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AttendEase: Simplyfing Manual Attendance Tracking

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Abstract: Many organizations and institutions manage attendance manually. Faculty record student participation in a log. As the world moves to the modern system, there is a need to track participation in the database. The use of attendance tracking and access control is essential to ensure high security in facilities such as schools. Physical access control systems are important for protecting internal systems. The system has a number of features designed to simplify and optimize the onboarding process. Teachers and administrators benefit from the simple method because they only have to sign the attendance of absent students, thus reducing the amount of money management involved. The system not only makes it easier to keep attendance records, but also helps manage student statistics and create reports for teachers and students to use. The attendance management program featured in this book is a versatile and effective tool that ensures accurate attendance records, encourages student participation, and improves overall learning management techniques in the school environment. Attendance management with this book is a solution designed to increase efficiency, reporting and communication in schools and ultimately create a quality education. This system is a Web-based developed to reduce the human work and will perform attendance in a more modern way.

Keywords: Attendance, Access Control, Tracking, Attendance Records, Database, Security.

I. INTRODUCTION

Manual Attendance Management System, a sophisticated solution designed to streamline the attendance tracking process. With just a simple click of the mouse, our system empowers administrators and faculty to effortlessly generate comprehensive attendance reports, eliminating the cumbersome manual labor traditionally associated with attendance management. By automating this process, we significantly reduce the likelihood of human errors and the time-consuming nature of manual data entry.

Our application is meticulously crafted to enhance the efficiency and speed of attendance tasks, enabling administrators and faculty members to allocate their time and resources more effectively. Moreover, our system ensures data security and privacy by restricting access to attendance records, permitting only authorized personnel such as administrators and faculty to view and manage attendance data.

Experience the convenience and reliability of our Manual Attendance Management System as we revolutionize the way attendance is tracked and managed in educational institutions. Our application automates attendance processing, drastically reducing administrative burden while enhancing efficiency.

With the ability to generate comprehensive attendance reports, only authorized administrators and faculty members can access and manage records securely. Experience the convenience and accuracy of automated attendance management like never before.

II. RELATED WORK

There is a lot of research on students' college attendance, but this section describes three important areas of study related to this research.

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Table 1 provides a comparison of previous studies to gain more information and knowledge on this subject.

Related Works	Finger Print	RFID	Face-Recognition	SMS
Students Attendance Monitoring System with SMS Notification Fatheenursyaza and Hawa binti (2020).				✓
Research and Development of Attendance Management System Based on Face Recognition and RFID Technology (2021).		✓	✓	
Fingerprint Based Student Attendance System With SMS Alert To Parents.	✓			✓

III. PROBLEM STATEMENT

Developing a manual attendance management system for educational institutions or organizations that allows administrators, teachers, and students to efficiently record, monitor, and manage attendance records using a paper-based or non-digital approach.

The system should address the challenges of time-consuming manual attendance tracking, errors in data entry, and the lack of real-time attendance analytics, ultimately aiming to streamline the attendance management process and enhance accuracy and efficiency.

IV. OBJECTIVES

The objectives of studying an existing manual attendance management system are multi-faceted and aim to comprehensively assess the system for the purpose of potential improvement and optimization.

1. To study existing attendance management system and define approach of proposed system.
2. To design GUI for proposed system using HTML / CSS.
3. To prepare student report as per the requirement.

V. SCOPE

a) User Roles and Permissions: Administrators, teachers, and students can access and perform actions within the system each with different levels of access and control.

b) Attendance Recording: Provides a mechanism for users to record attendance, which may involve manual entry and student database.

c) Attendance Tracking: Keeping a historical record of attendance data to allow tracking and reporting over time.

d) Reporting: Generating attendance reports for various stakeholders, such as teachers, students, and administrators. Reports might include daily, weekly, monthly, or custom time frames.

e) Data Security: Security measures should be in place to protect sensitive employee attendance data. This includes role-based access control, data encryption, secure storage, and regular data backups.

