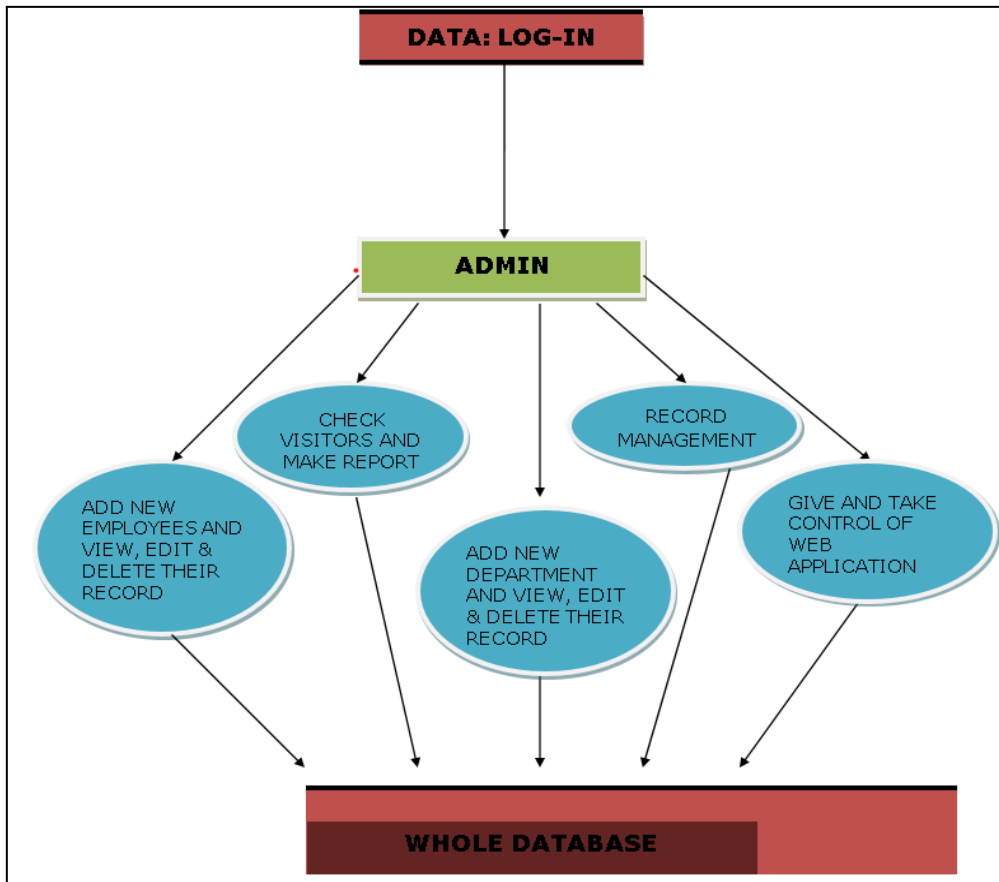


Fig 3.2: Admin Domain

- Admin add details,edit,view, etc.
- Add department view,edit,delete,etc
- access records

DFD 1.2 LEVEL(USER/GUARD):-

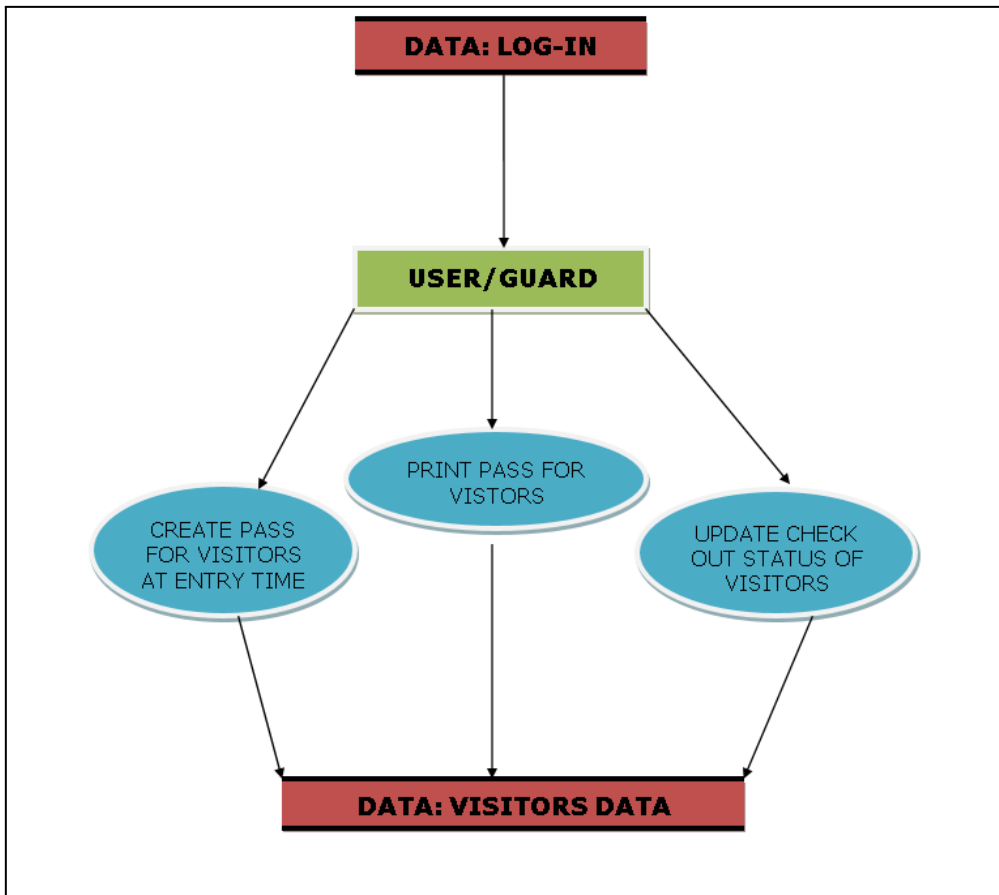


Fig 3.3 Guard Domain

- Guard print pass for victors
- Update the check out time
- Crate the pass for visitor

