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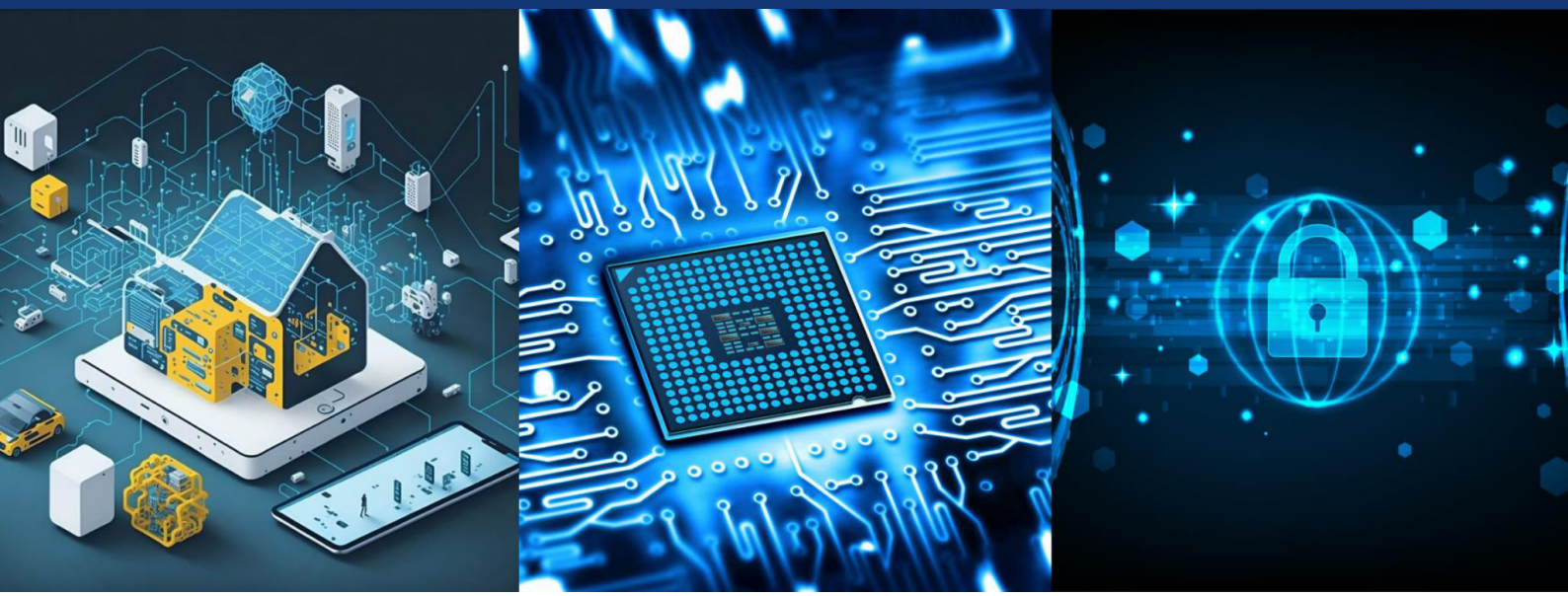

