



COLLEGE MANAGEMENT SYSTEM USING MONGODB

¹Atul Kumar Verma, ²Safiya, ³Adiba Khanam

¹Assistant Professor, ²Student, ³Student

¹Computer Science & Engineering,

¹ Shri Ram Group of Colleges, Muzaffarnagar, India

Abstract: This paper focuses on the development of an online college management system, a crucial tool for educational institutions. Designed as an internet-based application, it offers accessibility within the college department, enabling seamless monitoring of student progress and academic activities. At its core, this system serves as a comprehensive platform for overseeing various aspects of student life.

It facilitates the monitoring of attendance records, academic performance, and course details. Through this centralized system, teachers gain easy access to vital student information related to their courses, ensuring efficient communication and academic support.

Students, too, benefit from this system, as they can conveniently log in to access their marks, course materials, and syllabi. Moreover, they can stay updated on any notices or announcements posted by faculty members.

The system allows for the smooth updating of student marks by staff members, ensuring accuracy and transparency in academic assessments.

Tailored specifically for engineering colleges, this application serves as a robust repository for managing student and staff data effectively.

Admin privileges provide comprehensive access to oversee both student and staff activities, ensuring streamlined operations and data security.

Moreover, the system plays a pivotal role in safeguarding online college group information, offering a centralized platform for communication and resource sharing. Faculty members can effortlessly upload course materials and announcements, eliminating the need for fragmented communication channels like WhatsApp groups.

In essence, this application empowers students, faculty, and administrators alike by providing a user-friendly interface for accessing essential academic resources and fostering efficient communication within the college community.

Index Terms – CMS (College Management System), MongoDB, ReactJS, NodeJS, SCSS

I. INTRODUCTION

The College Management System stands as an indispensable tool, seamlessly bridging the informational gap between college faculty, staff, and students. Offering accessibility from any corner of the globe, it revolutionizes the management of crucial data.

For staff members, the system offers a streamlined process of downloading and updating lecture notes and attendance records, all within a secure environment accessible post-login. Meanwhile, students find themselves empowered with a wealth of academic resources at their fingertips, courtesy of their personalized login credentials. What sets this system apart is its unwavering commitment to inclusivity.

Designed with users of all technical proficiencies in mind, it ensures that no one is left behind in the pursuit of knowledge. This ethos is exemplified in its robust architecture, comprised of two layers: the frontend, boasting an intuitive interface crafted with HTML, SCSS, and JavaScript, and the backend, fortified by Node.js for seamless server connectivity and MongoDB for safeguarded data storage.

This synergy of technology culminates in an unparalleled user experience, where navigating through the intricacies of college life is as effortless as it is efficient. In essence, the College Management System emerges not just as a tool, but as a catalyst for academic excellence and organizational efficiency.

II. CORE DEVELOPMENT OF THIS PROJECT

The Requirement of the user is that.

- Login to the system
- View/change his/her details.

- Add the student and staff information
- Student can download the notes in a pdf format
- Students can give feedback on college/staff/any other student.
- Teacher can update the create the data , update the data and read the data.
- admin login should be present who can read as well as remove any uploads

III. METHODOLOGY

In the realm of web development, integrating external libraries or importing files into a project is a fundamental step. This process typically begins by adding the requisite dependencies in the project's build. Gradle file, setting the stage for the project's expansion and functionality.

Once dependencies are configured, the focus shifts to crafting the user interface within the app and index files. These files serve as the canvas upon which the layout and visual elements of web pages are defined, a critical aspect in shaping the user experience.

Within the MainActivity.js file, the heartbeat of the application, lies the implementation of diverse functionalities. From handling user interactions to processing data and facilitating seamless navigation, this file embodies the essence of the application's functionality.

Central to the system's architecture is the login functionality, a gateway to accessing its myriad features. Authentication against a database using provided credentials ensures a secure entry point for users, be they students or staff members, granting them access to the system's wealth of resources.

Outlined within the system's main menu are six integral parts, each catering to distinct user needs and enhancing the overall user experience:

Student Login: Empowering students to access the system using their designated credentials, facilitating personalized engagement with academic resources.

