COLLEGE MANAGEMENT SYSTEM

A MINI PROJECT REPORT

Submitted by

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in

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COLLEGE OF ENGINEERING AND TECHNOLOGY

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

KATTANKULATHUR - 603203

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COLLEGE OF ENGINEERING & TECHNOLOGYSRM INSTITUTE OF SCIENCE & TECHNOLOGY

S.R.M. NAGAR, KATTANKULATHUR – 603 203

BONAFIDE CERTIFICATE

Certified that this project report **" College Management System"** is the bonafide work of **"Shresth Gupta [RA2011206010091], Utkarsh Srivastava [RA2011026010104] and Sahil Satasiya [RA2011026010110]"** of III Year/VI Sem B.tech(CSE) who carried out the miniproject work under my supervision for the course 18CSC303J- Database Management systems in SRM Institute of Science and Technology during the academic year 2022- 2023(Even sem).

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HEAD OF DEPARTMENT
Professor
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ABSTRACT

A management system is the framework of policies, processes and procedures used by an organization (irrespective of the field) to ensure that it can fulfill all the tasks required to achieve its objectives.

College Management System is also one among them and includes factors like Admission Record Entry, Admission Register, Attendance Sheet, Board Reports, Student List Student Evaluation by Faculty, User Defined Reports, Attendance Tracker, Identity Card, Hostel management, etc.

In our proposed approach, we focus on sending the details of Student academic marks such as internal marks that have been scored. Using an SMS gateway, staff will be able to send the scored marks of all the students simultaneously to the multiple users. As the numbers of people using mobile devices are increasing with every passing day, companies are making use of SMSs to promote their services and products and increase their sales. In the same way, SMS system for college provides the updated marks of their children each time.

INDEX

INTRODUCTION

A college management system project allows schools and universities to keep track of their enrollment, students, teachers, attendance, fees, scheduling, and other activities related to tertiary education tasks. It creates automatic reports for data-driven decision-making on all college management aspects. This college management system project report discusses everything you need.

College Management System deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details and other resource related details too. It tracks all the details of a student from the day one to the end of his course which can be used for all reporting purpose, tracking of attendance, progress in the course, completed semesters years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result.

The College management system is an automated version of manual Student Management System. It can handle all details about a student. The details include college details, subject details, student personnel details, academic details, exam details etc... In case of manual system, they need a lot of time, manpower etc. Here almost all work is computerized. So, the accuracy is maintained. Maintaining backup is very easy. It can do within a few minutes. Our system has two types of accessing modes, administrator and user. Student management system is managed by an administrator. It is the job of the administrator to insert update and monitor the whole process. When a user logs in to the system. He would only view details of the student. He can't perform any changes. In our project, the college management system is particularly designed to provide marks and attendance updates from the college to the parents of the respective students. Project administers three sectors.

SCOPE OF PROJECT

It may help collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. It will help a person to know the management of passed year perfectly and vividly. It also helps in current all works relative to College Management System. It will be also reduced the cost of collecting the management & collection procedure will go on smoothly.

Our project aims at Business process automation, i.e., we have tried to computerize various processes of College Management System.

- In computer system the person has to fill the various forms & number of copies of the forms can be easily generated at a time.
- In computer system, it is not necessary to create the manifest but we can directly print it, which saves our time.
- To assist the staff in capturing the effort spent on their respective working areas.
- To utilize resources in an efficient manner by increasing their productivity through automation.
- The system generates types of information that can be used for various purposes.
- It satisfies the user requirement
- Be easy to understand by the user and operator
- Be easy to operate
- Have a good user interface
- Be expandable
- Delivered on schedule within the budget.

OBJECTIVE OF PROJECT

The main objective of the Project on College Management System is to manage the details of College, Student, Fees, Employee, Faculty. It manages all the information about College, Salary, Faculty, College. The project is totally built at administrative end and thus, only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the College, Student, Salary, Fees. It tracks all the details about the Fees, Employee, Faculty.

Functionalities provided by College Management System are as follows:

- Provides the searching facilities based on various factors. Such as College,
- Fees, Employee, Faculty
- College Management System also manage the Salary details online for
- Employee details, Faculty details, College.
- It tracks all the information of Student, Salary, Employee etc
- Manage the information of Student
- Shows the information and description of the College, Fees
- To increase efficiency of managing the College, Student

LITERATURE SURVEY

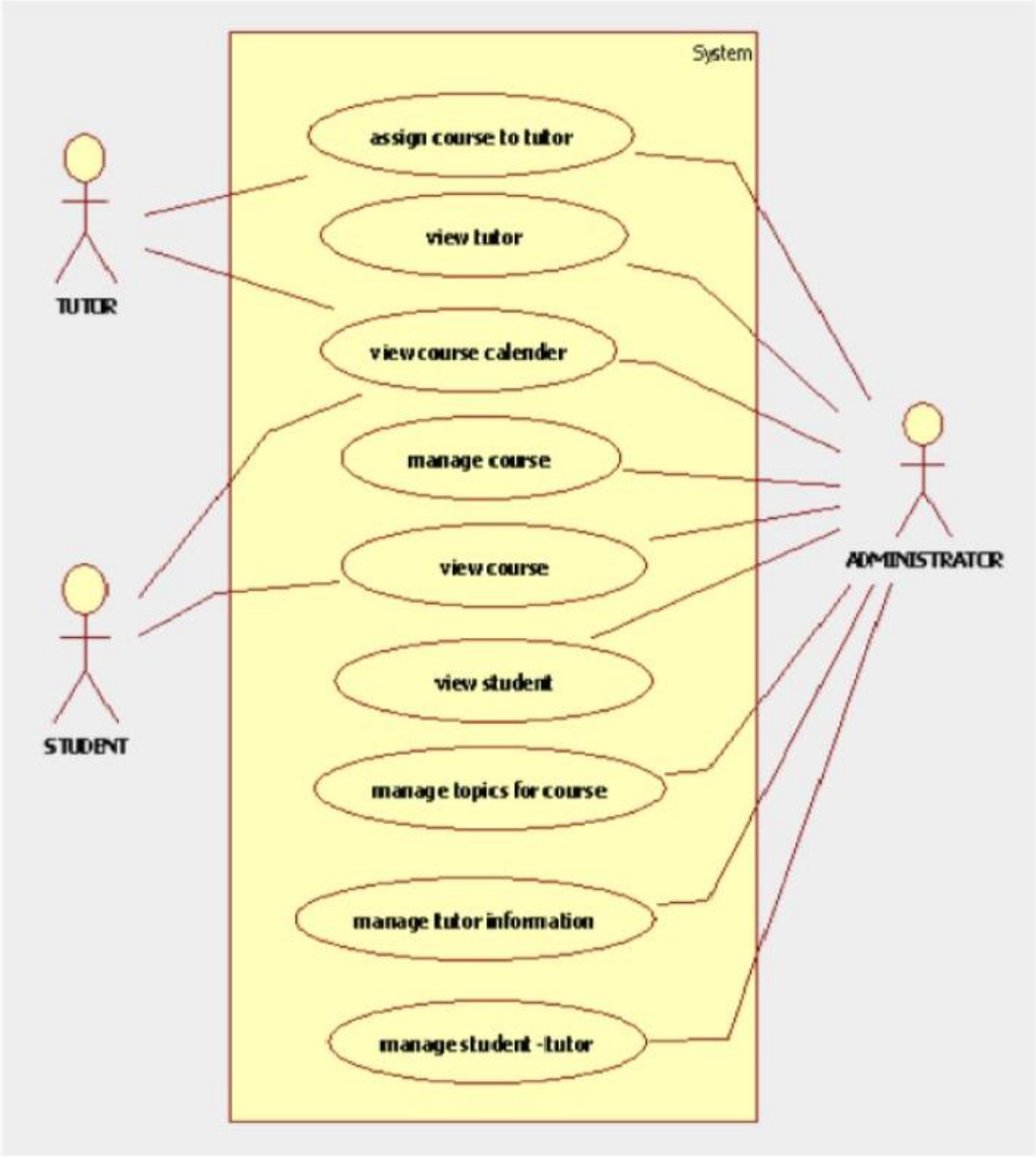
The system provides guidance to the admin to keep track of each student. The admin has the access to the database of system. In an educational institute management is crucial thing. So, in order to reduce the efforts of staff we are introducing our system. The system comes on with much functionality like voting event details, feedback, news line etc.

It provides an additional feature newline that helps the student to get department newlines and reports (achievements, toppers). It also provides the voting feature so that manual work is reduced. This system is paperless system.

System provides functionality for student to application where in admin can manage, student can access uploaded notes, course details. Student will get the event details through sms. Overall manpower and reduces the time required.