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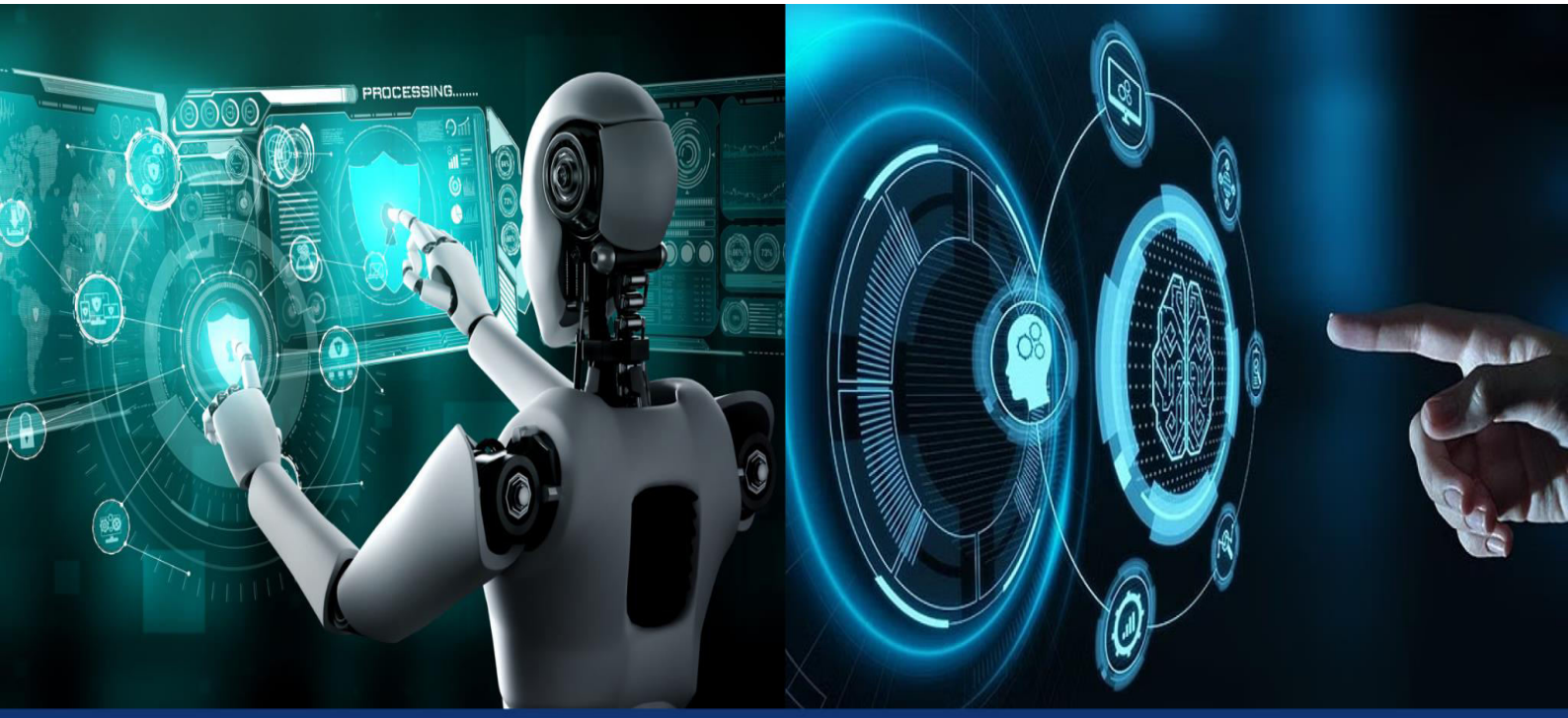

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To Implementation of a Web-Based System for Student Records and Faculty Management

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ABSTRACT: This project, titled **"A Web-Based System for Student Records and Faculty Management,"** proposes a centralized academic management platform that simplifies data handling and improves communication between students and faculty. The system consists of a web-based portal for staff and a mobile application for students. Staff members can manage student records, attendance, fee details, timetables, and circular announcements, while students can securely access their academic information in real time. The system is developed using a full-stack architecture with a React-based web portal, a React Native mobile application, and a Spring Boot REST API connected to a MySQL database. Security is ensured through JWT-based authentication and role-based access control, providing secure and controlled access to the system. By centralizing academic data, the system improves accuracy, consistency, and efficiency while reducing manual effort. It provides a scalable and user-friendly solution for modern academic management and enhances transparency within educational institutions

KEYWORDS: Academic Management System, Student Records, Faculty Portal, Mobile Application, React, Spring Boot, REST API, MySQL, JWT Authentication.