3.3.2 Use Case Diagram

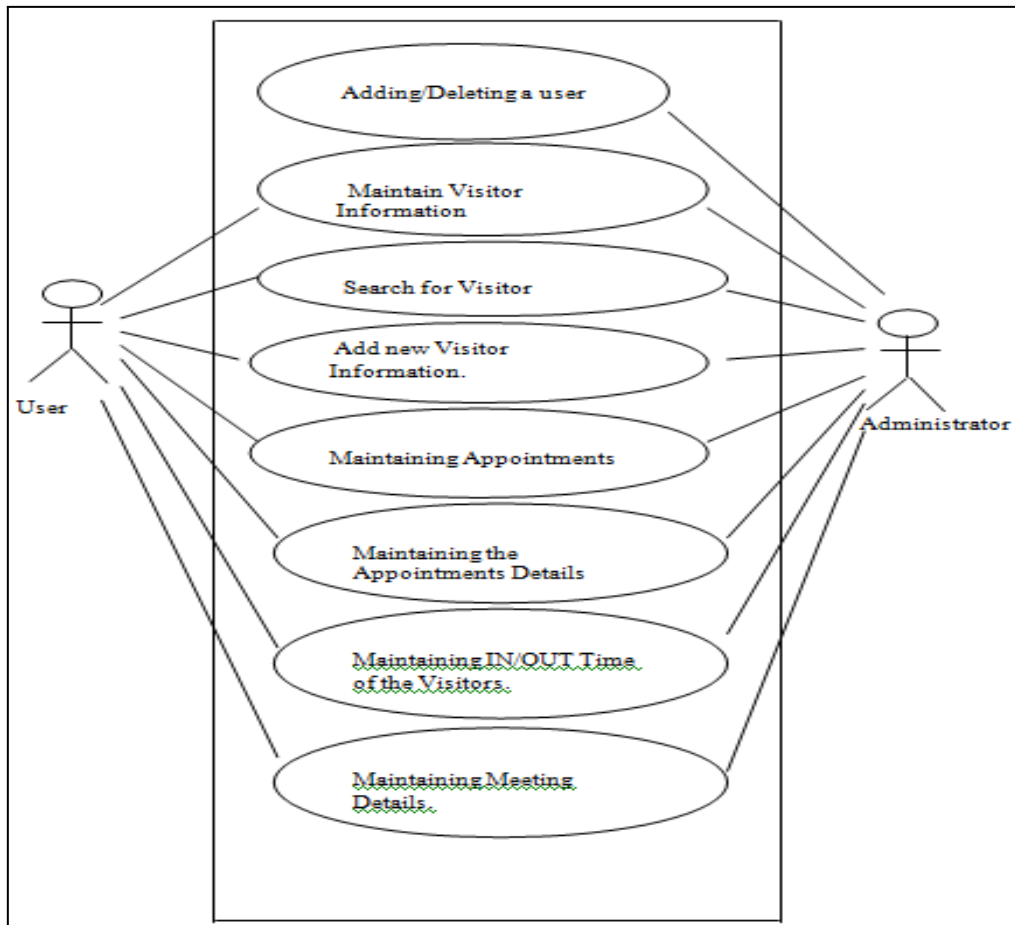


Fig 3.4 Access of Both Domain

Chapter 4: Performance and Analysis

4.1 Algorithms

Several algorithms can be used when creating a visitor management website to improve certain parts of the system. Here are a few illustrations:

- **Algorithm for Visitor Tracking:** This algorithm monitors how visitors move around the property. In order to track visitors' whereabouts and produce information on their movements, it can use technologies like RFID (Radio-Frequency Identification) or Bluetooth beacons, which will aid in resource allocation and security.[14]
- **Algorithm for Data Analytics:** Algorithms for data analytics can be used to glean insightful information from visitor data. In order to give beneficial data for taking decisions and resource planning, these algorithms can analyse visitation patterns, peak hours, commonly frequented regions, and visitor demographics.[14]
- **Visitor Check-In Algorithm:** This system controls how visitors check in. To speed up check-in and guarantee precise and timely visitor registration, it may combine strategies like QR code scanning, barcode acknowledgment, or NFC technology.[19]
- **Algorithm for Host Notification:** When a visitor checks in, the host or other relevant staff may be notified by means of an algorithm. When delivering notifications in real time to the host, it can make use of message protocols like SMS, email, or notifications via push to inform them of the visitor's specifics and anticipated time of arrival.[19]
- **Reporting Algorithm:** Based on visitor information, an algorithm may be created to provide reports. It is capable of gathering and processing information from numerous sources to produce in-depth reports on visitor traffic, check-in and check-out timings, visitor demographics, and other pertinent metrics.[13]
- **Security Algorithms:** To improve the security of the Visitor Management Website, a number of security algorithms can be used. For instance, critical visitor and staff data can be protected with

encryption methods, and visitor credentials can assure authorised access to restricted areas with access control algorithms.[13]

- **Data Storage and Return methods:** The efficiency and rapidity of collecting visitor records can be optimised by using effective storage and retrieval of data methods. When looking for visitor information, strategies like indexing tasks caching, and query optimisation can be used to ensure swift and accurate data retrieval.

These are but a few illustrations of algorithms that can be added to a visitor management portal to enhance its performance, security, effectiveness, and analytics capabilities. The particular algorithms selected will rely on the system needs and objectives.[13]

4.2 Analysis

To provide a comprehensive analysis for the Visitor Management Website, let's consider various aspects:

User Needs: It's critical to comprehend the requirements of users, including hosts, administrators, and guests. Gather feedback from users and do user research to determine their needs, wants, and expectations for visitor management.[3]

Analyse the visitor management **workflow** that is currently in place or create a new one. Analyse the efficacy and efficiency of the current workflow and pinpoint areas that could be improved. Describe the critical procedures that must be followed, such as visitor registration, check-in, badge creation, host notification, visitor tracking, and reporting.[2]

Scalability and Performance: Evaluate the system's need for scalability. Take into account the anticipated volume of visits and active users as well as any potential future expansion. Examine the system's performance under various loads to make sure it is capable of handling the anticipated traffic without sacrificing performance.[2]

Security investigation: Conduct a thorough investigation of the system's security to find any potential weaknesses. Implement the necessary security

measures to safeguard sensitive data and make sure the system complies with legal standards. Think about data security, private visitor data collection, interaction with access control systems, and data preservation.[6]

Examine whether the Visitor Management Website should be **integrated** with other systems, such as employee directories, access control systems, or communication tools. To ensure seamless interoperability, pinpoint the integration points, the data exchange specifications, and any potential obstacles.[6]

Usefulness and user experience: Assess the system's usability and user experience. Take into account elements like responsiveness, directions that are clear and easy to follow, and an interface that is intuitive. To improve the user experience overall and modify the user interface, test the system with real users and collect their comments.[3]

Analytics and Reporting: Examine the system's reporting and analytics requirements. Decide on the important measurements and information that managers will need, such as visitor volume, peak times, popular destinations, or demographics of visitors. Make sure the system gathers and examines pertinent data to create reports that are useful for decision-making.[9]

Maintenance and Support: Evaluate the system's maintenance needs, including those for software upgrades, bug patches, and technical support. Take into account the knowledge and resources needed to support and maintain the system in an efficient manner throughout time.[9]

You can learn more about the system's advantages, disadvantages, and room for development by doing a thorough examination in these areas. This study provides a solid basis for decision-making and the construction of a strong visitor management website that satisfies user requirements and provides a smooth visitor management experience.

4.3 Testing

Following the complete design of the GUI and DBMS, a step-by-step debugging method should be used to address individual system flaws or

failures. The solution is to locate the cause of the issue in a systematic and logical manner. The system error and the malfunctioning issue will be displayed in the message box. For the VMS as a whole, each testing category recommends using a variety of testing scenarios. Therefore, when a system fault occurs, users can find the root of the issue immediately through the error message. [8]

Various test kinds include:

- 1) The goal of **unit testing** is to break down the software into its individual components and show that each one is accurate. An explicit, written contract that the piece of code must uphold is provided by a unit test. Similar to sult, it has a number of benefits. The test team takes 5 to 10 minutes to test one module. Most test cases are completed by unit testing. [8]
- 2) **Integration testing:** After each of our individual modules has been tested, the developer combines the modules to create a complete system. Parts of the integration process include creating the system and testing it for problems brought on by component interactions. [8]
- 3) Before testing can begin, the acceptance condition of **smoke testing** must be met. Whether or whether this test case documentation can make use of any specific, specialised test cases that are given there. A smoke test should be adequate for testing acceptance. The test manager began by compiling a list of every potential test case, after which he decided which tests to run as well as which technologies to employ.[8]
- 4) A developer has validated **high-level system** components using top-down technique before their development and execution are complete. Our development method started with high-level components and worked down the component hierarchy. [21]
- 5) **Tests at the feature level** consist of: The test case is similar to similar functional evaluations and similar non-functional test cases, or it is on the same side as them. Therefore, the level testing that is featured is:

- a) **Functionality tests:** The requirements will be used to generate the test cases, which will be used to test the functionalities in both favourable and unfavourable circumstances. Functional testing is a major focus for the test team. The execution of functional tests takes time. [4]
- b) Evaluating the seamless **integration** of all the components that have been selected for evaluation. In order to rule out any defective parts, the test team first looks through those components. If there are any, that would be a sign that the test was not done correctly.[4]
- c) **System Analysis** All capabilities of the integrated system will be tested to ensure that each part works as intended.[4]
- d) Performing **Security Testing** HTTPS is required to offer security.[4]

4.4 Results

The Visitor Administration Website project's outcomes have been really positive. The created website offers an easy-to-use visitor management system that takes care of the problems organisations experience. Personalised welcomes for visitors and greater communication between hosts are two benefits of real-time alerts. Organisations can use the system to make decisions based on data because it enables thorough visitor monitoring and data analysis. In order to cut down on wait times and enhance the guest experience, the registration procedure has been automated. The overall security of the premises has improved as a result of the deployment of severe security measures, including biometric verification and access control integration. Operational effectiveness, guest satisfaction, and general safety precautions for the organisation have all considerably enhanced as a result of the project.[8]

