

# Enhancing College ERP Portal for Streamlined Student Services

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**Abstract—** The integration of Enterprise Resource Planning (ERP) systems within educational institutions has revolutionized administrative processes, transforming them into streamlined and automated operations. ERP college web applications serve as centralized platforms that seamlessly integrate various facets of college management, including student and faculty management, course administration, financial operations, and library services. These systems provide students with easy access to academic records, schedules, and resources while enabling faculty to efficiently manage course materials, assignments, and grades. Continual enhancements and modernizations ensure that these platforms meet current technological standards, offering improved user experiences through mobile compatibility, enhanced user interfaces, and integration with Learning Management Systems (LMS). By automating routine administrative tasks and providing advanced analytics capabilities, ERP college web applications contribute significantly to the efficiency and effectiveness of educational institutions, ultimately enhancing the overall college experience for students, faculty, and staff. This work addresses an enhanced ERP system for streamlining the student services.

**Keywords—** Enterprise Resource Planning (ERP), User Experience, User Interface, college, students

## I. INTRODUCTION

An ERP (Enterprise Resource Planning) system is a software solution designed to streamline and integrate core business processes and functions across an organization. It serves as a centralized platform where various departments such as finance, human resources, procurement, manufacturing, and supply chain management can access and share data in real-time. ERP systems typically offer modules tailored to specific business functions, allowing companies to manage operations more efficiently and effectively. An ERP college web application, is a software solution designed to streamline and automate all the administrative functions of a college or university. It acts as a central hub that integrates various aspects of college life into one user-friendly web platform. This web application offers a variety of features to benefit different user groups within the college. For instance, students can use the ERP system to register for classes, check their grades, access course materials, and make fee payments online. Faculty can utilize it to manage their courses, track student attendance, submit grades, and communicate with students directly. College administrators can leverage the system for tasks like admissions processing, generating reports, managing finances, and ensuring regulatory compliance.

## II. LITERATURE REVIEW

There have been numerous studies on ERP implementation and several related issues such as implementation procedures, business process and outcomes.

One of the reasons that universities have adopted ERP systems is to improve performance and learning services, and also to become more efficient in their operations [1].

The core benefit of an ERP college web application is its ability to consolidate all these functionalities into a single platform. This eliminates the need for separate software programs for different tasks, reducing redundancy and improving data consistency. Furthermore, by automating various processes, the ERP system saves time and effort for staff and faculty, allowing them to focus more on core educational activities. Additionally, the web-based nature of the application makes it accessible from anywhere with an internet connection, promoting flexibility and remote access for students, faculty, and administrators. The ERP system is the heartbeat of a cloud-based for schools and colleges. It manages your information with ease and all under one umbrella [2].

## III. PROBLEM DEFINITION

The existing college ERP portal responsible for managing critical functions such as admissions, exam verification, and campus resource access is confronted with a multitude of challenges that demand immediate attention and rectification. These challenges primarily manifest in the inadequacy of the portal's front-end, severely affecting its security, reliability, and the overall user experience.

## IV. METHODOLOGY

The enhanced ERP system makes use of a powerful and widely-used technology stack that encompasses four key components: MongoDB, Express.js, e.js, and Node.js. Each component serves a specific purpose and together they provide an efficient and robust framework for developing web applications.

Embedded JavaScript templating (EJS) is used to dynamically generate HTML on the server before sending it

to the client. This is particularly useful for creating server-rendered pages that include dynamic data from the backend. The use of EJS in a project usually implies a broader tech stack, especially within the context of web development.

Node.js is a server-side runtime environment that allows JavaScript to be executed outside of a web browser. It provides a non-blocking, event-driven architecture, making it highly scalable and efficient for handling concurrent connections. Along with it is its framework - Express.js, a minimalist and flexible web application framework. It provides a set of tools and features that simplify the process of building web applications.

For data storage, a popular NoSQL database that pairs well with Node.js and Express.js, commonly used for applications requiring flexible, schema-less data storage.

## V. FEATURES

### A. Fees Payment

The Fees Payment Redirection feature in the enhanced College ERP system is designed to facilitate a seamless connection between the ERP portal and external payment gateways, enabling students to pay their tuition, hostel fees, examination fees, and other charges directly through the ERP interface.

### B. Assignment Submission

The Assignment Submission feature is a core component of the enhanced College ERP system, designed to digitize and simplify the process of submitting academic assignments.

### C. Noticeboard

The Noticeboard feature is a critical component of the enhanced ERP system, designed to bridge communication gaps between educators and students. This digital platform serves as a centralized hub for sharing updates, announcements, academic schedules, and other vital information.

#### D. Request Forms

The Request Forms feature is an essential component for the enhancement of the college ERP system, designed to digitize and simplify the process of submitting and managing requests by students for leaves, concessions, and other academic or administrative needs. This feature facilitates a paperless, efficient, and trackable method of application, from submission to approval, enhancing the administrative operations and student experience in educational institutions.

### VI. IMPLEMENTATION SNAPSHOTS

The comparison of the existing system with the enhanced new system are shown in Figures 1-6. The new system offers a more user friendly interface, it also takes into account the security vulnerabilities of the system.