VI. SYSTEM REQUIREMENTS

System requirements refer to the specifications and configurations necessary for a software application or a hardware component to function properly on a computer system. System requirements in an attendance management system refer to the necessary hardware, software, and network specifications needed to run the system effectively.

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Hardware Requirements	Software Requirements
• SMARTPHONE ➢ RAM : 2GB (Minimum), 4GB (Recommended) ➢ Memory : 8GB Minimum • LAPTOP / DESKTOP ➢ RAM : 4GB (Minimum) , 8GB (Recommended) ➢ Hard Disk : 256GB Minimum	• SMARTPHONE ➢ OS: Android / IOS ➢ Browser : Chrome / Safari , etc. • LAPTOP / DESKTOP ➢ OS: Windows 7 onwards / Mac OS / Linux ➢ Browser : Chrome / Safari / Edge , etc.

VII. METHODOLOGY

This system typically involves a process where instructors or designated staff members record students attendance in a physical attendance register or sheet. At the beginning of each class, instructors call out students' names or use a roll call list to mark their presence manually. This traditional method requires considerable time and effort, as instructors must carefully document each student's attendance status, which can be challenging in large classes. The manual entry system is also prone to errors, as there is a risk of overlooking or mis-recording student attendance, leading to inaccurate records Moreover, the manual student attendance entry system lacks real-time monitoring and reporting capabilities. Instructors must manually compile attendance data and transfer it to administrative staff for record-keeping. This process can be time-consuming, and the delay in data transfer may hinder the ability of educational institutions to promptly address attendance-related issues or make informed decisions based on up-to-date attendance records. As technology advances there is a growing need for more efficient and automated attendance tracking systems to streamline the process and enhance accuracy in student attendance management.

1. User Login

- Admin Details: In this change, enter various details of the admin including the admin's name, email, and Contact number. Provide a unique administrator ID that is identified in the software and used as login credentials.

- Faculty Details: In this field, enter various details of the teacher such as member's name, email, and contact number of the teacher. A special teacher ID is provided for use in the software and the ID can also be used as login information.

1. Allocation Module: Users can start the process by selecting a period in the homework module of the attendance management system. The system starts recording as of Monday. In this process, the user selects a specific topic and the teacher assigned to the topic is sent to at the relevant time of the day. Efficient resource allocation and comply with schedule constraints; the system strictly controls various limits for each unit.

2. Display Module: The Display Module in the Attendance Management System facilitates the visualization of the generated timetable, faculty details, and student information. The module encompasses the following features:

- View Faculty

This feature enables users to access and view detailed information about all faculty members within the system. Faculty details such as names, contact information, and other relevant data are presented. Viewing faculty details serves as a quick reference for administrators and aids in effective communication within the academic institution.

- View Students

Users have the capability to view comprehensive details regarding all students enrolled in the system. This includes information such as student names, contact details, and other pertinent student-specific data. The feature offers a centralized hub for accessing student information, supporting administrative tasks and ensuring efficient management of student records. The project was developed using the waterfall model, which consists of five stages: analysis, design, implementation, testing and data, as shown in the figure. The pattern does not overlap. This means that each stage must be completed before starting the next stage. It can also improve project management by breaking complex tasks into manageable parts. This system was developed using the PHP language.

VIII. SYSTEM MODELLING

- **UML Diagrams :**

Unified Modeling Language (UML) diagrams are a standardized visual representation used by software developers, analysts, and designers to model, visualize, specify, construct, and document the artifacts of a software system. UML provides a common language and notation for depicting the structure and behavior of systems, allowing stakeholders to communicate and understand system requirements, design decisions, and architecture.