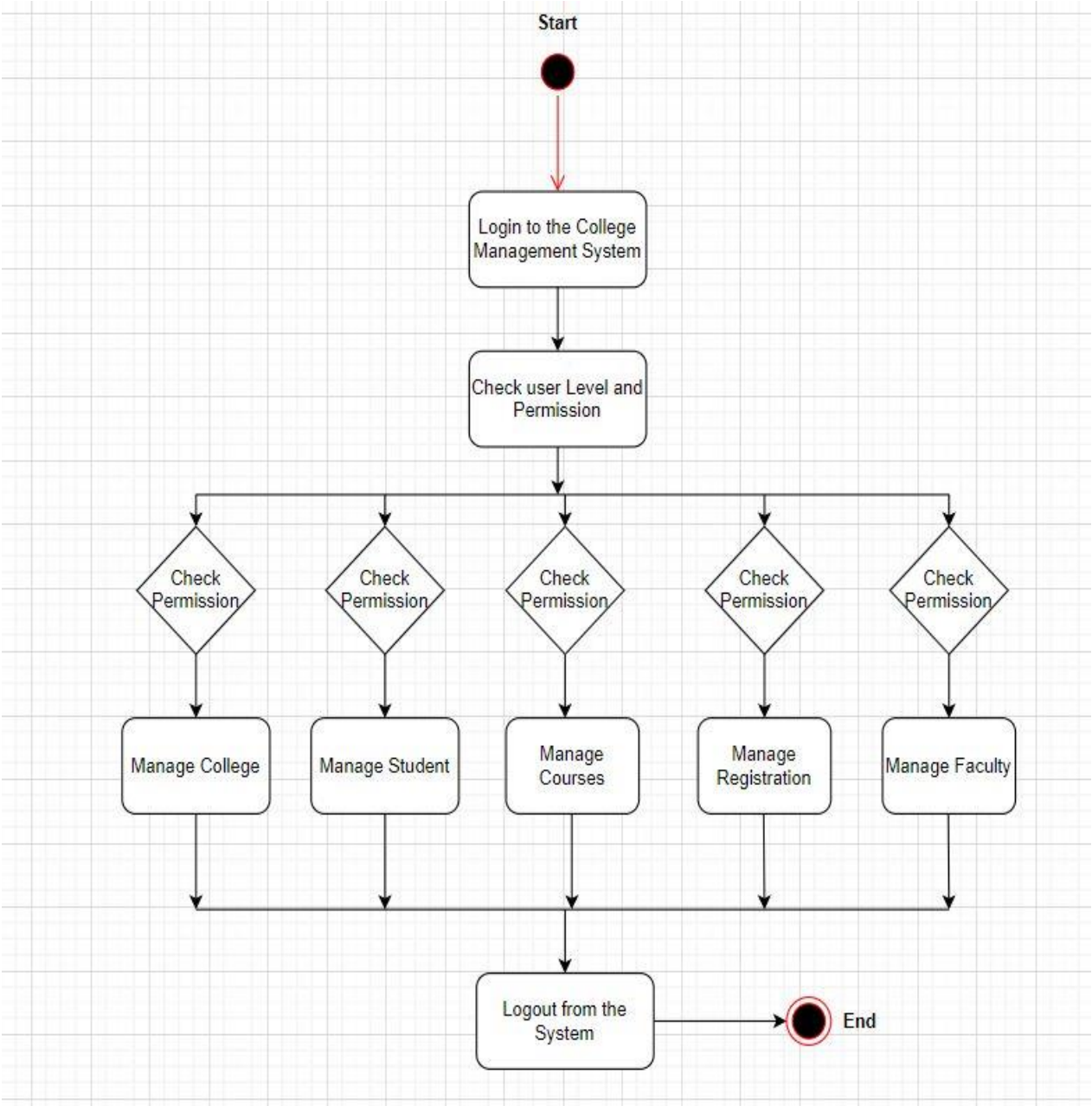
SYSTEM ARCHITECTURE

USE CASE DIAGRAM

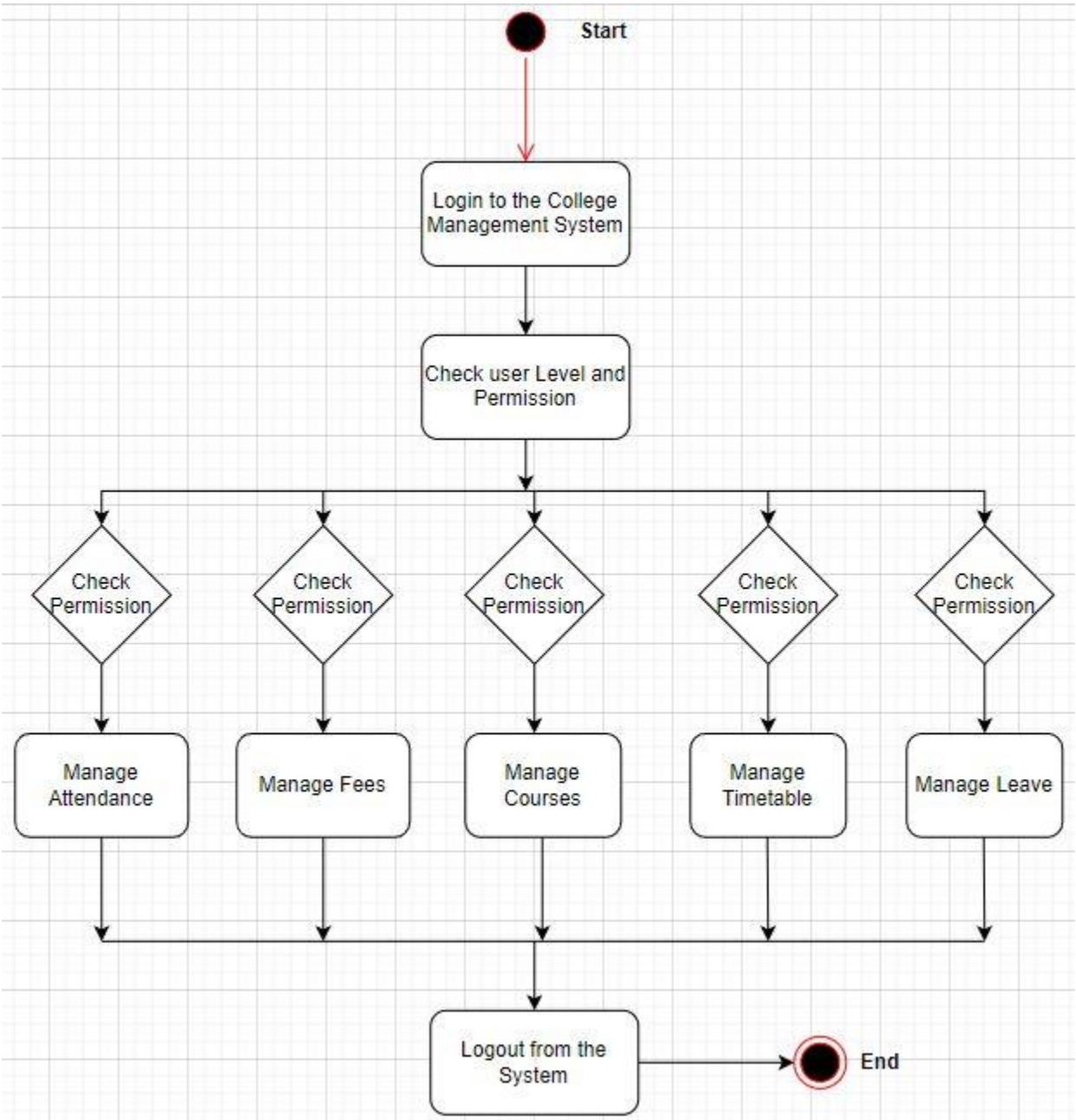


ARCHITECTURE DIAGRAM

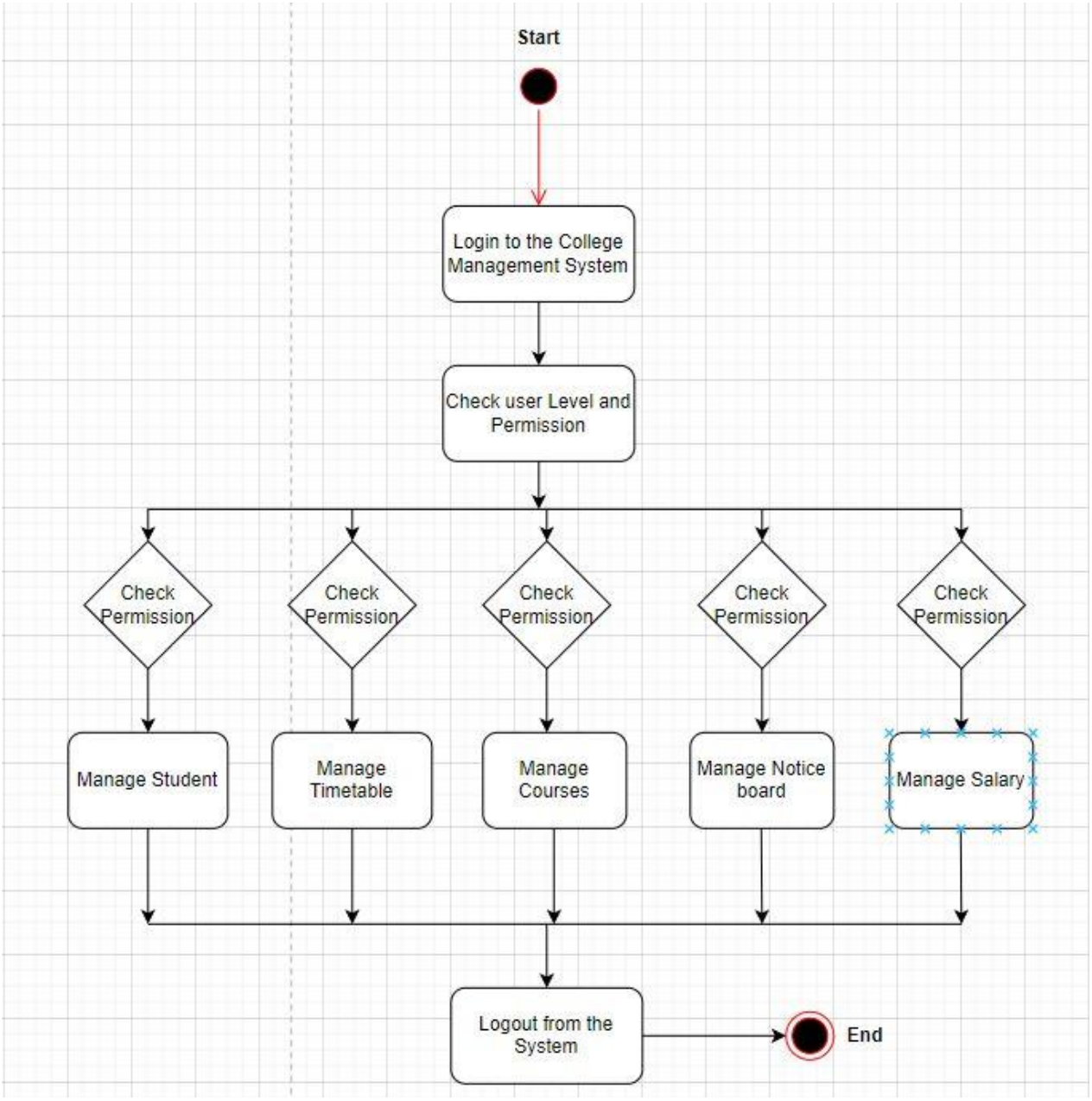
For admin:



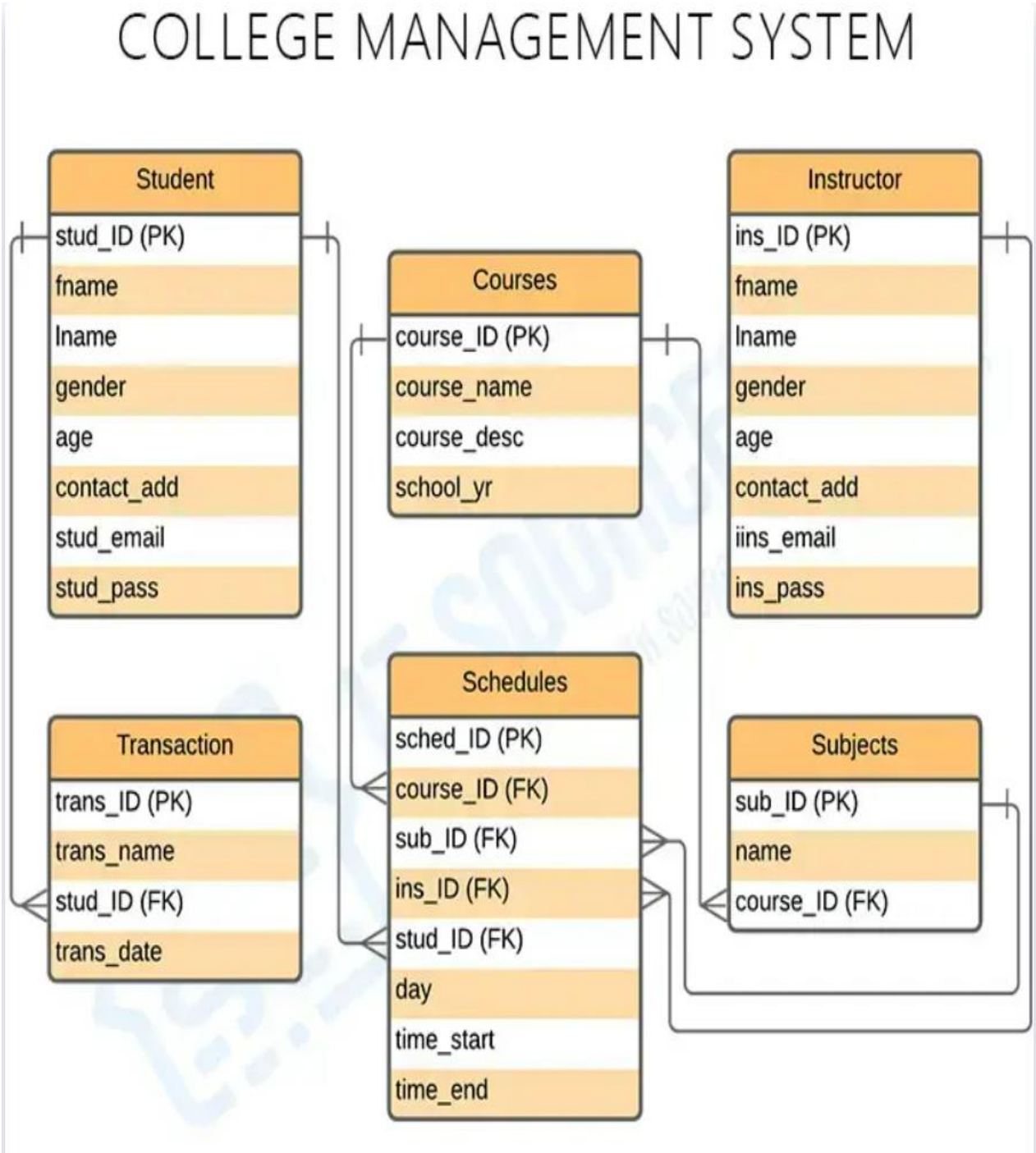
For student:


Start
Login to the College Management System
Check user Level and Permission
Check Permission
Check Permission
Check Permission
Check Permission
Check Permission
Manage Attendance
Manage Fees
Manage Courses
Manage Timetable
Manage Leave
Logout from the System
End

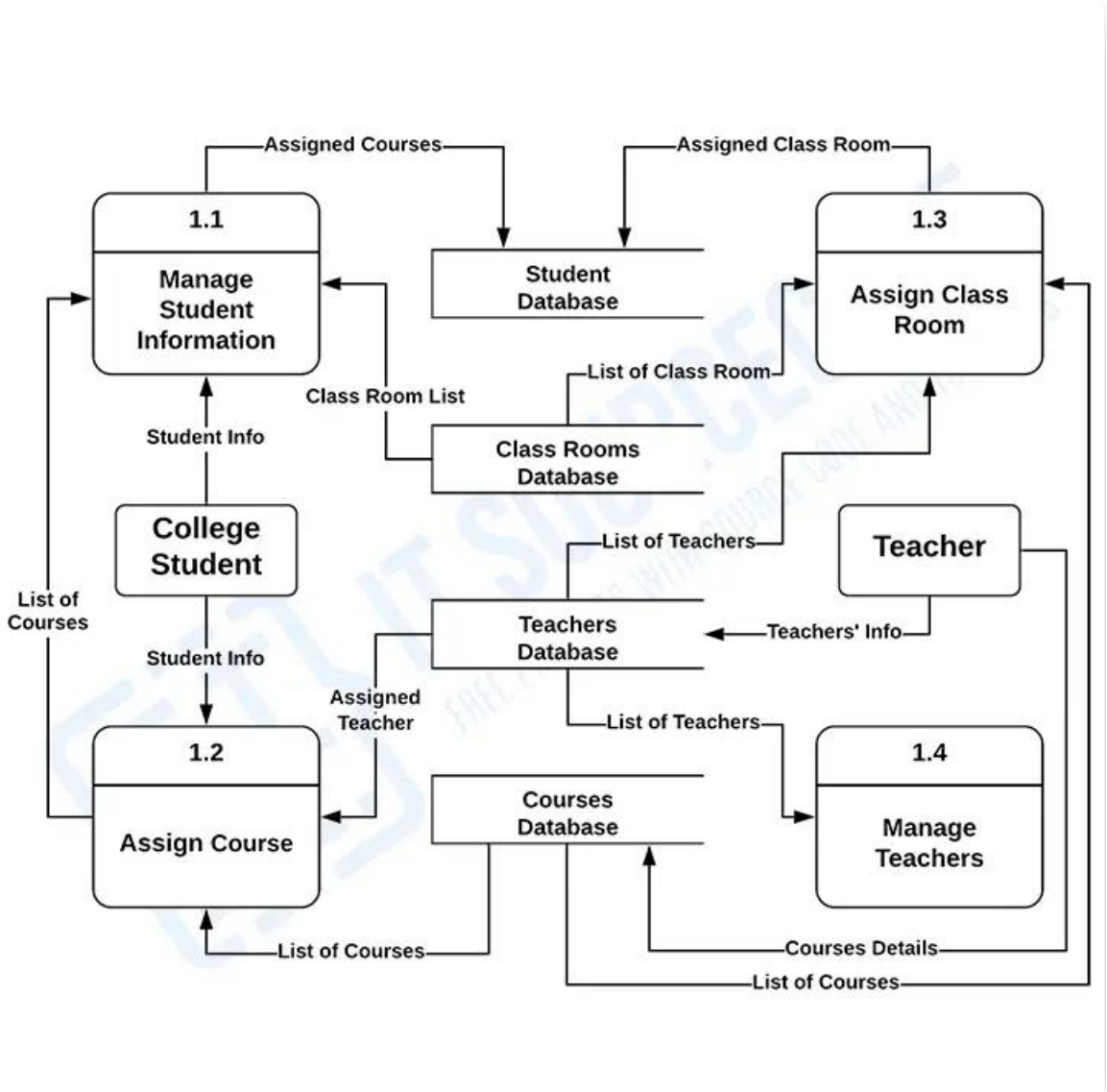
For faculty:


Start
Login to the College Management System
Check user Level and Permission
Check Permission
Check Permission
Check Permission
Check Permission
Check Permission
Manage Student
Manage Timetable
Manage Courses
Manage Notice board
Manage Salary
Logout from the System
End

ER DIAGRAM


COLLEGE MANAGEMENT SYSTEM
Student
stud_ID (PK)
fname
lname
gender
age
contact_add
stud_email
stud_pass
Courses
course_ID (PK)
course_name
course_desc
school_yr
Instructor
ins_ID (PK)
fname
lname
gender
age
contact_add
iins_email
ins_pass
Transaction
trans_ID (PK)
trans_name
stud_ID (FK)
trans_date
Schedules
sched_ID (PK)
course_ID (FK)
sub_ID (FK)
ins_ID (FK)
stud_ID (FK)
day
time_start
time_end
Subjects
sub_ID (PK)
name
course_ID (FK)