Teacher Login: Similarly, providing teachers with a tailored entry point, enabling them to leverage the system's features to enrich the educational experience.

Notice Board: Serving as a central hub for disseminating crucial information, this section enables the posting of notices, announcements, and updates vital to both students and teachers.

Events: Offering a glimpse into the vibrant campus life, users can explore information regarding upcoming events and extracurricular activities, fostering a sense of community and engagement.

In essence, the meticulous design and functionality of each component converge to create a cohesive and dynamic platform, empowering users to navigate the complexities of college life with ease and efficiency.

IV. OVERVIEW OF THE PROJECT

This document is structured into two sections to cater to different audiences.

The first part, designed for external stakeholders, provides a straightforward overview of the product's requirements and constraints.

It outlines the product's functionality, data needs, and user interactions in simple terms, focusing on the client's perspective. This section aims to communicate the project's essence without technical jargon, ensuring accessibility to non-technical audiences.

Conversely, the second section is targeted at the clarity and alignment between external stakeholders and the internal team. It details specific technical requirements necessary for software development.

It covers aspects such as external interface requirements, performance benchmarks, and other technical specifications crucial for designing the software.

By segregating information in this manner, the document ensures, facilitating effective communication and development processes.

V. GENERAL DESCRIPTION

User Characteristics: The target audience for this system is staff\student.

Administrator –Higher authority or super user.

Student– student has the limited rights and the staff has the more right then the students.

Product Perspective

The product is designed as a standalone application capable of running on multiple systems within an Intranet network.It is essential for users to have access to a keyboard, mouse, and monitor to interact seamlessly with the application's interface. To ensure optimal performance, the product specifies minimum hardware requirements outlined in this document.

These requirements are carefully determined to support the application's functionality and maintain efficient operation across various systems within the network.

By adhering to these specifications, users can expect a smooth and reliable experience while utilizing the product to fulfill their tasks and objectives.

Functional Requirement

- The staff can view the student details and update the details.
- The admin focus the working of the system .
- The students can view their marks/attendance/exam schedules.
- The system should have a login.

Non-Functional Requirement

System: P IV or above.

RAM: 1GB or above.

Hard Disk: 10GB or above.

Operating System: Windows& or above.

Software platform:

Visual studio 2010, HTML, CSS, JAVASCRIPT, REACT-JS, NODE-JS, MONGODB.

VI. SPECIFIC REQUIREMENT

External Interface Requirements:

Simple, Attractive, User Friendly, Consistent, error free , Robust , Flexible.

Main modules of the system:

Administration: This module deals mainly with,

- **Admission:** This mainly deals registering the students/staff and assigning them with a login id and password.
- **Accounts:** This keeps track of the financial details of the college.
- **Hostel:** It gives information about the college hostel for both boys and girls.

Department Information: This module gives the information about,

- **Course:** This contains the information about the number of the courses offered by the college and number of seats present in each.
- **Staff:** This contains the number of staff available in each department.
- **Infrastructure:** This has the details of the assets allotted for each department.
- **Syllabus:** This provides the academic syllabus of the students from different branches.