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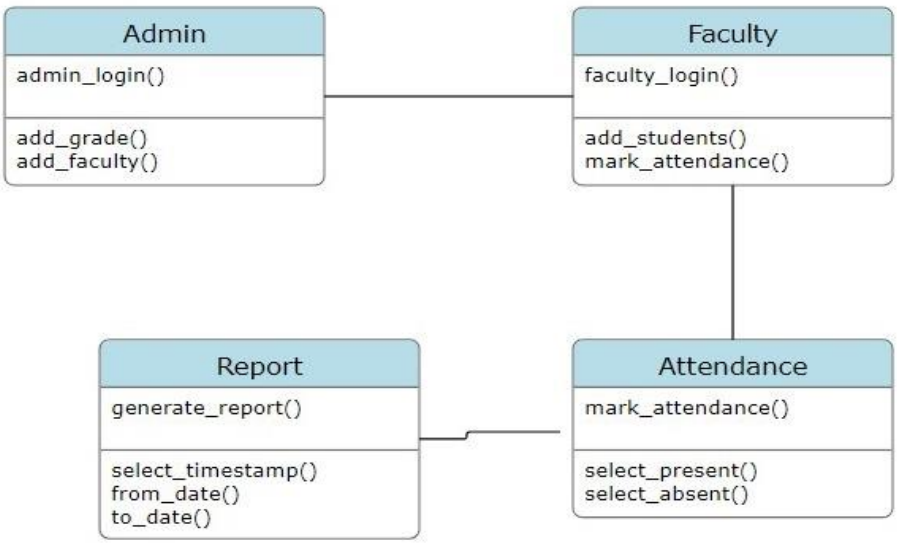
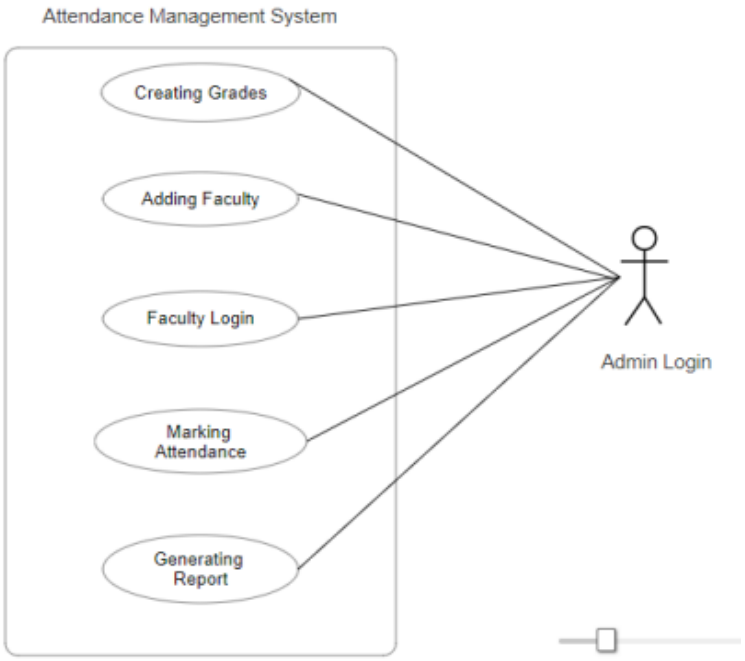
1. CLASS DIAGRAM

A class diagram depicts the static structure of a system by illustrating the classes, attributes, operations (methods), and relationships among them. Class diagrams provide a high-level overview of the static structure of a system, enabling developers to understand the relationships between classes, identify inheritance hierarchies, and design the software architecture effectively.



2. USE-CASE DIAGRAM

A use case diagram provides a graphical representation of the functional requirements of a system from the perspective of its users. Use case diagrams depict the interactions between actors (users or external systems) and the system under consideration, illustrating the various use cases or functionalities that the system provides. Illustrates the interactions between actors (users or external systems) and the system, depicting the functional requirements of the system from a user's perspective.