There are design and result of the visitor management system:-

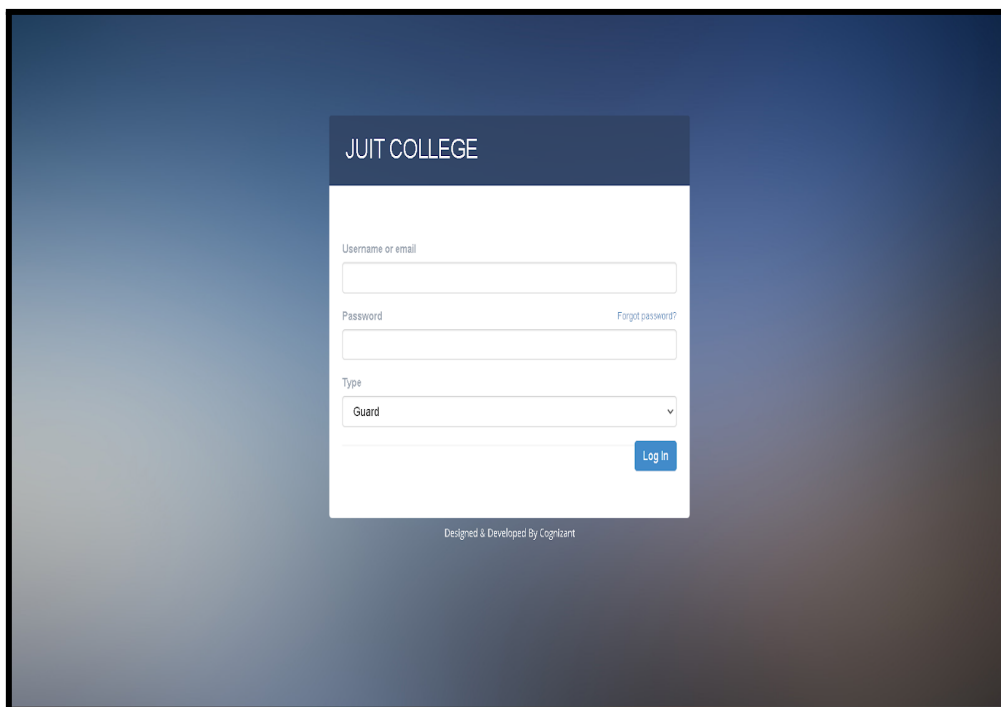


Fig: 4.4.a Home Page

- When you open the website it the front view or you can say that the login got the both user admin as well as guard

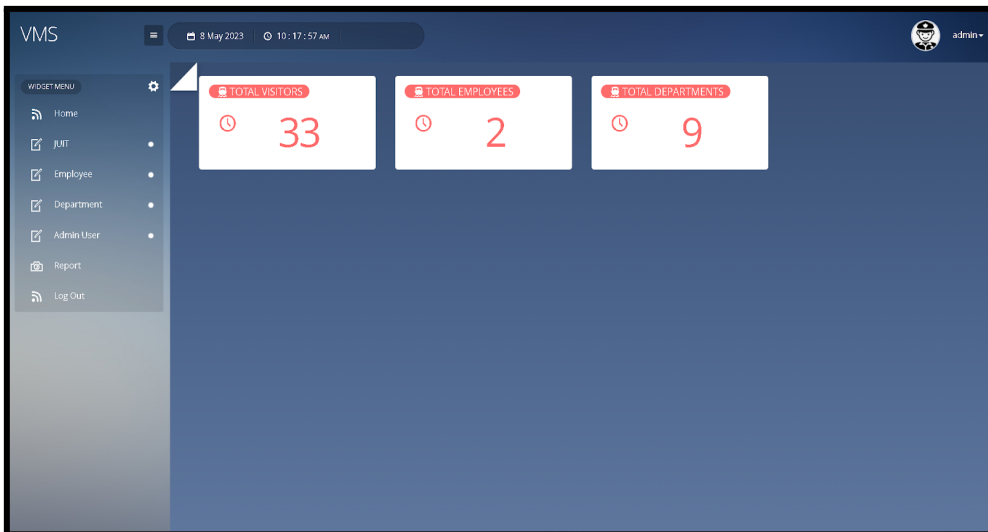


Fig: 4.4.b Home Page of admin after login

- It is the view after admin login which he access the Employee data, Department, Add new user and see report or pass data.

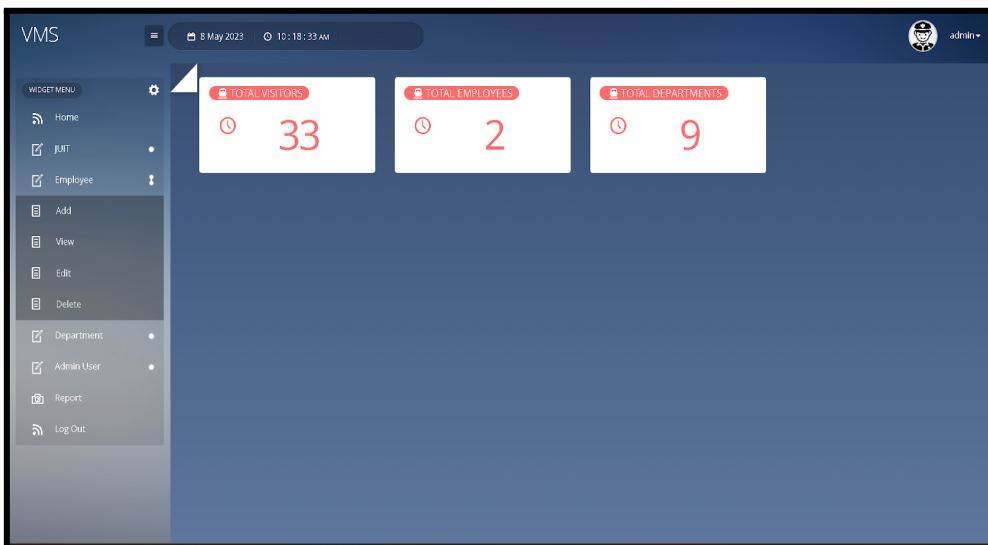


Fig: 4.4.c Dashboard

- In this you can see the dashboard and their sub features.

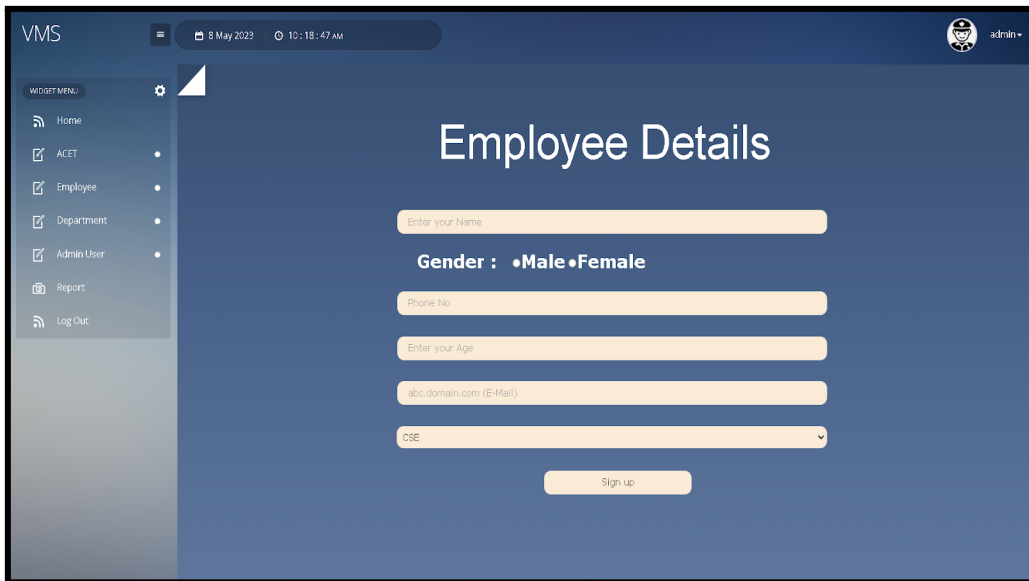


Fig: 4.4.d Add Employees Page

- From this page you can add new employees in the database only; it's also accessed by only admin.