I. INTRODUCTION

Students often depend on faculty members for even small updates related to attendance, results, or circular announcements, which creates delays and reduces transparency. At the same time, staff members spend a considerable amount of time managing records instead of focusing on academic activities. The lack of a centralized platform also results in data inconsistency, redundancy, and communication gaps between students and faculty. To overcome these challenges, the project titled **"A Web-Based System for Student Records and Faculty Management"** proposes a centralized academic management solution that integrates both a web-based portal and a mobile application. The system is designed such that staff members can manage academic data through a web portal, while students can access their academic information through a dedicated mobile application. The staff web portal provides functionalities such as student record management, attendance tracking, fee management, timetable scheduling, and circular announcements. On the other hand, the student mobile application offers secure and convenient access to personal details, attendance reports, results, fee status, timetables, and notifications. This separation ensures that each user group interacts with the system in the most suitable and efficient manner. The system is developed using a full-stack architecture where the frontend includes a React-based web portal for staff and a React Native mobile application for students. The backend is implemented using Spring Boot, which provides RESTful APIs for seamless communication

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between the frontend and the database. A MySQL database is used to store and manage academic data efficiently. Security is ensured through JWT-based authentication, role-based access control, and password encryption techniques.

II. LITERATURE REVIEW

"STUDENT INFORMATION SYSTEMS" This study presents Student Information Systems (SIS) designed to manage academic data such as student records, attendance, and performance details. The proposed system provides a centralized platform that improves data organization and reduces redundancy in educational institutions. It enables administrators to efficiently store and retrieve student information. Experimental results show improved accuracy and reduced manual workload. However, the system lacks mobile accessibility and real-time interaction features, indicating the need for a more flexible and user-friendly system.

"WEB-BASED ACADEMIC PORTALS" This study focuses on web-based academic portals that allow students and staff to access academic information through an online platform. The system provides features such as viewing results, attendance tracking, and managing student records. It improves transparency and reduces manual administrative work. The results highlight enhanced efficiency in academic management. However, the system is limited to web access and does not support mobile-based interaction, indicating the need for multi-platform solutions.

"MOBILE-BASED LEARNING APPLICATION" This study presents mobile-based learning applications that provide students with flexible access to educational resources through smartphones. The system enhances accessibility and user engagement by enabling learning anytime and anywhere. It utilizes user-friendly interfaces and mobile optimization techniques for better performance. Results show improved student interaction and convenience. However, the system mainly focuses on learning content delivery and lacks integration with academic management features such as attendance, fees, and centralized data systems.

"ROLE-BASED ACCESS SYSTEMS IN EDUCATION" This study discusses role-based access control (RBAC) systems used in educational platforms to ensure secure data management. The proposed system defines user roles such as students and staff with controlled access permissions. It improves data security and prevents unauthorized access to sensitive information. The results demonstrate enhanced system reliability and secure operations. However, the system does not integrate mobile applications or provide a unified platform combining both management and accessibility features, indicating the need for a more comprehensive system.

III. METHODOLOGY

A. EXISTING SYSTEM

Existing academic management systems rely on manual record-keeping using paper files and registers. Student data such as attendance, fees, and timetable are maintained in separate systems like Excel sheets. There is no centralized platform to store and manage all student academic information. Students depend on staff to access details like attendance, fee status, and announcements. The process of maintaining and updating records is time-consuming for staff members. Communication between students and staff is not efficient due to the absence of a proper digital system. Data redundancy and inconsistency occur due to maintaining records in multiple formats. Real-time updates are not available, leading to delays in academic information access. Existing systems lack secure authentication and role-based access control mechanisms.

B. DISADVANTAGES

1. Manual record-keeping leads to increased chances of human errors and data inconsistency.
2. Maintaining multiple systems (paper files, Excel sheets) causes data redundancy.
3. Time-consuming process for staff to update and manage student records.
4. Students cannot access academic information independently and must rely on staff.
5. Lack of real-time updates results in delays in accessing important academic details.