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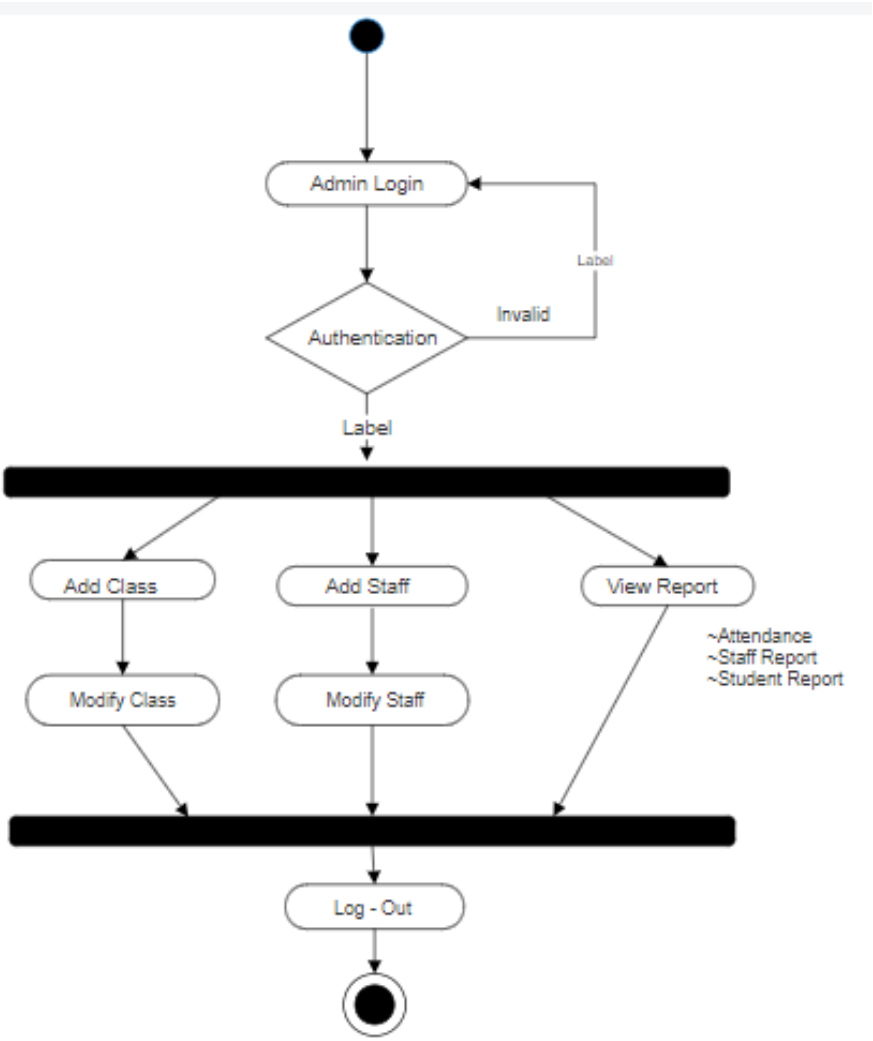
3. ACTIVITY DIAGRAM

An activity diagram depicts the flow of activities within a system, process, or workflow. Activity diagrams are used to model the dynamic behaviour of a system, showing the sequence of actions or steps involved in completing a task or achieving a specific goal Activity diagrams are particularly useful for modelling business processes, workflow automation, and system behaviour.



IX. CONCLUSION

In conclusion, implementing a manual attendance management system offers a straightforward approach to tracking and recording attendance. While it may lack the efficiency of automated systems, it provides a reliable method for smaller scale operations or those with limited technological resources. Careful organization and consistent implementation are essential for ensuring accuracy and effectiveness in managing attendance through this manual system. By automating attendance tracking, the system not only minimizes errors associated with manual methods but also provides real-time insights, enabling swift decision-making.

The transition to such a system represents a commitment to modernizing administrative processes, fostering a more streamlined, secure, and data-driven approach to attendance management in educational settings.

It provides valuable insights into student engagement, facilitates timely interventions for at-risk students, and streamlines administrative processes. Overall, the attendance management system serves as a valuable tool for enhancing organizational efficiency, compliance, and accountability in workforce management.

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