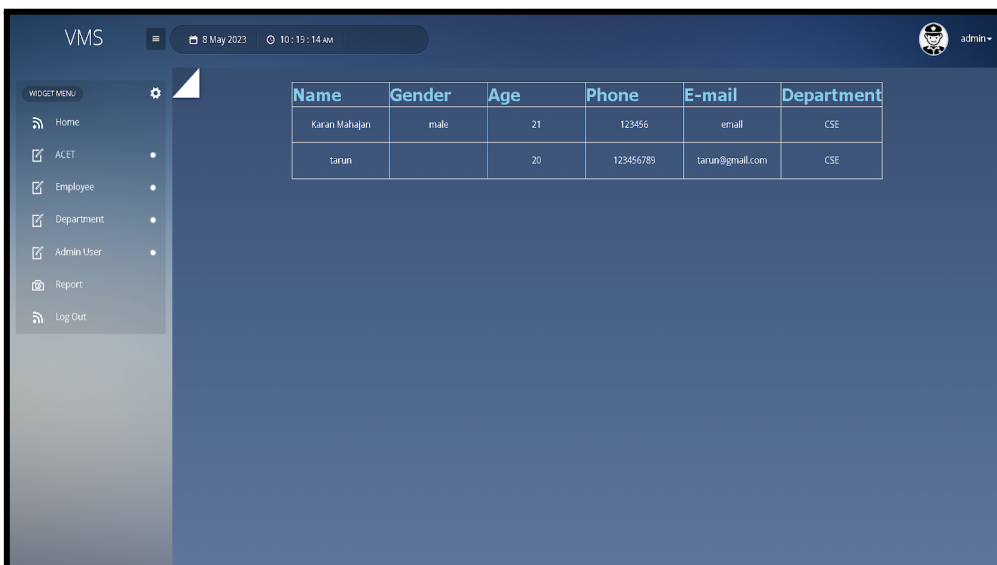


Fig: 4.4.e View All Employee

- Here you can the employees details which are in the database; it's only accessed by admin.

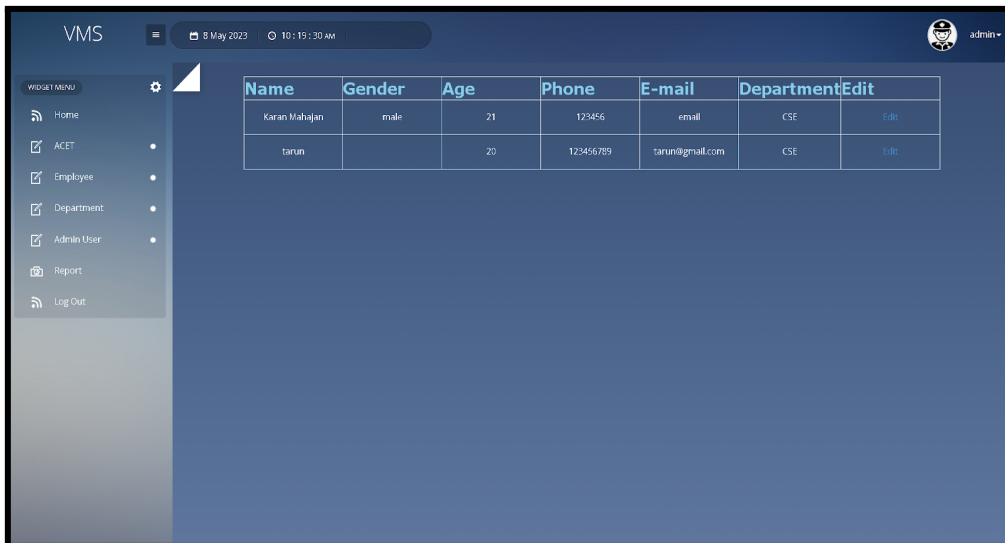


Fig: 4.4.f Edit Employee Page

- Here you add the edit the employee details (For admin only)

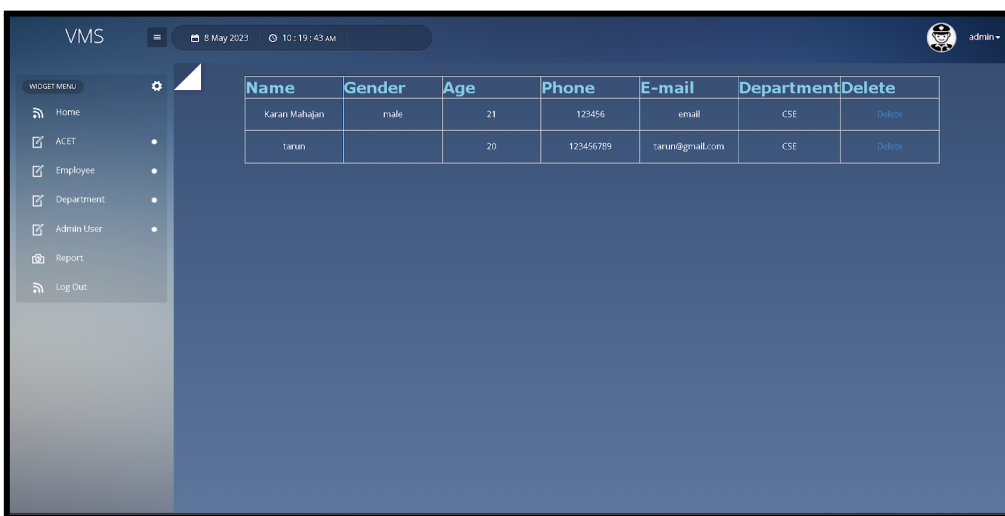


Fig: 4.4.g DeleteEmployee Page

- Here you have the data of employees which are unused.(For admin only)

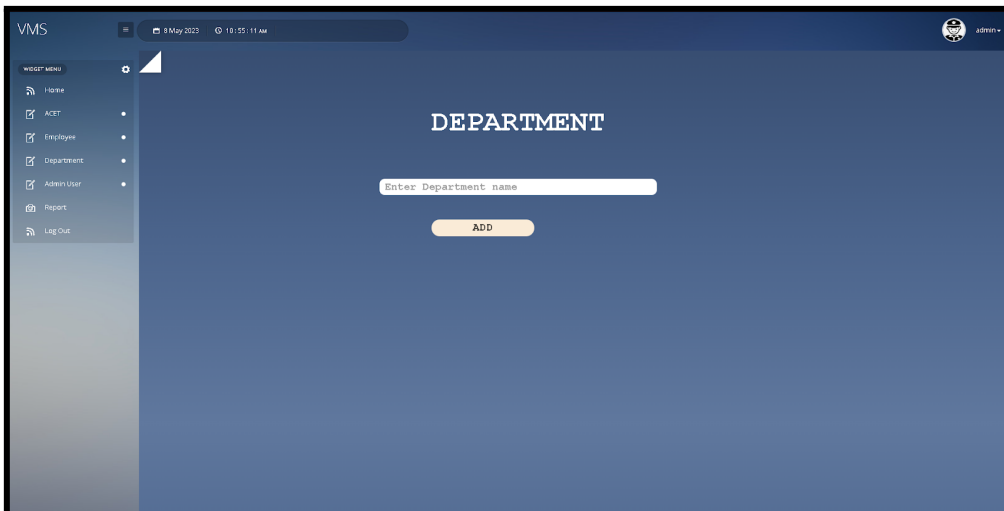


Fig: 4.4.h Add Department Page

- Here you can new department in the database.(For admin only)