C. PROPOSED SYSTEM

Provides a centralized academic management system for storing and managing student data. Allows staff to add, update, delete, and view student records through a web portal. Enables students to access academic information through a mobile application. Implements secure login using JWT-based authentication and role-based access control. Supports

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attendance management with hourly recording and automatic percentage calculation. Provides fee management system with total, paid, and balance fee tracking. Allows staff to create and update timetable with subject-wise scheduling. Enables circular and announcement management for effective communication. Stores all academic data in a centralized MySQL database for consistency and easy retrieval. Provides real-time updates of attendance, fees, timetable, and circulars to students. Improves transparency, efficiency, and communication through a unified digital platform.

D. ADVANTAGES

1. Reduces manual paperwork by digitizing academic records.
2. Provides a centralized platform for managing all student information.
3. Improves accuracy and reduces data redundancy.
4. Enables students to access academic information anytime through mobile application.
5. Saves time for staff by automating attendance, fee, and timetable management.

E. DESIGN OF THE SYSTEM

The implementation of the Student Academic Portal System is carried out using a full-stack approach, integrating backend services, a web-based frontend for staff, and a mobile application for students. The system ensures smooth data flow between components and provides secure, efficient, and real-time access to academic information.

The backend of the system is developed using **Spring Boot**, which provides a robust and scalable framework for building RESTful web services. It acts as the core component that handles business logic, data processing, authentication, and communication between the frontend and the database. The backend exposes REST APIs for various functionalities such as student management, attendance recording, fee management, timetable updates, and circular announcements. **Spring Security** is used to implement secure authentication and authorization, where passwords are encrypted using BCrypt and JWT tokens are generated for secure session handling.

The system interacts with a **MySQL database** to store and retrieve data efficiently. Entity classes, repositories, and service layers are used to maintain a clean architecture and ensure proper separation of concerns. The backend ensures data consistency, security, and efficient handling of multiple user requests.

The frontend for the staff portal is developed using React, which provides a dynamic and responsive user interface. The web portal allows staff to manage all academic data through an interactive dashboard. The frontend communicates with the backend through REST APIs using HTTP requests. It displays data in a structured format, improving usability and efficiency for staff. The design ensures easy navigation, fast response, and a user-friendly experience.

The student mobile application is developed using **React Native**, enabling cross-platform compatibility and a smooth user experience. The mobile app provides students with secure access to their academic information.

Students can log in using their credentials and view their profile details, attendance reports, timetable, fee status, and circular announcements. The application uses API calls to fetch data from the backend and display it in a structured and readable format.

The mobile interface is designed to be simple and intuitive, ensuring easy access to information on smaller screens. Since students have read-only access, the application focuses on performance, responsiveness, and clarity of information.