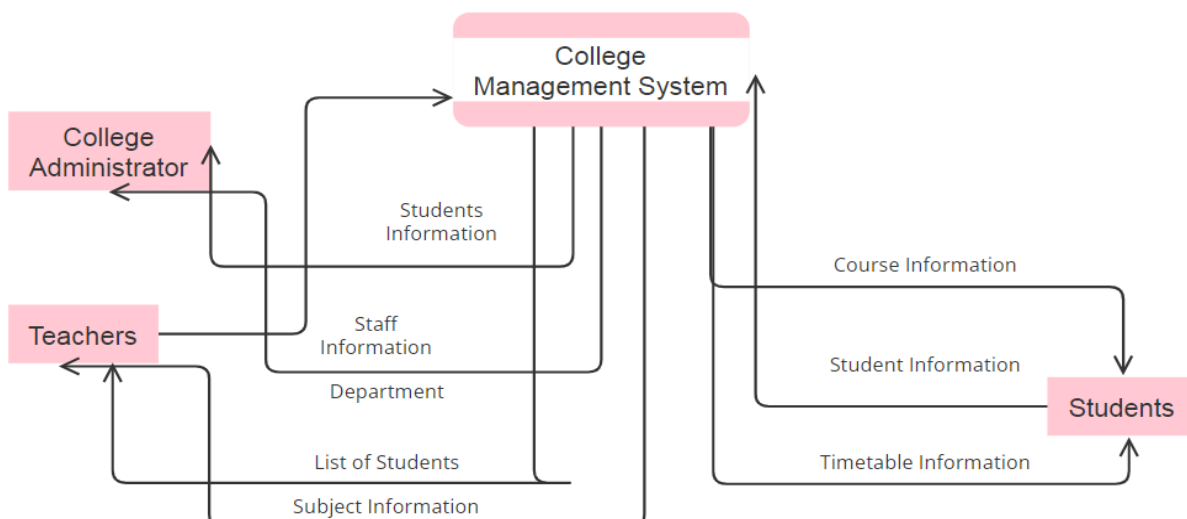
Staff Information: This module deals mainly with,

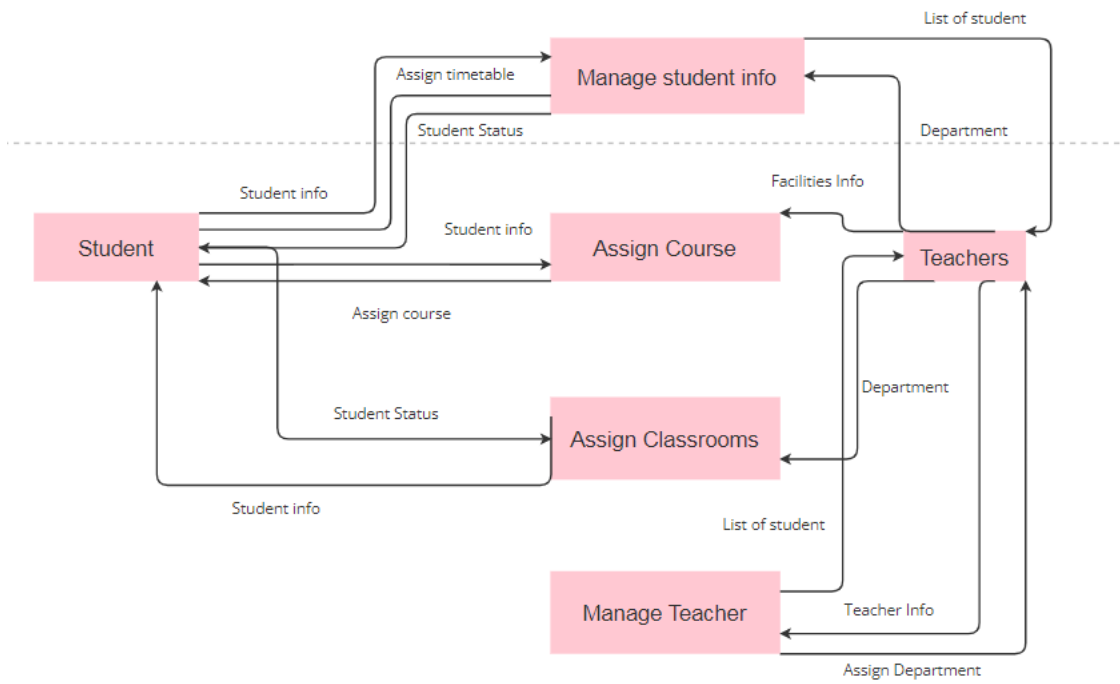
- **Profile:** This provides personal details of the staff.
- **Attendance:** This provides the staff with his/her attendance details.
- **Salary:** This provides the staff with his/her salary details.
- **Feedback:** This feature enables the staff to provide feedbacks to the management.
- **View Student Details:** This provides the staff to view the student details.