#### E. Existing Implementation

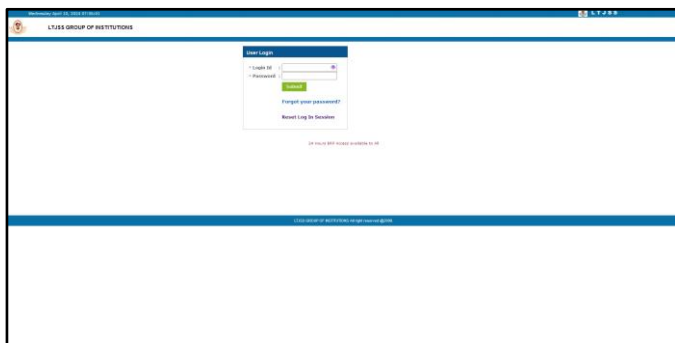


Fig. 1 Login page

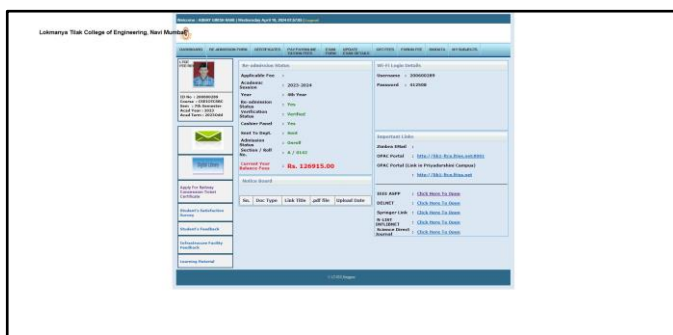


Fig. 2 Student Dashboard

#### F. Enhanced Implementation

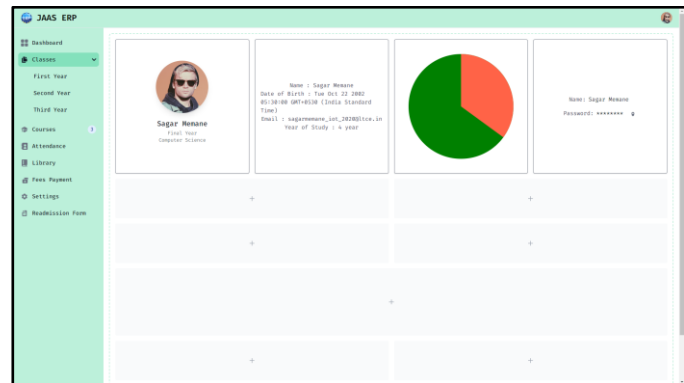


Fig. 3 Student Dashboard

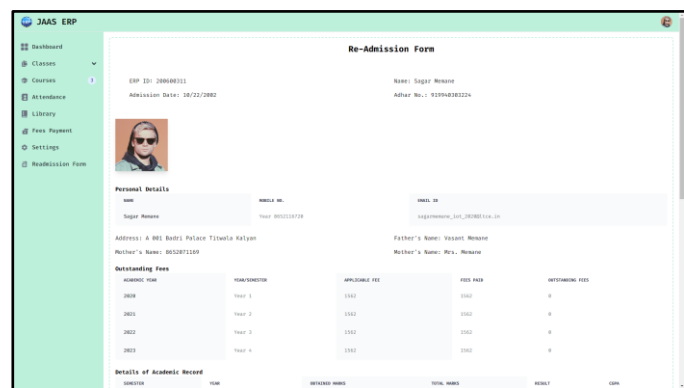


Fig. 4 Readmission Form for students

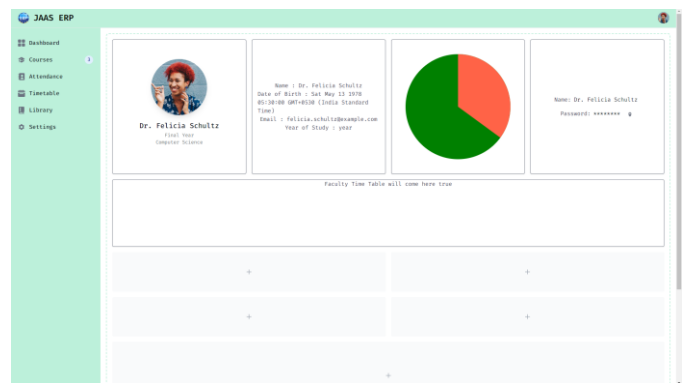


Fig. 5 Faculty Dashboard



Fig. 6 Admin Dashboard

## VII. CONCLUSION

In conclusion, the imperative to enhance the college ERP portal for streamlined student services is evident, as highlighted throughout this research. The multifaceted approach undertaken in this project has addressed critical issues related to security vulnerabilities, user interface deficiencies, and administrative processes within the ERP application. By implementing rigorous security measures, improving user interface elements, and integrating artificial intelligence for automation, we have significantly improved the functionality and reliability of the ERP system.

The security enhancements have ensured the protection of sensitive student data, aligning the ERP portal with the essential data protection regulations. The user-friendly interface design empowers students to manage their information with ease, resulting in a more positive and efficient user experience. Additionally, optimizing admission and exam verification processes and harnessing AI-driven automation has streamlined administrative tasks, reducing manual workload and improving overall efficiency.

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