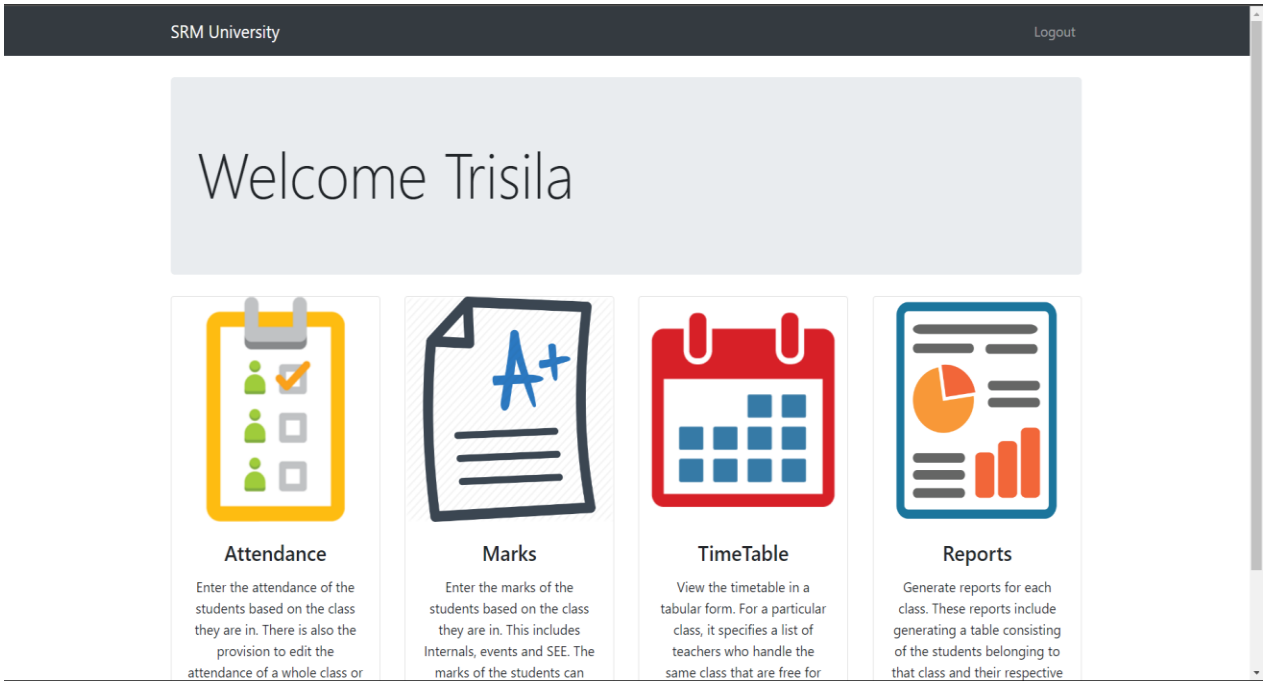
DATA FLOW DIAGRAM



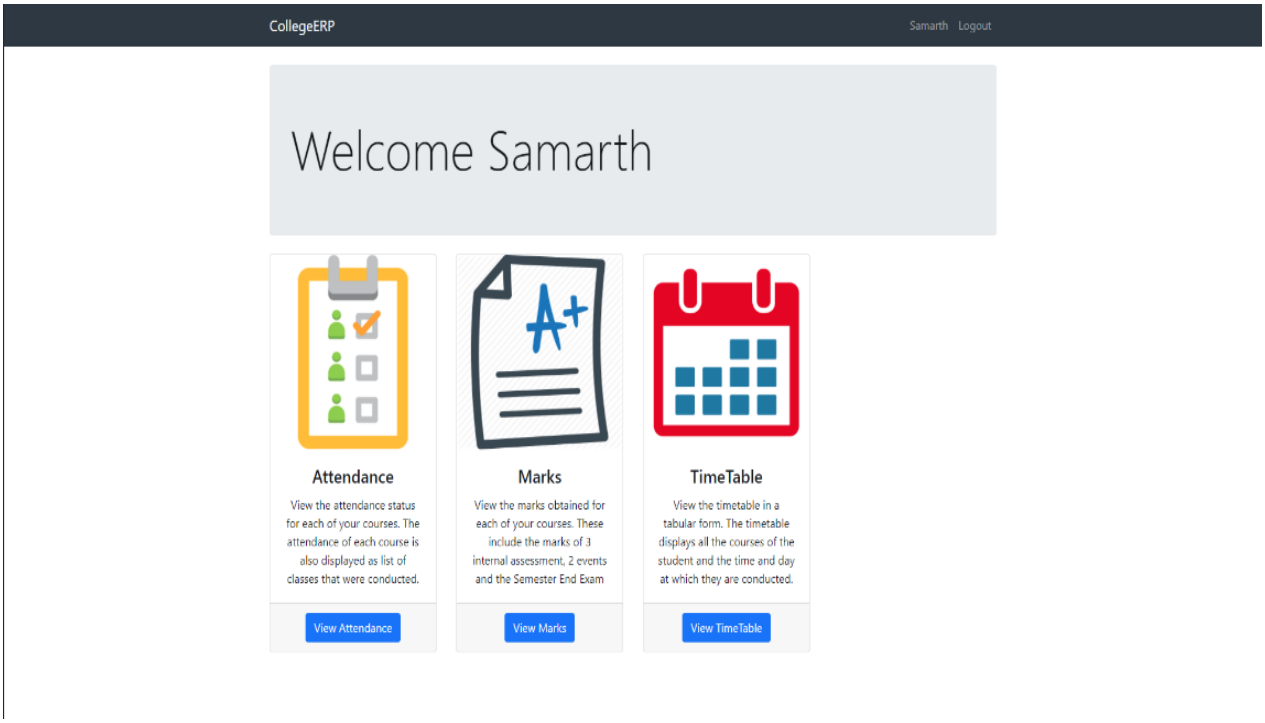
SYSTEM DESIGN

FRONTEND

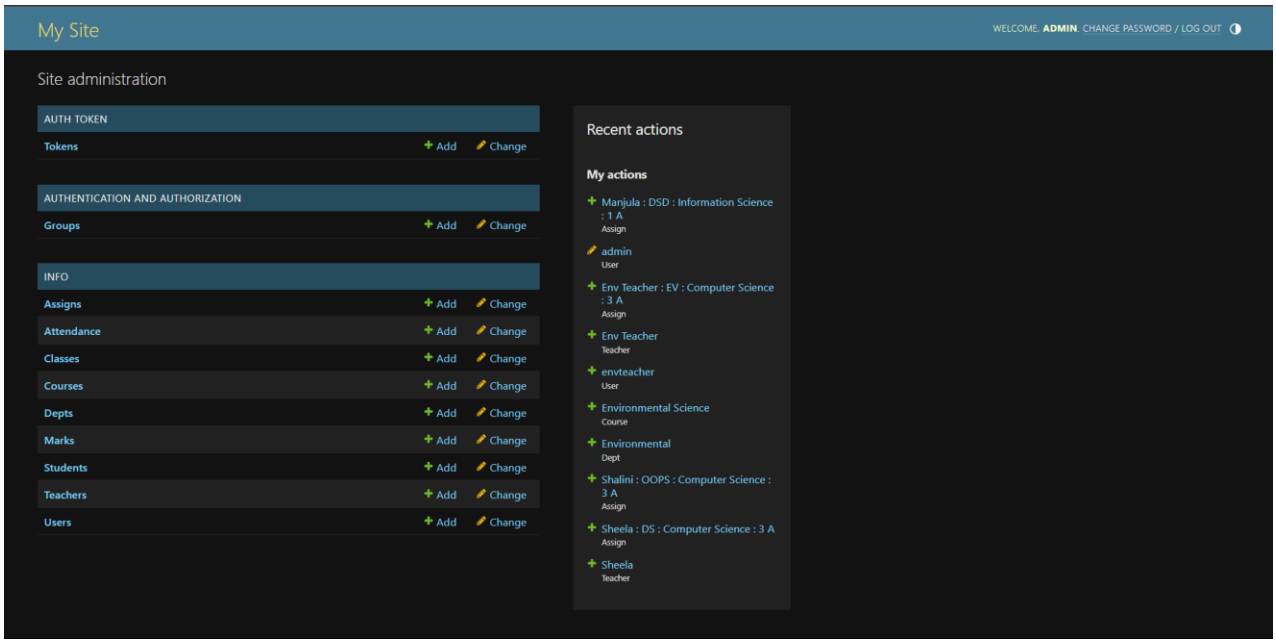
1. Teacher



2. Student

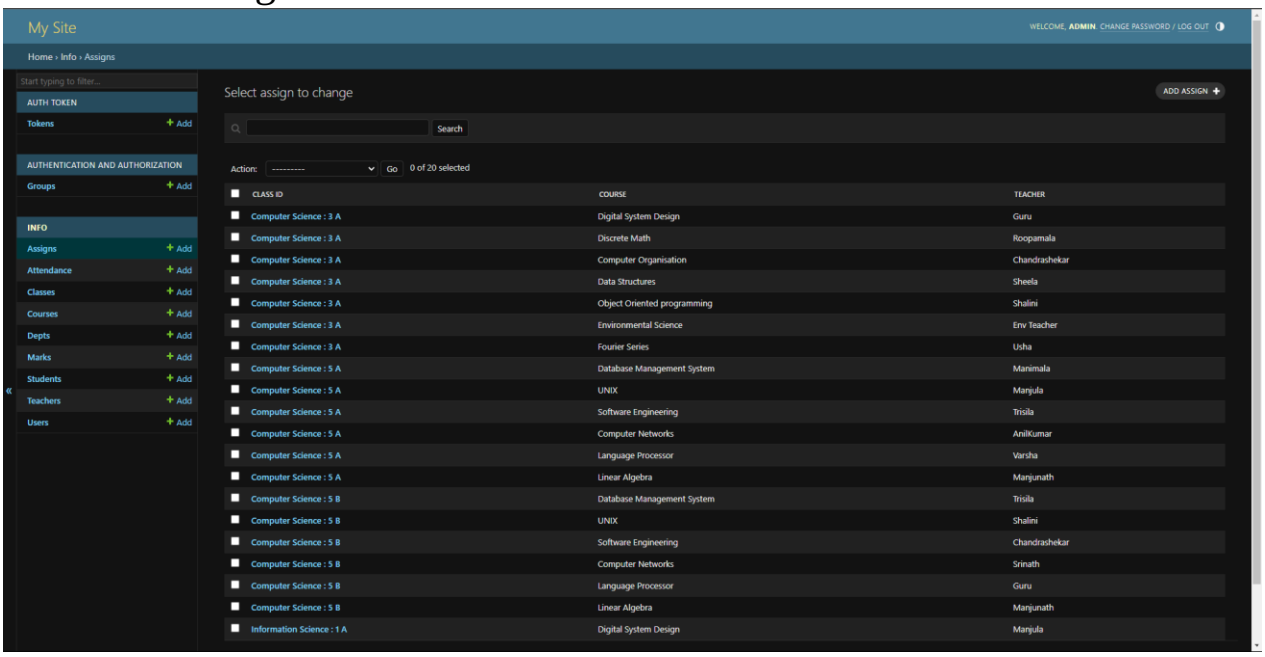


3. Admin

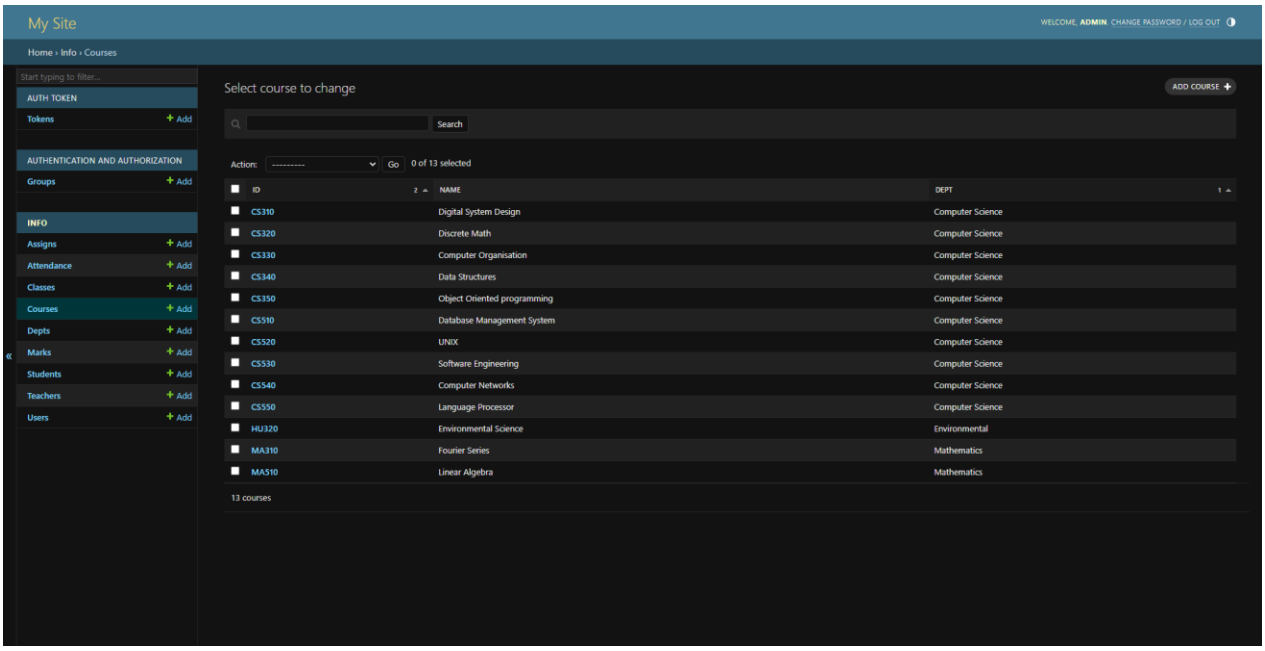


BACKEND

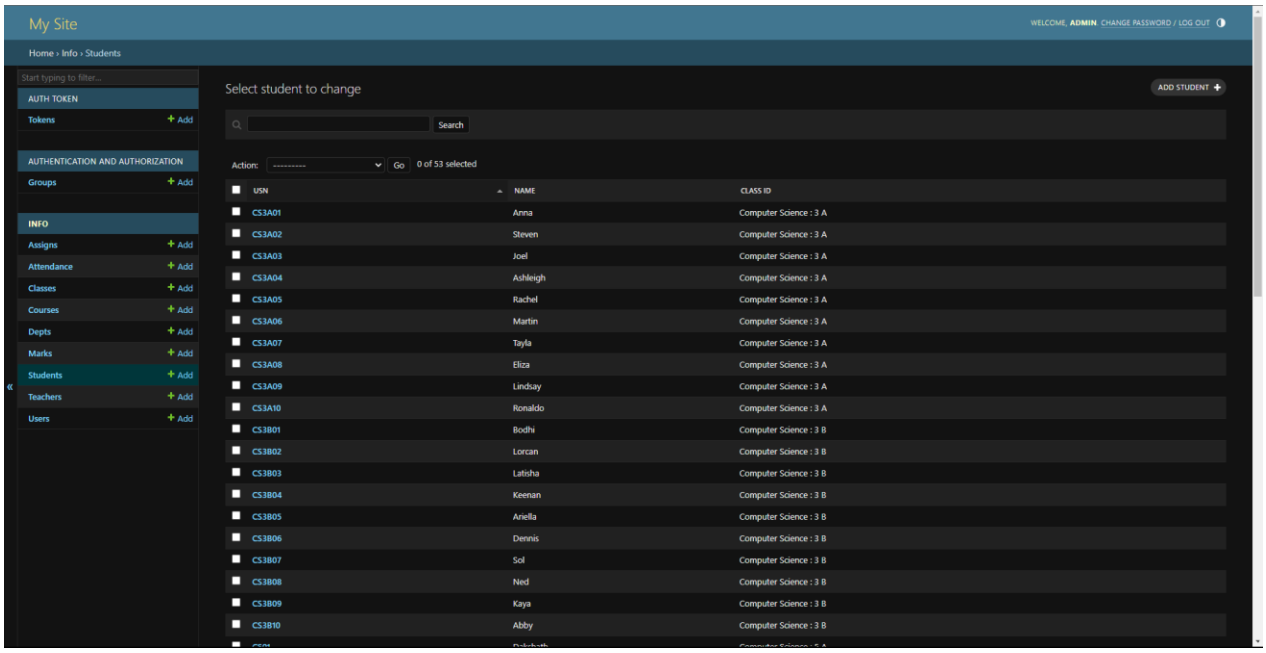
1. Course Assignment



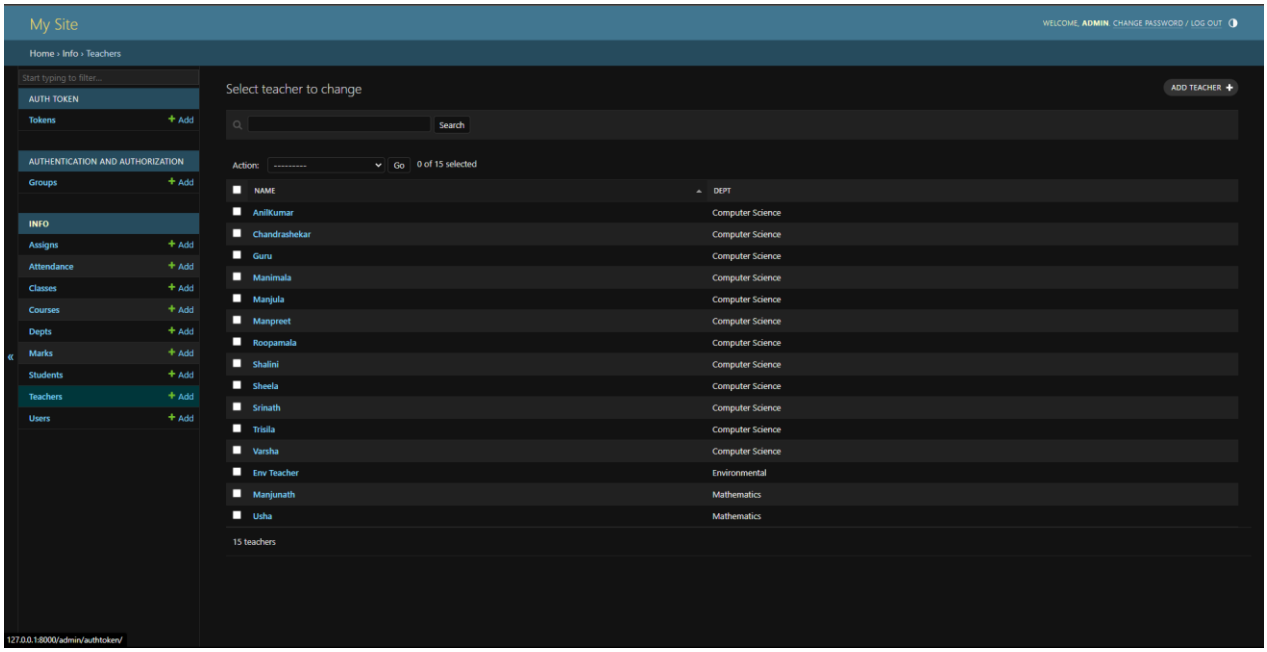
2. Courses



3. Student Users



4. Teacher Users



MODULES AND FUNCTIONALITIES

Each of the modules was based on the activities in College Schools and they will be automated to reduce the task of faculties and staff. Here is the list of modules for the college management system project:

- Student Admission Management: This module explains how the college school handles the admission of their students. Student admission management includes the gathering of students' basic information and requirements for admission.
- Faculty and Student Attendance Management: The college management system should have this module to check faculty and student attendance. This will record the everyday attendance and activities of everyone in the college school.
- Student Information Management: In this module, the admin of the college can have and monitor the information of the students. This will also do the securing of each student's info for tracing their transactions.
- Courses and Subjects Management: The courses and subject management module will do the assigning of subjects for every course that the college offers. This module will also bracket the schedules of each subject and the instructors that handle each subject.
- Timetables Management: The work of this module will monitor and set the timetable or range of the subjects in each semester of the school year.
- Student Transaction Management: This module will help the admin monitor and check the content of each transaction made by their students.
- Grading System Management: The grading system management will do the job of calculating the grades of the students. Instructors or the admin will just have to encode the students' output to the system.