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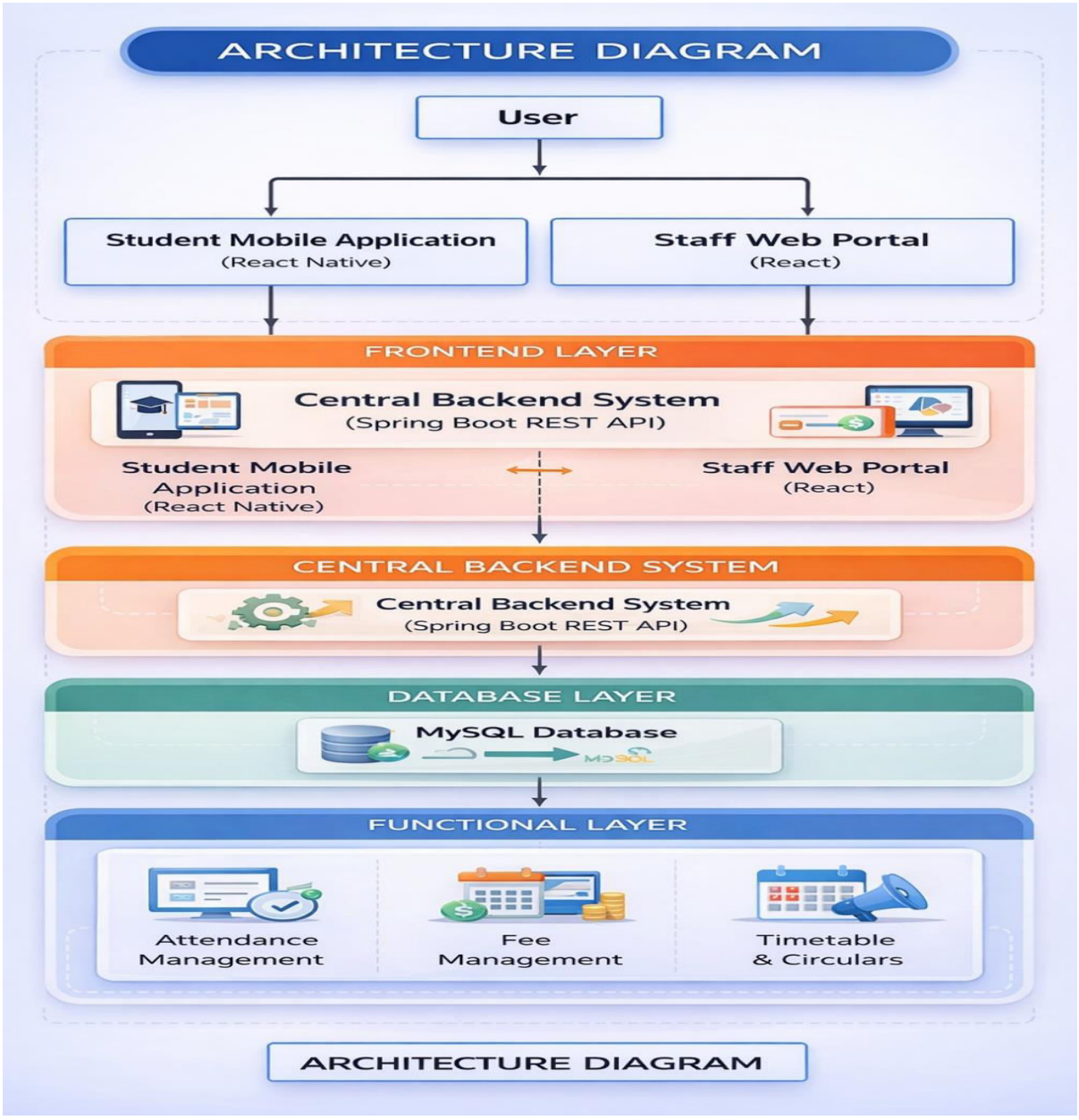

IV. IMPLEMENTATION

MODULE DESCRIPTION

1. PERSONAL DETAILS MODULE

This module allows students to view their complete profile information, including academic and personal details. It displays information such as student name, register number, department, academic year, and contact details. The module provides a centralized view of student information, ensuring easy access and better profile management.

2. RESULT MODULE

The Results Module enables students to view their academic performance in a structured format. It includes internal assessment test (IAT) marks, assignment scores, and semester examination results. This module helps students track their academic progress and performance over time.

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3. FEE DETAILS MODULE

This module displays all fee-related information for students, including bus fee, semester fee, book fee, and payment status (Paid/Due). It improves transparency and allows students to monitor their financial records without depending on staff.

4. TIME TABLE MODULE

The Time Table Module provides students with access to their class schedules and examination timetables. It displays subject-wise schedules organized by day and time. This module helps students plan their academic activities efficiently.

5. CV BUILDER MODULE

This module enables students to create and download professional resumes. Students can enter their academic details, skills, and achievements to generate a structured CV. It supports career preparation by helping students build resumes easily.