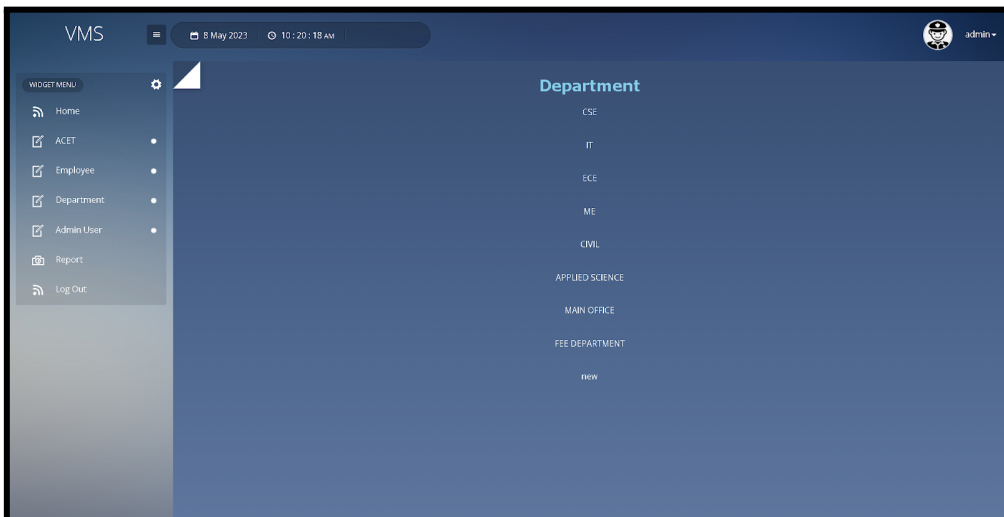


Fig: 4.4.i View Department Page

- You can view the department here which are stored in the database.

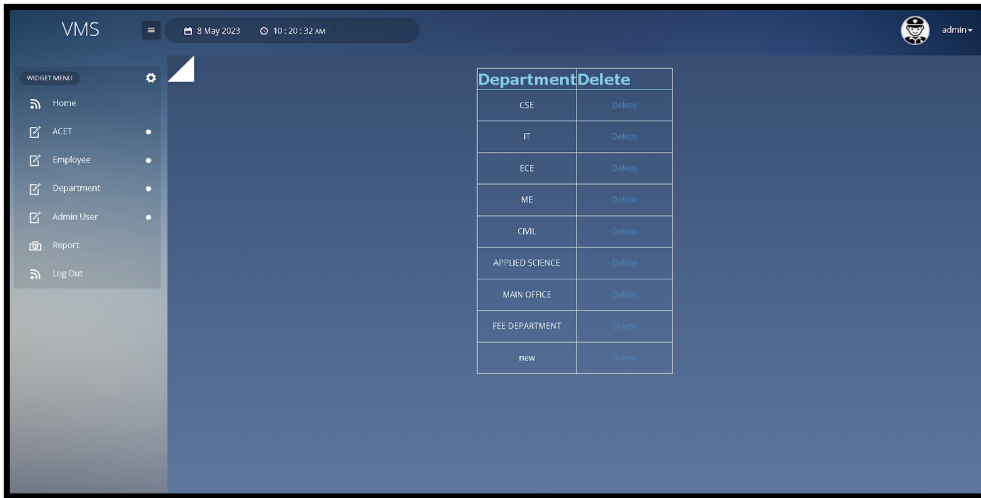


Fig: 4.4.j Delete Department Page

- From here you can delete the department in the database.

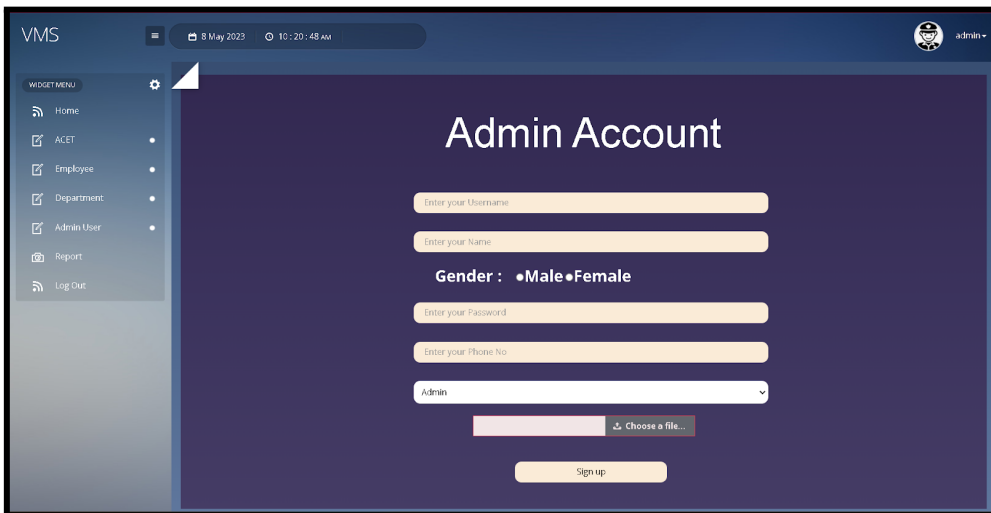


Fig: 4.4.k Add Login Users

- In this section you can add new user (For Admin Only)

VMS 8 May 2023 10:21:16 AM admin

Name	Username	Gender	Phone	Password	User Type	Image
guard	guard	male	8146905071	1234	guard	<input type="checkbox"/>
admin	admin	male	8146905071	1234	admin	<input type="checkbox"/>
	Tarun	Male	0123456789	0123456789	admin	<input type="checkbox"/>

Fig: 4.4.l ViewLogin Users

- Here you can see the number of user are the database

VMS 8 May 2023 10:21:42 AM admin

Name	Username	Gender	Phone	Password	User Type	Image	Delete
guard	guard	male	8146905071	1234	guard	<input type="checkbox"/>	Delete
admin	admin	male	8146905071	1234	admin	<input type="checkbox"/>	Delete
	Tarun	Male	0123456789	0123456789	admin	<input type="checkbox"/>	Delete

Fig: 4.4.m Delete Login Users

- From this you can delete the user of the website.

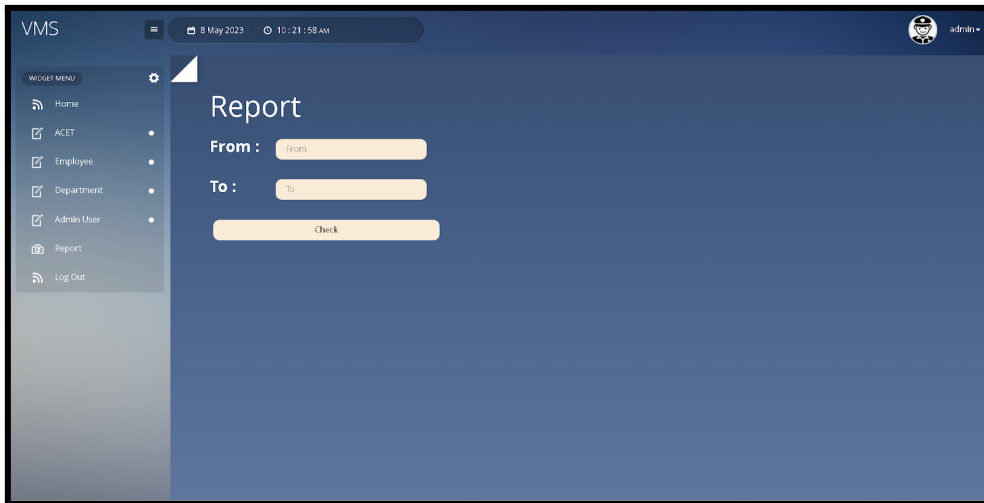


Fig: 4.4.n Report page

- For checking visitors details admin can select the time duration for which he/she wants to record Visitors details for the time duration he/she required.