WORKING OF FRONTEND

The frontend of a college management system is responsible for creating an interactive and user-friendly interface that allows users, such as students, faculty, and administrators, to interact with the system. Here's an overview of the key aspects of frontend development in a college management system:

1. User Interface Design: Start by designing the user interface (UI) of the system. Consider the system's requirements and target audience. Create a clean and intuitive design that allows users to navigate the system easily. Pay attention to typography, colors, spacing, and visual hierarchy to ensure a pleasing and consistent UI.

2. **HTML/CSS**: Use HTML to structure the content of the web pages and CSS to style them. HTML provides the skeleton of the pages, while CSS controls the visual presentation, layout, and formatting. Ensure that the HTML is semantically correct and optimized for accessibility. Use CSS frameworks like Bootstrap or Material-UI for pre-built components and responsive design.

3. **JavaScript**: Enhance the functionality and interactivity of the frontend using JavaScript. Use JavaScript frameworks such as React, Angular, or Vue.js to build dynamic and responsive user interfaces. JavaScript allows you to handle user input, perform client-side form validation, and interact with the backend APIs for data retrieval and updates.

4. **Responsive Design**: Ensure that the frontend is responsive and works well on different devices and screen sizes. Use responsive design techniques like media queries, fluid layouts, and responsive images to adapt the UI to different screen resolutions. Test the responsiveness of the frontend on various devices and browsers.

5. **Data Binding and State Management**: Use data binding techniques provided by frontend frameworks to synchronize data between the UI and the backend. Manage the application's state effectively to handle user interactions and update the UI accordingly. Use state management libraries like Redux or MobX to manage complex application states.