6. CIRCULAR MODULE

The Circular Module displays announcements and updates from the institution, such as holidays, exam notifications, fee reminders, and academic updates. This module ensures effective communication between the institution and students.

7. STUDENT MANAGEMENT MODULE (CRUD)

This module allows staff to manage student records efficiently. Staff can add, view, update, and delete student details using structured forms and tables. It also supports search and filtering options, making it easy to manage large volumes of student data.

8. ATTENDANCE MANAGEMENT MODULE

The Attendance Module enables staff to record student attendance on a daily and hourly basis. The system automatically calculates attendance percentage based on recorded data. This module ensures accurate tracking of student attendance and academic participation.

9. RESULTS MANAGEMENT MODULE

This module allows staff to upload and update student marks for internal assessments and semester examinations. It ensures proper maintenance of academic records and provides accurate performance data to students.

10. FEE MANAGEMENT MODULE

The Fee Management Module enables staff to update and track student fee payments. It includes details such as total fee, paid amount, and pending balance.This module helps in maintaining financial records efficiently.

11. TIME TABLE MANAGEMENT MODULE

This module allows staff to create, update, and manage class timetables and exam schedules. It ensures proper scheduling of academic activities and avoids conflicts in class timings.

V. RESULT

The proposed system is a Virtual Application for Online Classroom Management that provides a secure and complete digital learning environment. Users log in with valid credentials, and advanced security features like encrypted communication, session management, and role-based access protect their data. Authenticated users can join virtual classrooms via unique meeting links, with real-time video, audio, and screen sharing for effective interaction. A built-in messaging system allows instant communication, improving collaboration and clarification. The interface is simple and user-friendly, with proper input validation and session.

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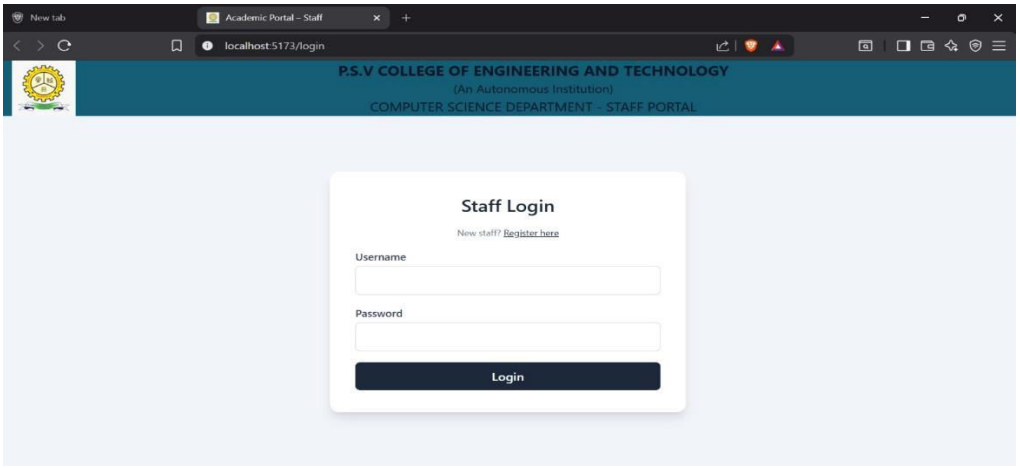