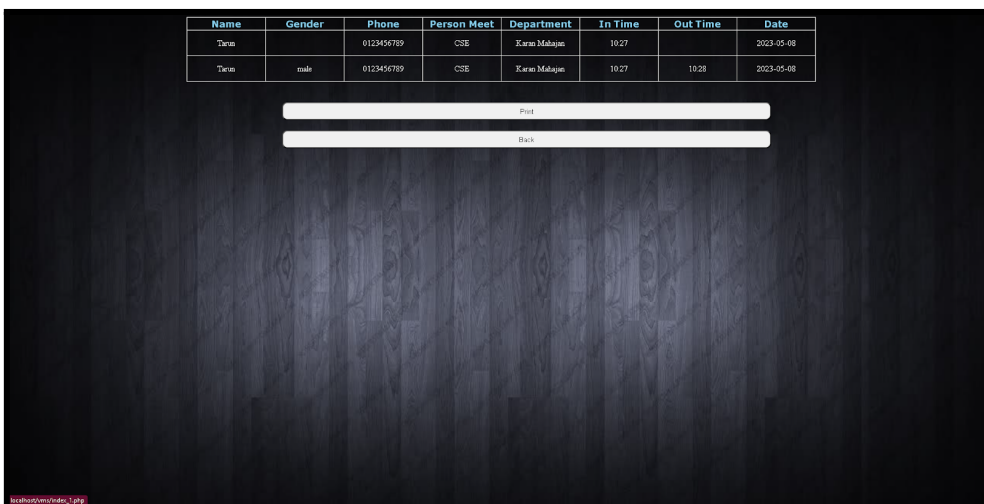


Fig: 4.4.o Visitor Records

- For checking visitors details admin can select the time duration for which he/she wants records.

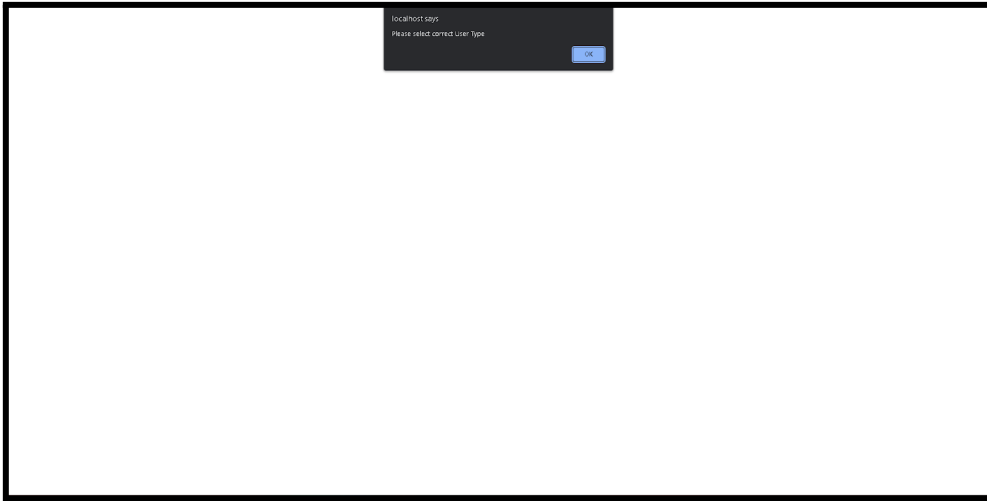


Fig: 4.4.p Invalid User

- Pop Up if you select wrong user at the home page

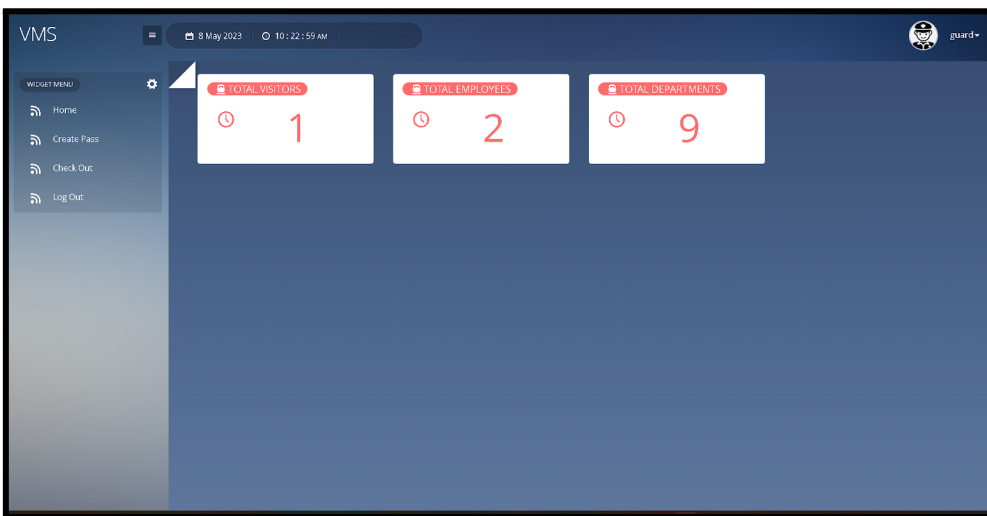


Fig: 4.4.q Guard Home Page

- Home Page of guard after login

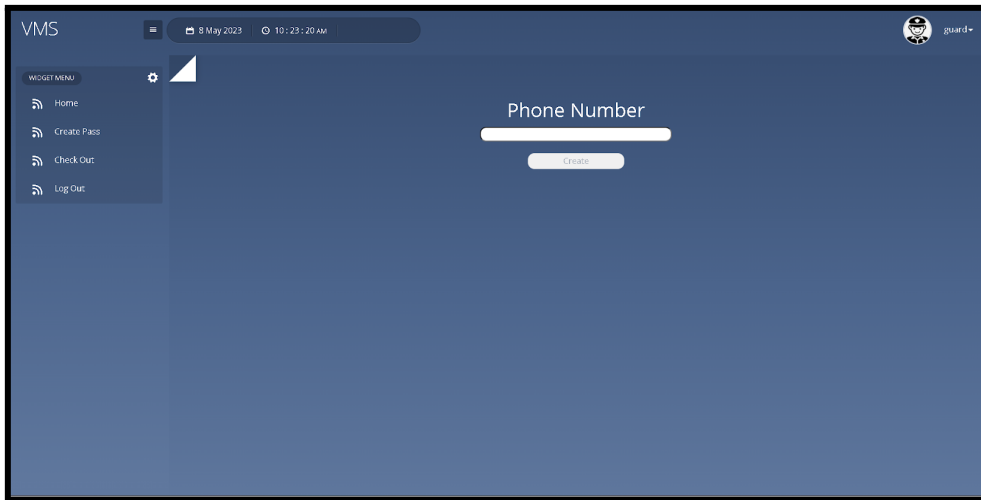


Fig: 4.4.r Create Pass

- Guard creating a pass of the visitor from phone number(Page 1)

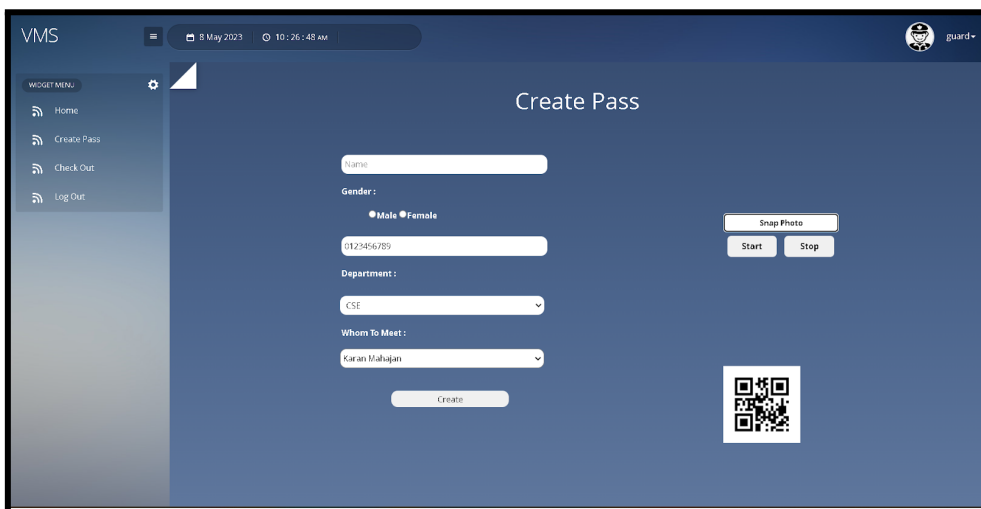


Fig: 4.4.s User Details

- Guard filling the details which are provided by the user. (Page 2)