6. **Form Handling**: College management systems often require users to fill out forms for tasks such as registration, enrollment, and submission of assignments. Implement form validation on the client-side to provide immediate feedback to users and prevent them from submitting invalid or incomplete data. Use form libraries like Formik or React Hook Form to simplify form handling.

7. **Navigation and Routing**: Implement navigation and routing to allow users to move between different sections or pages of the system. Use navigation components, breadcrumbs, and menus to provide clear pathways and easy access to various functionalities. Use routing libraries like React Router or Vue Router to handle routing in a single-page application.

8**. Integration with Backend APIs**: Communicate with the backend APIs to retrieve and update data. Use AJAX or fetch API to make asynchronous requests to the backend, handle responses, and update the UI accordingly. Implement error handling and provide appropriate feedback to users in case of network errors or failed API requests.

9. **User Experience and Accessibility**: Focus on providing a positive user experience. Ensure that the system is easy to navigate, with clear instructions and intuitive interactions. Pay attention to accessibility guidelines to ensure that the system is usable by individuals with disabilities. Use semantic HTML, provide alternative text for images, and ensure proper keyboard navigation.

10. **Testing and Debugging**: Conduct thorough testing of the frontend code to identify and fix any issues. Perform unit tests, integration tests, and end-to-end tests to ensure the functionality and compatibility of the frontend. Use browser developer tools and debugging techniques to troubleshoot and fix errors.

11. **Continuous Improvement**: Gather user feedback and analyze user behavior to make iterative improvements to the frontend. Monitor performance metrics, user engagement, and conversion rates to identify areas for enhancement. Regularly update and maintain the frontend codebase, keeping it optimized, secure, and compatible with the latest web standards.

WORKING OF BACKEND

The backend of a college management system is responsible for handling the processing, storage, and retrieval of data. It serves as the backbone of the system, managing the business logic, database operations, and communication with the frontend and other external systems. Here are some key aspects of the backend in a college management system:

1. Server-side programming: The backend is typically built using server-side programming languages such as Java, Python, PHP, or Node.js. These languages provide the necessary tools and frameworks to handle the system's functionality and data manipulation.

2. Database management: The backend interacts with the database to store and retrieve data. It involves designing the database schema, creating tables, defining relationships, and performing CRUD operations (Create, Read, Update, Delete) on the data. Common databases used in college management systems include MySQL, PostgreSQL, or MongoDB.

3. API development: The backend exposes a set of APIs (Application Programming Interfaces) that allow the frontend and other external systems to communicate with the backend. These APIs define the endpoints, request/response formats, and authentication mechanisms. APIs can be built using RESTful principles or GraphQL depending on the system's requirements.

4. User authentication and authorization: The backend manages user authentication and authorization processes. It handles user login, registration, and password management, ensuring that only authorized users can access the system's features. Techniques such as password hashing and token-based authentication are commonly used for security purposes.

5. Business logic implementation: The backend implements the business logic of the college management system. This includes handling workflows and processes related to student management, course registration, attendance tracking, grade calculation, and other administrative tasks. The backend ensures the integrity and consistency of the system's data.

6. Integration with external systems: In a college management system, the backend may need to integrate with external systems such as payment gateways, learning management systems, or student information systems. Integration involves exchanging data and synchronizing information between the systems through APIs or other communication mechanisms.

7. Performance optimization: The backend should be optimized for performance to handle a large volume of requests efficiently. Techniques such as database indexing, caching, asynchronous processing, and load balancing can be used to improve system performance and scalability.

8. Security considerations: The backend needs to implement appropriate security measures to protect the system and its data. This includes input validation, preventing SQL injection and cross-site scripting (XSS) attacks, implementing role-based access control, and ensuring secure communication over HTTPS.

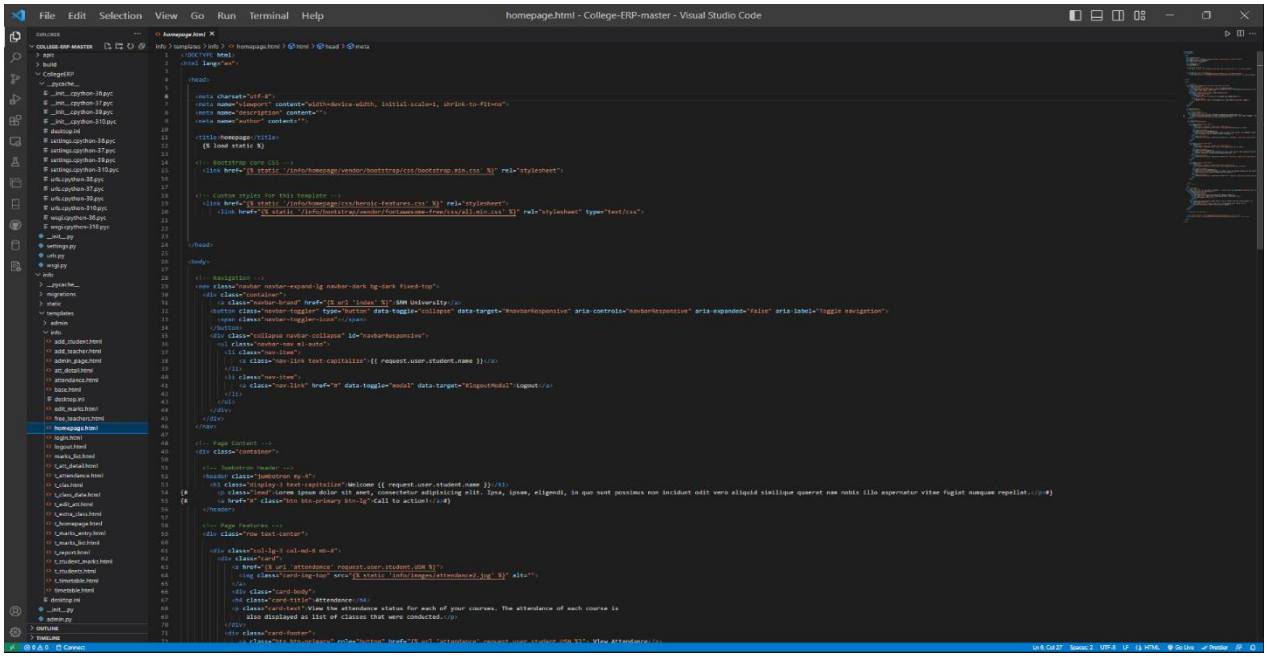
9. Error handling and logging: The backend should handle errors gracefully and provide meaningful error messages to assist with troubleshooting. Logging mechanisms should be implemented to record system events, errors, and user activities for debugging and auditing purposes.

10. Testing and deployment: Thorough testing of the backend code is essential to identify and fix any bugs or issues. Unit tests, integration tests, and system tests should be conducted to ensure the correctness and reliability of the backend functionality. Continuous integration and deployment (CI/CD) practices can be adopted to automate the testing and deployment processes.