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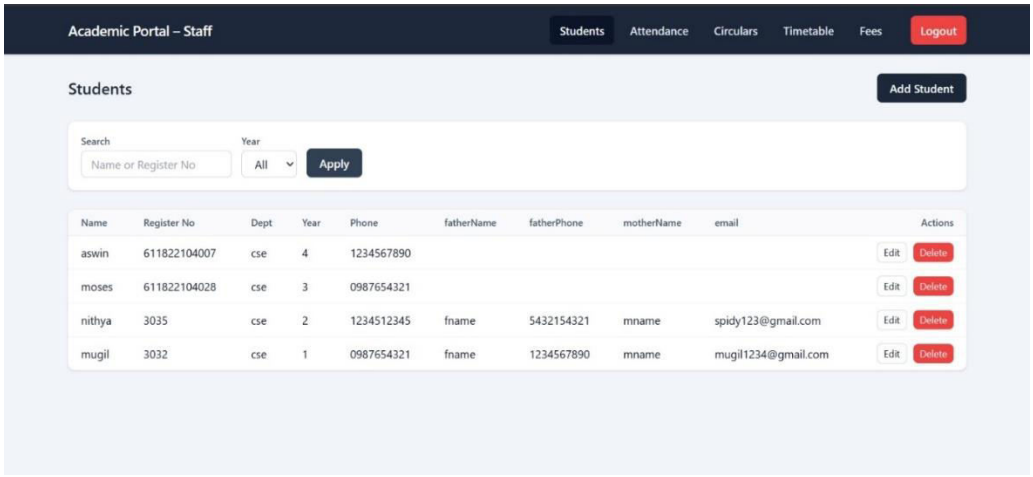

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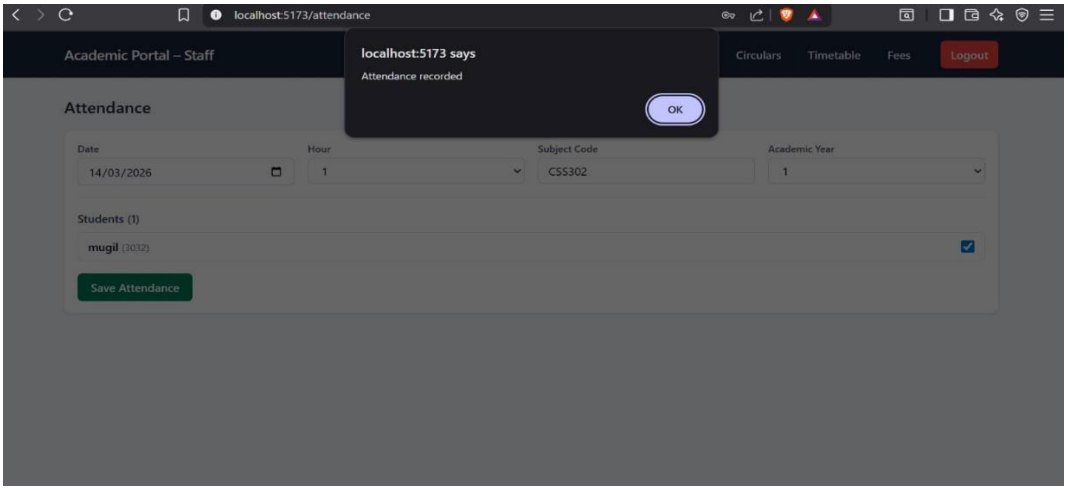