Student Information: This module gives information about,

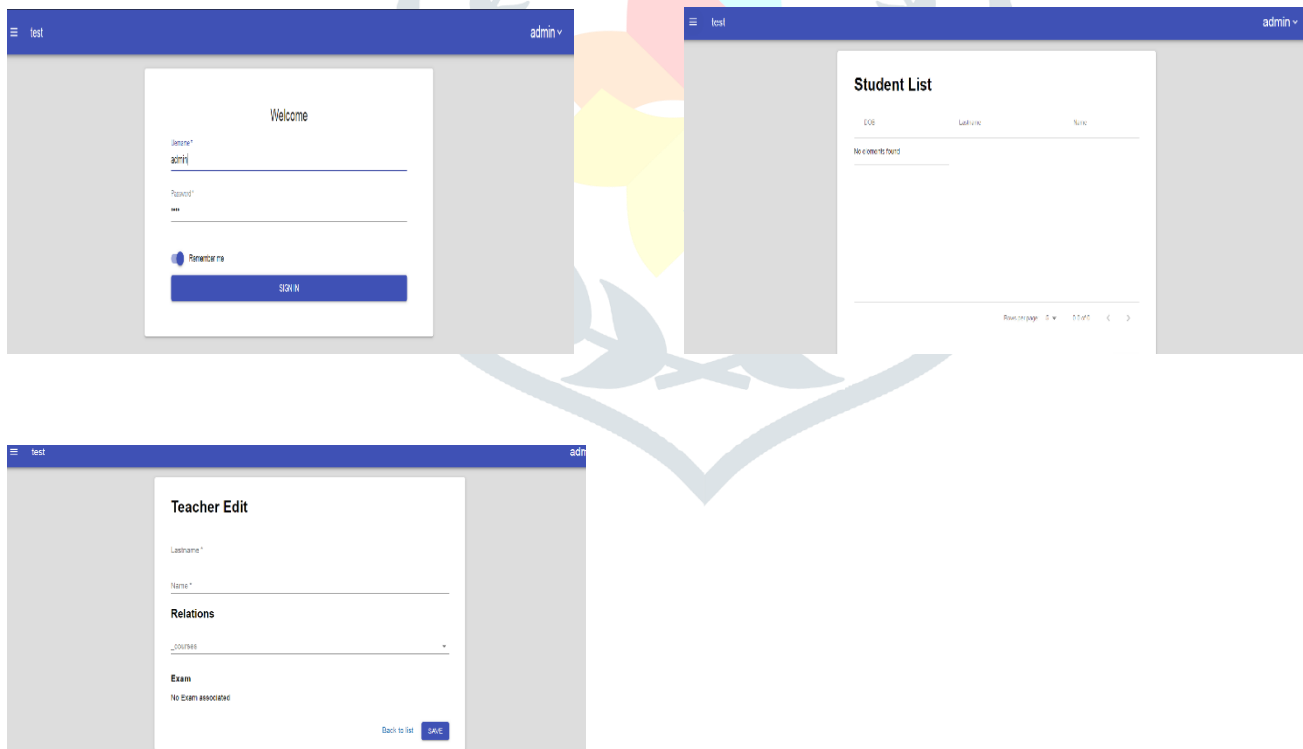
- **Profile:** This provides personal details of the student.
- **Attendance:** This provides the student with his/her attendance details.
- **Marks:** This provides the internal/external marks of a student.
- **Feedback:** This feature enables the student to provide feedbacks to the management.
- **Remarks:** It contains there marks written the faculties about a student.
- **Change Password:** Provides the student to change his/her password.

VII. DATA FLOW DIAGRAMS





VIII. IMPLEMENTATION



CONCLUSION

The College Management System is a comprehensive Solution Designed to address the diverse need of educational institution . Successfully implemented, it boasts a full suite of features meticulously outlined in the system requirements specification.

This application seamlessly delivers tailored information to users, catering to their specific needs and chosen services. it has been meticulously crafted to alleviate the day-to-day challenges encountered within a college environment.

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