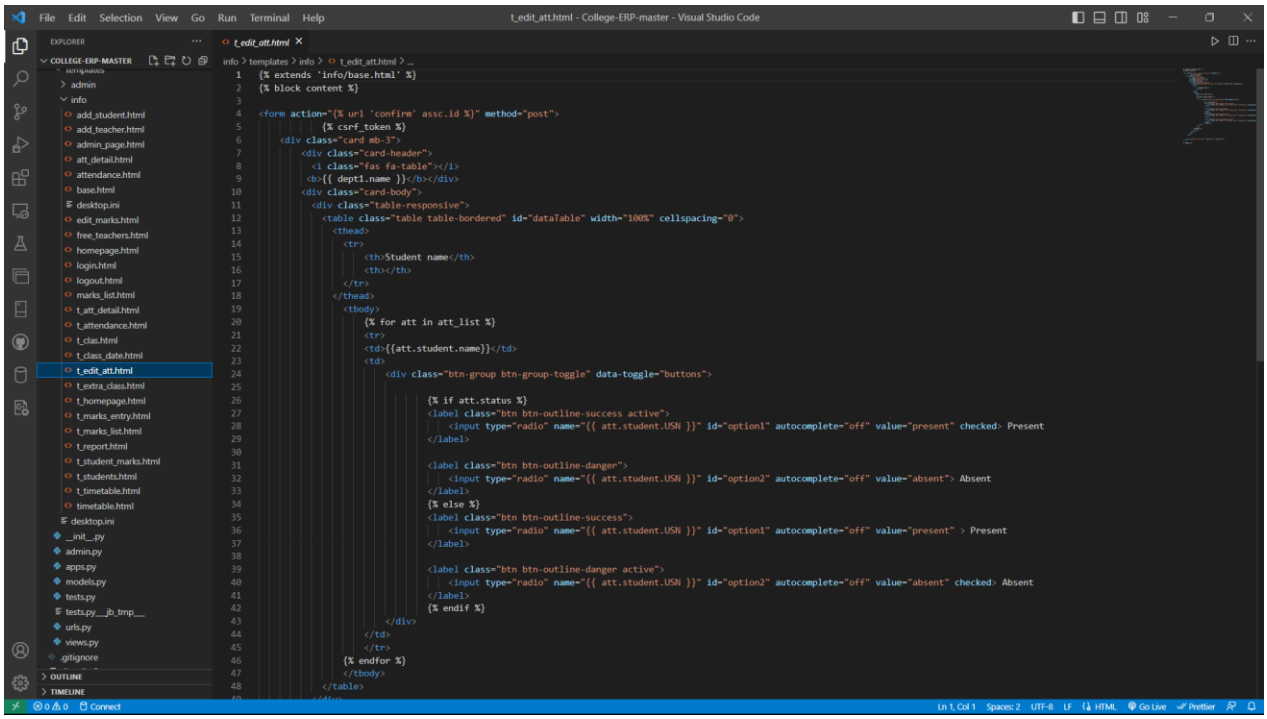
CODING AND TESTING

CODE FOR THE FRONTEND

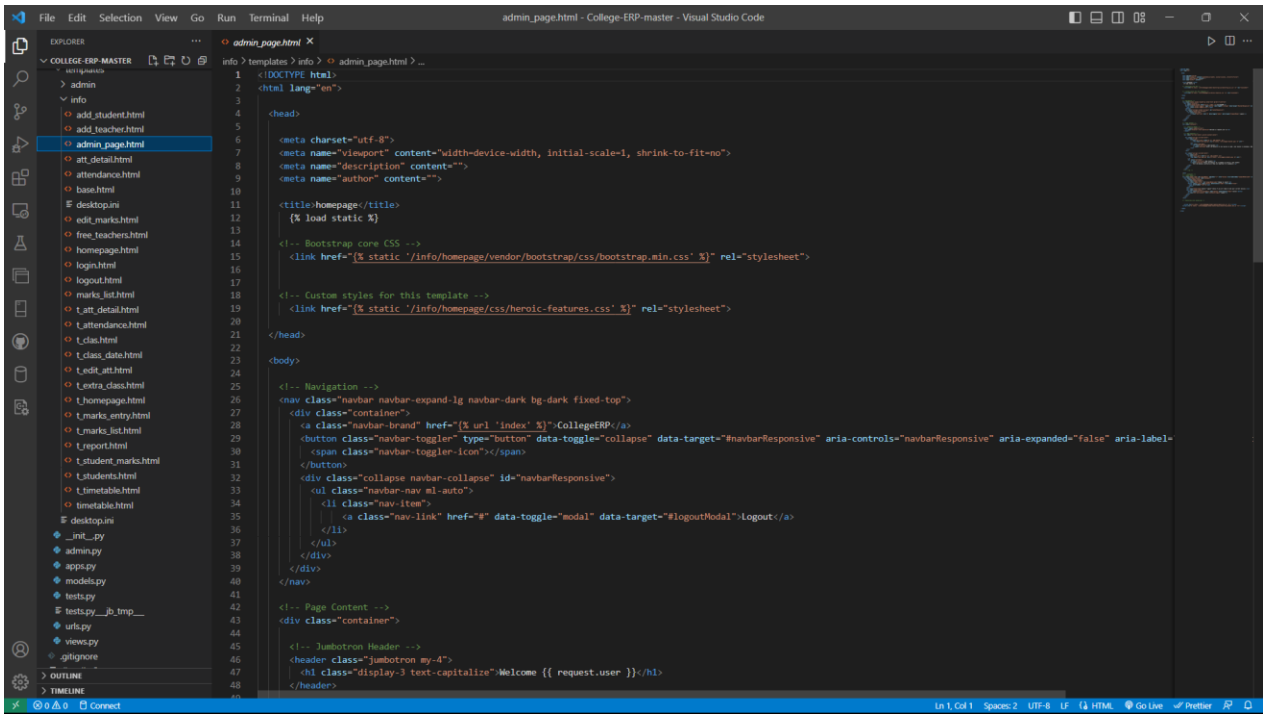
Homepage :



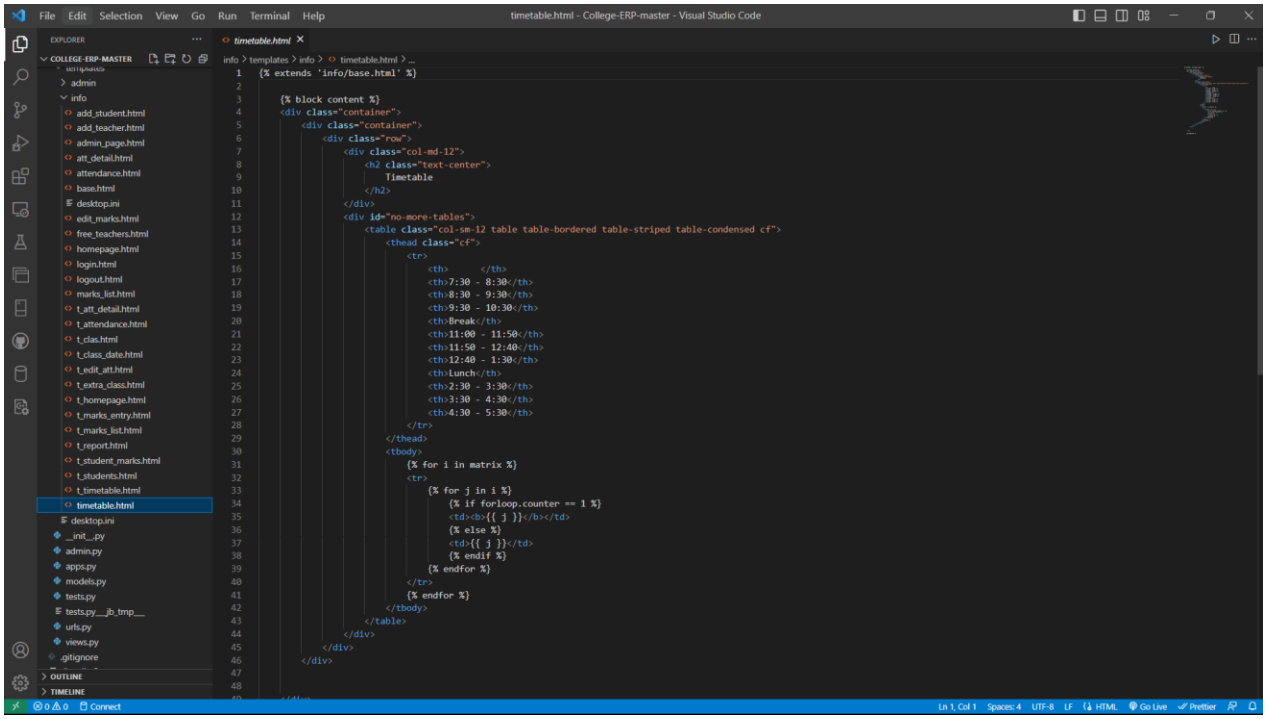
Attendance (Teacher) :



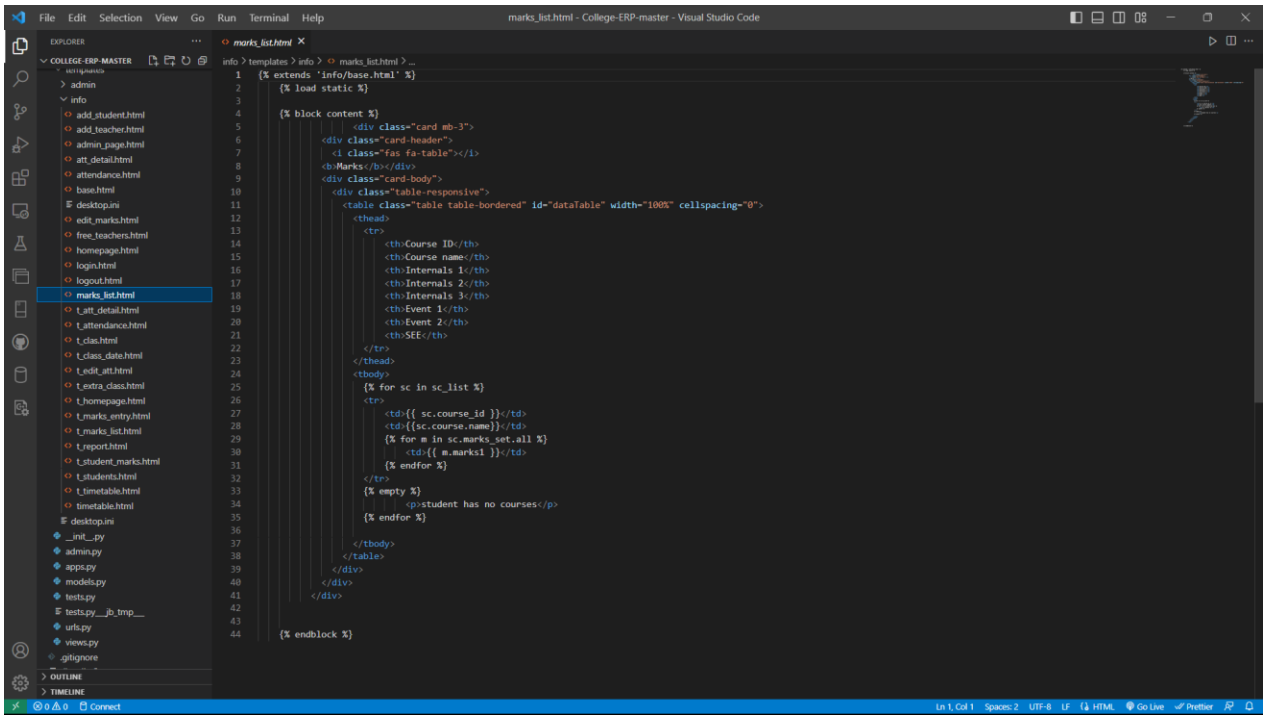
Admin Page :



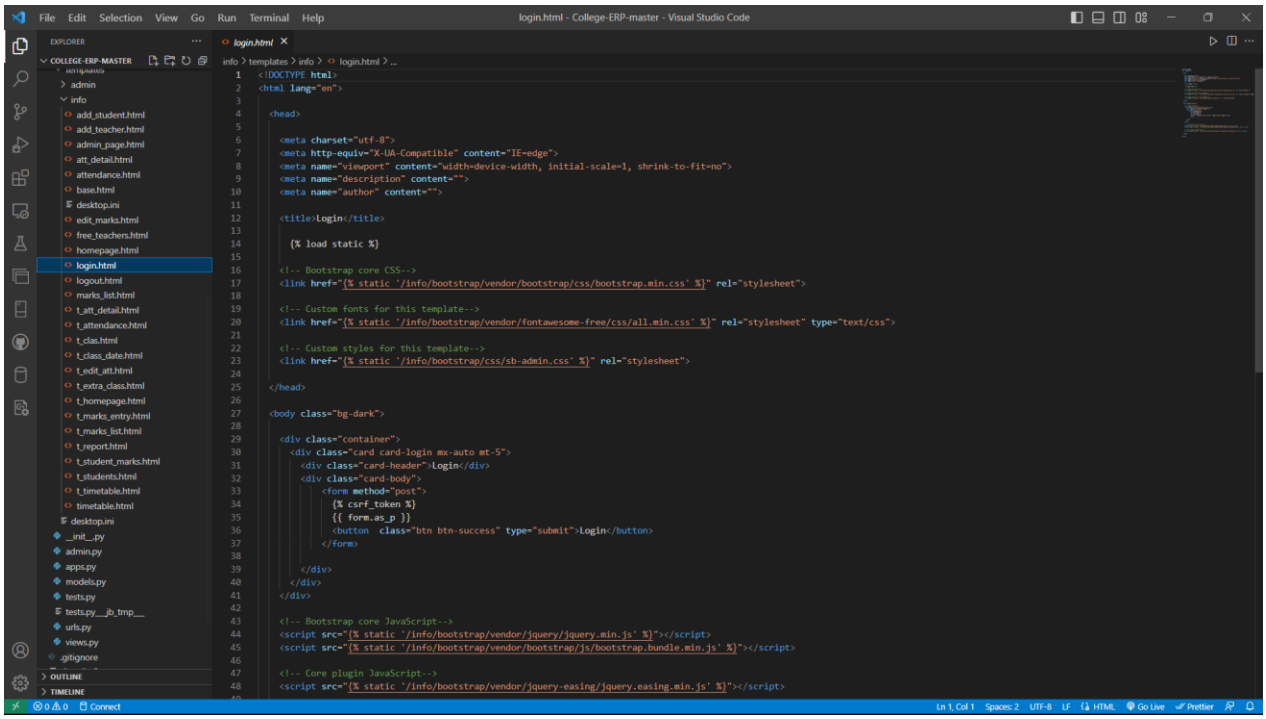
Timetable :