Scr. No. 3: Find Blood Bank Page

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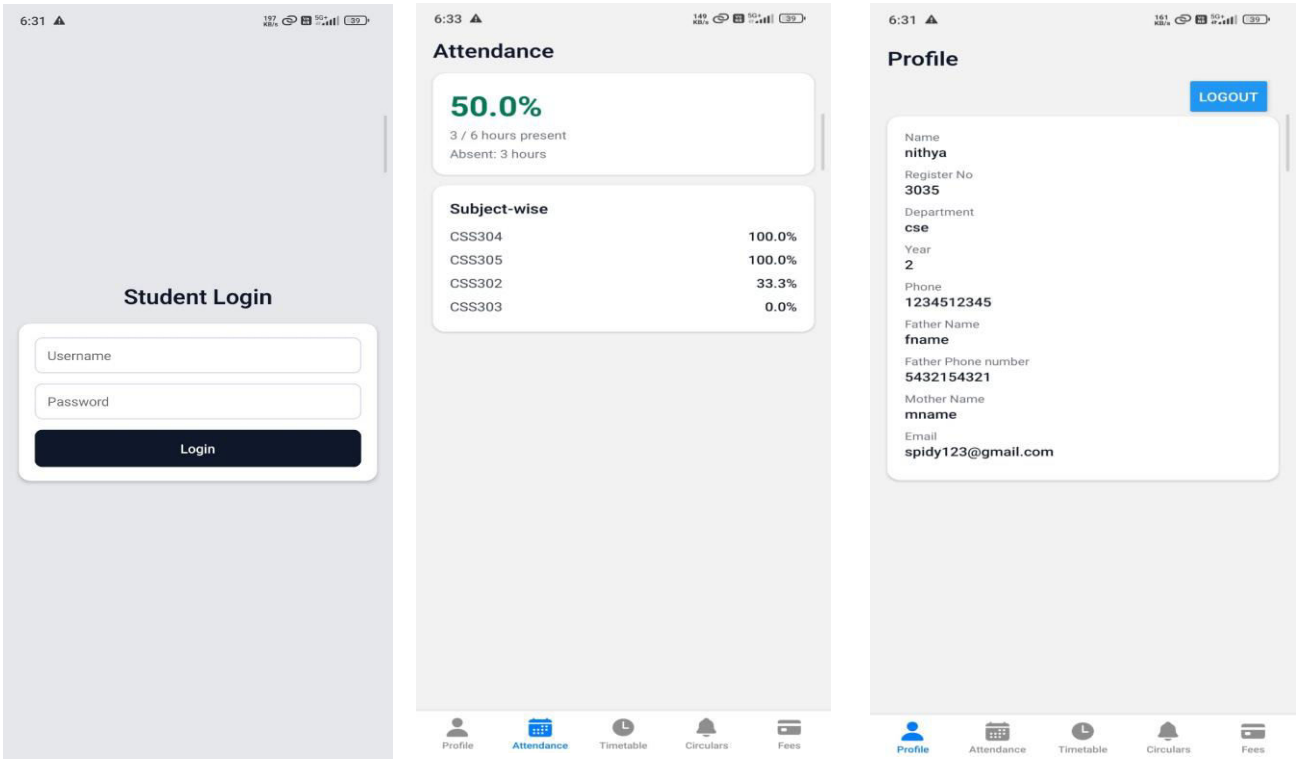

VI. CONCLUSION

the project titled **"A Web-Based System for Student Records and Faculty Management"** proposes a centralized academic management solution that integrates both a web-based portal and a mobile application. The system is designed such that staff members can manage academic data through a web portal, while students can access their academic information through a dedicated mobile application. The staff web portal provides functionalities such as student record management, attendance tracking, fee management, timetable scheduling, and circular announcements. On the other hand, the student mobile application offers secure and convenient access to personal details, attendance reports, results, fee status, timetables, and notifications. This separation ensures that each user group interacts with the system in the most suitable and efficient manner.

VII. FUTURE ENHANCEMENT

The current system provides a strong foundation for managing student and faculty interactions. Several enhancements can be implemented in the future to improve functionality, usability, and scalability. The system can be enhanced to send instant push notifications to students and faculty whenever new circulars, announcements, or updates are posted, ensuring timely communication. Future versions can integrate secure online payment gateways to allow students to pay fees directly through the platform, providing convenience and reducing manual effort. Automated email notifications can be implemented to inform students and faculty about important updates, deadlines, or system activity, improving engagement and transparency.

An advanced analytics dashboard for administrators can be developed to provide insights on student activity, fee status, exam performance, and overall system usage, supporting data-drive decision-making. The system can be expanded to fully support multiple departments, allowing faculty to manage department-specific data and students to access relevant information based on their department in year. A mobile version of the system can be developed to allow access to notifications, updates, and document management anytime, anywhere, improving accessibility. Future updates can focus on improving the interface with modern design, better navigation, and interactive elements to provide a more engaging experience for users.

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