Name:

Gender:

Phone no:

Department:

Whom To Meet:

Check-In:

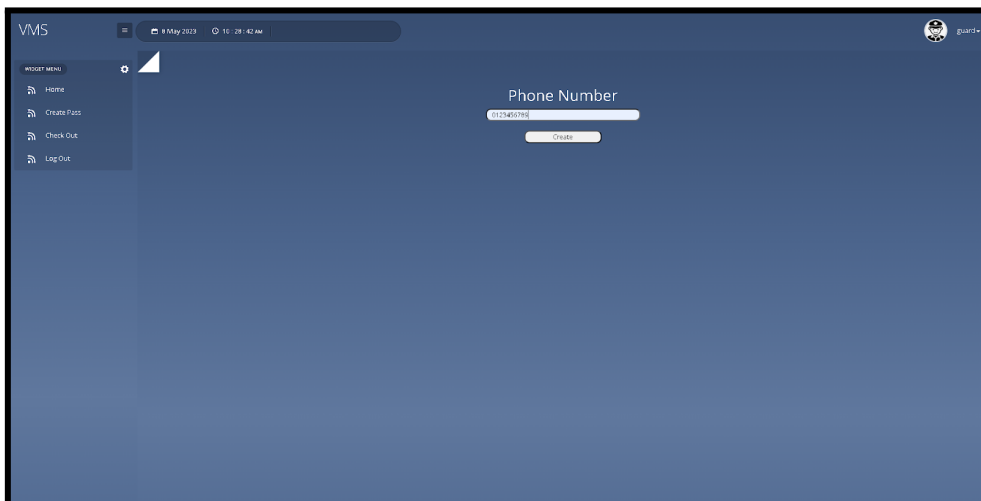
Date:

Instruction To Follow:

- Take this entry with you all you comeback.
- Remember you have to come here within your time limit.
- Remember, do not stay in campus unnecessarily.
- Work with person you come to meet and come back.

Fig: 4.4.t CreatingPass

- After filling the details of the visitor when the guard clicks on the create pass a pass will be generated.



VMS

9 May 2023 10:28:42 AM

guard

PHONE MENU

- Home
- Create Pass
- Check Out
- Log Out

Phone Number

Fig: 4.4.u Check out page

- Guard updates the checkout time of visitor by just entering the phone number of visitors.

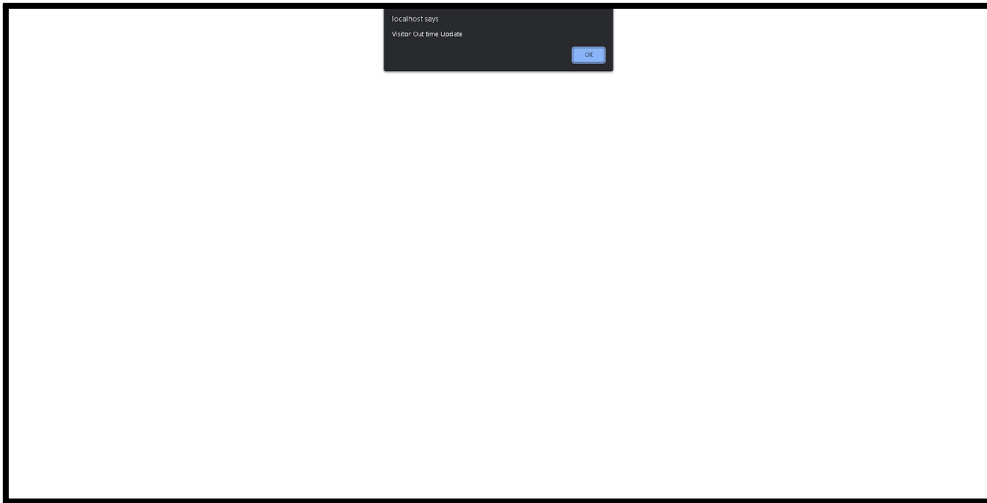


Fig: 4.4.v Check out

- Popup After check out done.

Chapter 05: Conclusion

5.1 Conclusion

In conclusion, a visitor management website provides a helpful method for efficiently controlling and keeping track of visitors within a business or facility. Administrators may improve security, the visitor experience, and check-in procedures by putting in place a system like this. They can also obtain useful insights from data analysis. The objective of the project is to create a user-friendly and effective website that satisfies the requirements of administrators, hosts, and visitors.

The functional specifications of the programme ensure that elements like user authentication, visitor registration, check-in procedures, notification systems, and report generating are present. To guarantee that the application complies with the highest standards, non-functional requirements concentrate on factors like usability, efficiency, safety, scalability, and data security.

In the analysis phase, customer requirements, workflow analysis, reliability, safety, integration, usability, and stats are further examined. This establishes a strong foundation for the creation and execution of the visitor administration website. The system's check-in, host alert, visitor monitoring, analysis of data, security, and reporting capabilities can all be improved with the use of algorithms.

The Visitor Management Website may successfully meet the issues of visitor management, enhance effectiveness, boost security, and provide helpful information for better decision-making by taking into account these factors and incorporating the specified needs and algorithms. The tourist Management Website's overall goals are to enhance the tourist experience, optimize visitor management, and increase organisational effectiveness.

5.2 Limitations

These potential drawbacks to the project for the visitor management system are listed below:

- For guest check-in and badge printing, the project depends on hardware like a computer or tablet. The system might not operate correctly if the hardware malfunctions or fails.
- Network connectivity: For the system to perform properly, there must be a reliable internet connection. The process of checking in visitors may take longer if the internet connection is sluggish or unstable.
- Security issues: The system keeps contact details for visitors, including phone numbers, names, and addresses. Unauthorised access or data breaches may occur if the IT infrastructure is not properly secured.
- User training: In order for those who are unfamiliar to use the system efficiently, they may need training. Users who are not properly trained may utilize the technology incorrectly or inefficiently.
- Customizability: The system could be difficult to modify to meet the unique requirements of various organisations. Some organisations might need more features or performance that the existing technology does not offer.

When utilising or putting the Visitor Management System project into practise, it is crucial to bear these constraints in mind.

5.3 Future Work

These potential directions for further development and improvements on the Visitor Management System project are listed below:

- Mobile Application: To make the Visitor Management System more convenient and accessible for guests and managers, a mobile application version should be created. Visitors would be able to check in and get their passes instantly on their smartphones thanks to this.
- Reporting and Visitor Analytics: The system's reporting capabilities should be increased in order to give thorough visitor analytics. These data can help with resource allocation, security enhancement, and general visitor management. This could include patterns of visitor traffic, busiest times, or regions that get a lot of foot traffic.

- Introduce a pre-registration function that enables visitors to register their information ahead of time. This would speed up the check-in procedure, shorten wait times, and give guests a better tailored experience.
- Investigate the possibility of integrating the visitor management system with current access control systems. By automatically granting visitors access permissions depending on their check-in information, this would enable an effortless transfer of data and improve security.
- Implement face recognition technology to streamline the check-in process and strengthen security measures. This would make it possible to identify and authenticate visitors quickly and easily without the need for human data entry or card scanning.
- Surveys and Visitor Feedback: Include a feedback option to gather surveys and visitor feedback. Organisations could use this to better understand their audiences, spot areas for development, and improve the overall visitor experience.
- Integrating the system with calendar software will enable you to manage and arrange guest appointments automatically. As a result, conflicts would be reduced and resource usage would be optimised through greater coordination between guests and hosts.
- Update the system frequently to ensure that it complies with the most recent data privacy laws and compliance requirements. To protect visitor data and ensure compliance with legislation, implement the required security measures, such as encryption and access controls.

These recommendations for future work are meant to improve the Visitor Management System's usability, security, and usefulness while also strengthening its adaptability to changing organisational needs.

5.4 Future Scope

There are so many potential future scopes for the Visitor Management System project. Let talk about few are:-

- **Connectivity with IoT Devices:** Look into integrating IoT devices, such as intelligent sensors or signals, to improve operational effectiveness and improve the visitor experience. IoT devices can be used, for instance, to autonomously identify the existence of guests and initiate the appropriate actions, such as alerting hosts or changing environmental settings.
- **Biometrics and Facial Recognition:** By utilising cutting-edge technology for facial recognition or other fingerprinting techniques, you can increase the system's level of safety and convenience. This would add a layer of security, further streamline check-in, and do away with the need for actual passes.
- **Utilise statistical analysis and machine learning to get more information from visitor data by using visitor analytics and AI.** Organisations may streamline their processes, personalise the visitor experience, and allocate resources based on data by studying visitor behaviour, patterns, and preferences.
- **Syncing with CRM platforms:** To improve consumer engagement and relationship management, integrate a website management system with CRM (customer relationship management) technology. This would give businesses the ability to monitor and assess visitor interactions, gather leads, and raise client satisfaction levels generally.

The prospects to use cutting-edge technologies and data-driven strategies to improve the visitor management system's usability, security, and value are highlighted in these future scopes.

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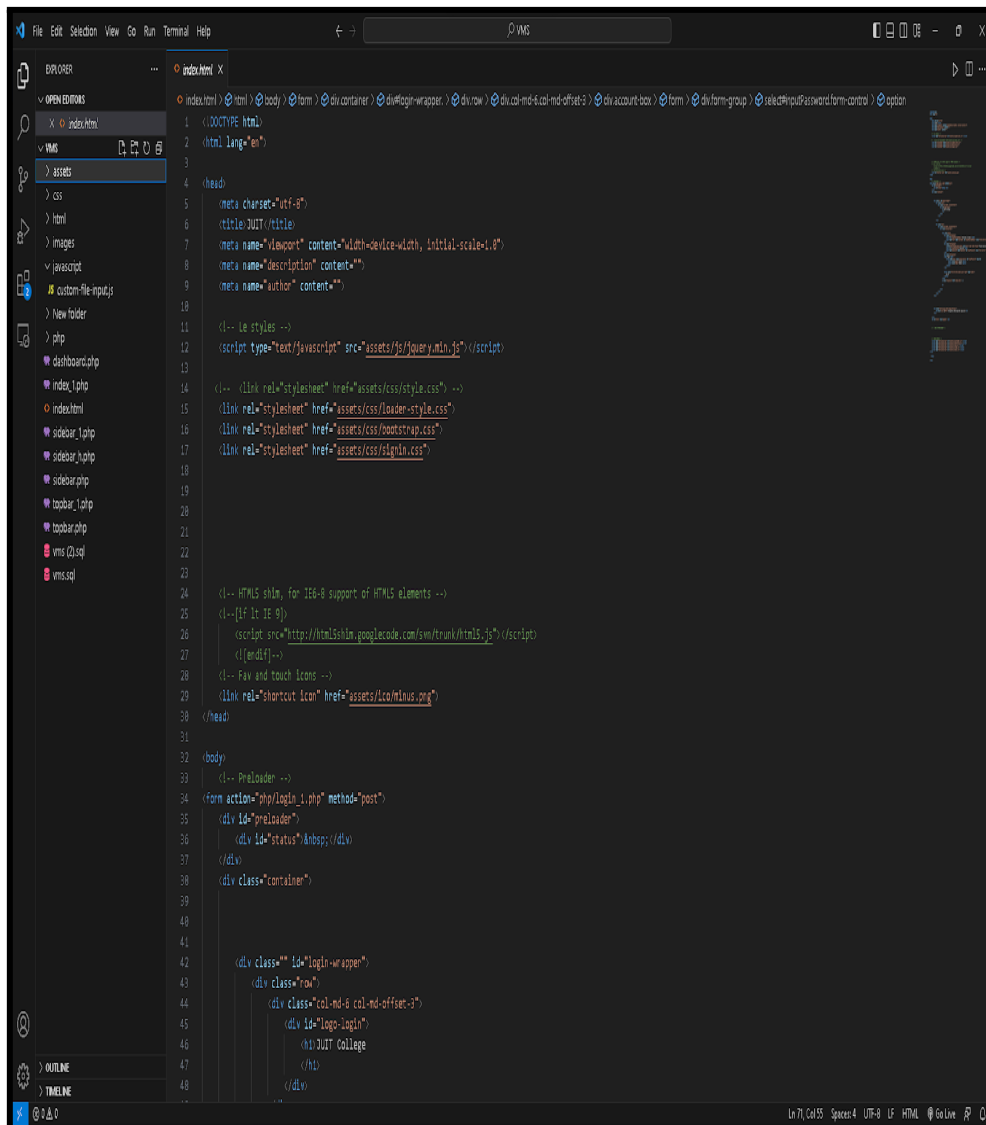
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APPENDIX



```
File Edit Selection View Go Run Terminal Help
index.html X
index.html > html > body > form > div.container > div#login-wrapper > div.row > div.col-md-6.col-md-offset-3 > div.account-box > form > div.form-group > select#password-form-control > option
1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5   <meta charset="utf-8">
6   <title>JUIT</title>
7   <meta name="viewport" content="width=device-width, initial-scale=1.0">
8   <meta name="description" content="">
9   <meta name="author" content="">
10
11 <!-- IE styles -->
12 <script type="text/javascript" src="assets/js/jquery.min.js"></script>
13
14 <!-- <link rel="stylesheet" href="assets/css/style.css" -->
15 <link rel="stylesheet" href="assets/css/loader-style.css">
16 <link rel="stylesheet" href="assets/css/bootstrap.css">
17 <link rel="stylesheet" href="assets/css/signin.css">
18
19
20
21
22
23
24 <!-- HTML5 shim, for IE6-8 support of HTML5 elements -->
25 <!--[if lt IE 9]>
26   <script src="http://html5shim.googlecode.com/svn/trunk/html5.js"></script>
27   <![endif]>
28 <!-- Fav and touch icons -->
29 <link rel="shortcut icon" href="assets/ico/minus.png">
30 </head>
31
32 <body>
33 <!-- Preloader -->
34 <form action="php/login_1.php" method="post">
35   <div id="preloader">
36     <div id="status">&nbsp;   </div>
37   </div>
38   <div class="container">
39
40
41
42     <div class="" id="login-wrapper">
43       <div class="row">
44         <div class="col-md-6 col-md-offset-3">
45           <div id="logo-login">
46             <h1>JUIT College</h1>
47             </div>
48           </div>
49         </div>
50       </div>
51     </div>
52   </div>
53 </form>
54 </body>
55 </html>
```



```
File Edit Selection View Go Run Terminal Help
index.html X
index.html | html | body | form | div.container | div.wrapper | div.row | div.col-md-6.col-md-offset-3 | div.account-box | form | div.form-group | select#input@password@form-control | option
index.html 48 </div>
49 </div>
50
51 </div>
52
53 <div class="row">
54 <div class="col-md-6 col-md-offset-3">
55 <div class="account-box">
56
57 <form role="form">
58 <div class="form-group">
59 <label for="inputEmail1">Username or email</label>
60 <input type="text" name="username" id="inputEmail1" class="form-control" required="">
61 </div>
62 <div class="form-group">
63 <a href="html/forget_pass2.html" class="pull-right label-forgot">Forgot password?</a>
64 <label for="inputPassword1">Password</label>
65 <input type="password" name="password" id="inputPassword1" class="form-control" required="">
66 </div>
67 <div class="form-group">
68 <label type="label">
69 <select name="user" class="form-control" id="inputPassword" required="">
70 <option value="guard">Guard</option>
71 <option value="admin">Admin</option>
72 </select>
73 </div>
74
75 <button class="btn btn-primary pull-right" type="submit">
76 Log in
77 </button>
78 </form>
79 <a class="forgot1" href="index.html"></a>
80
81 </div>
82 </div>
83 </div>
84 </div>
85 </div>
86 </div>
87
88
89
90
91
92 <div style="text-align:center;margin:0 auto;">
93 <h3 style="color:#ffff;">Designed & Developed By Cognizant</h3>
94 </div>
95
```