Marks (Student) :

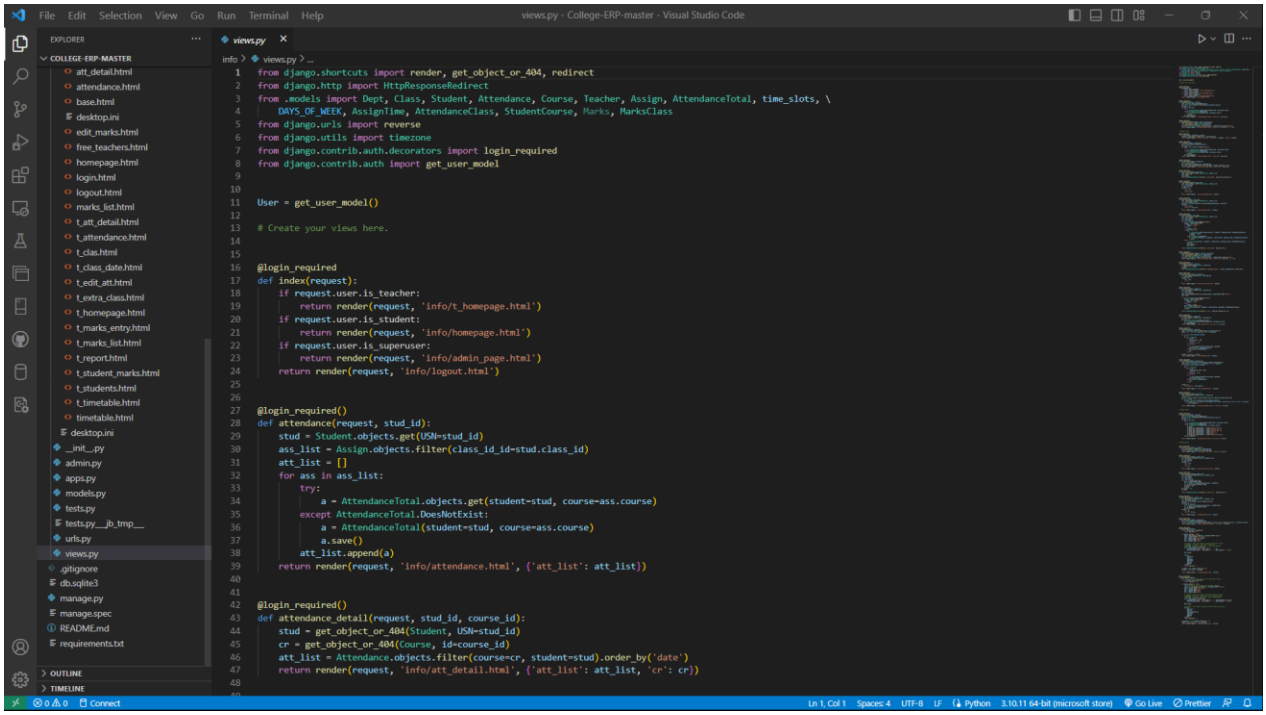


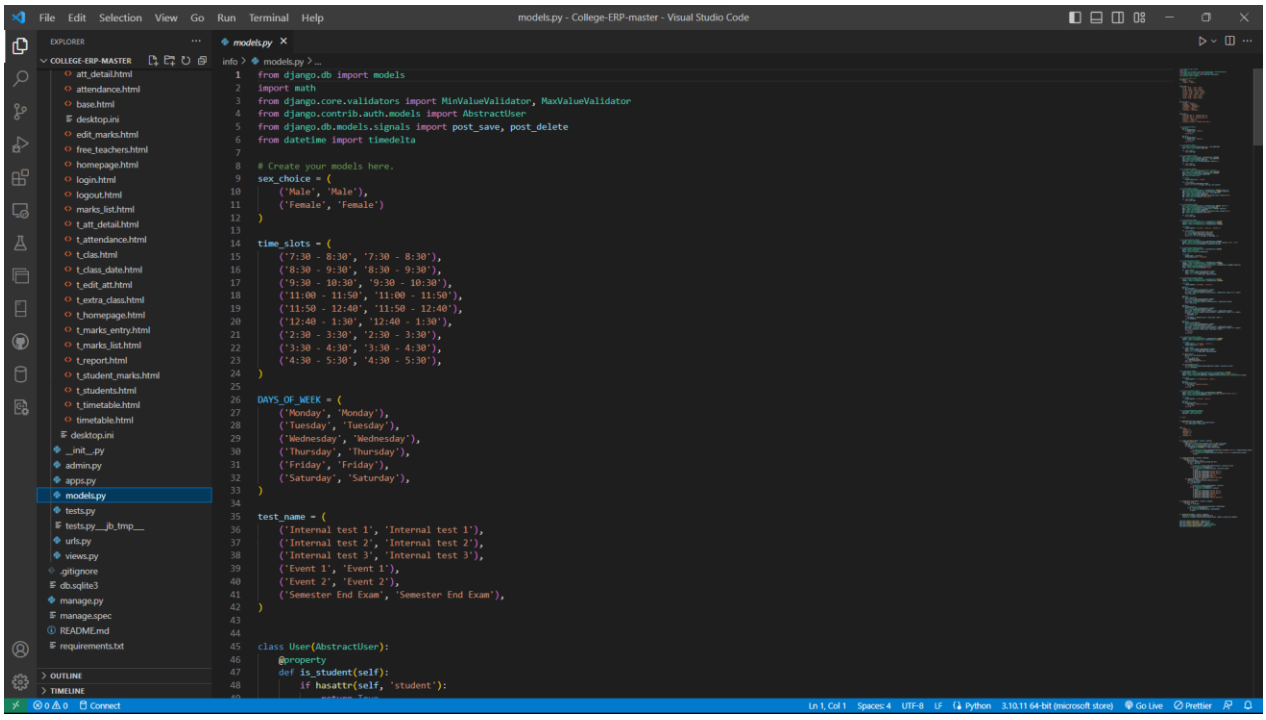
Login Page :



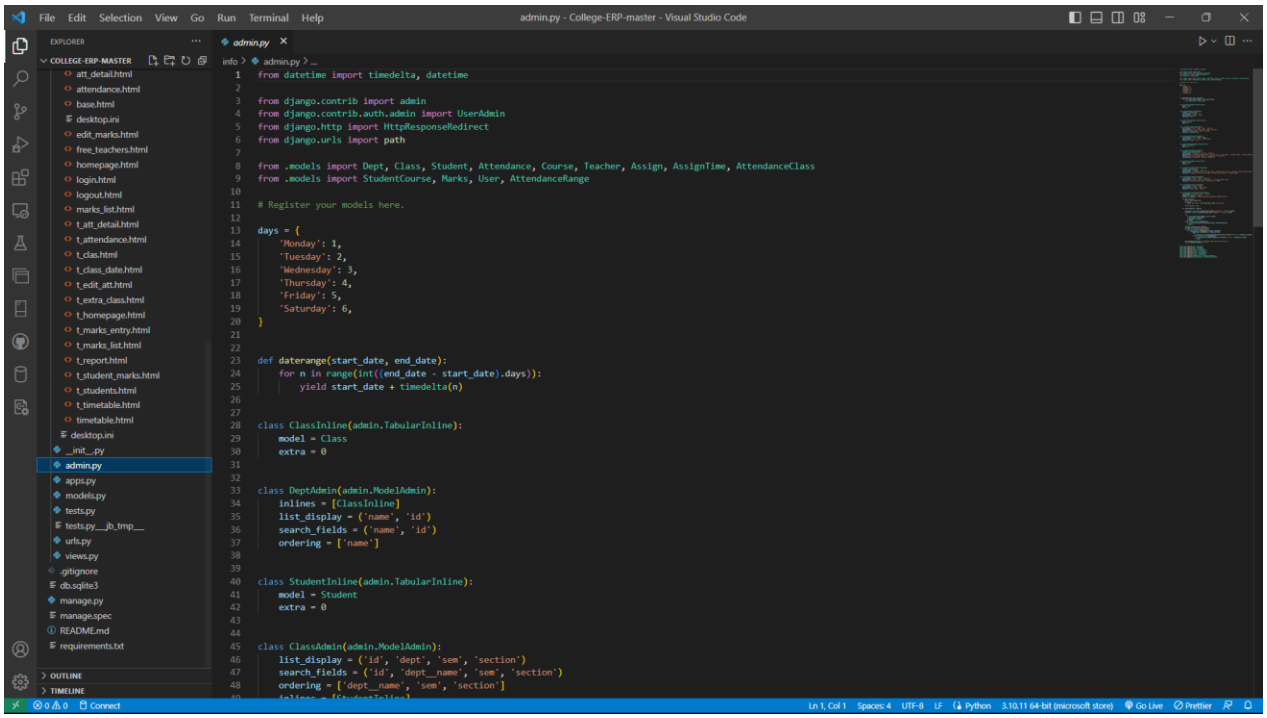
CODE FOR THE BACKEND

Creating Views :

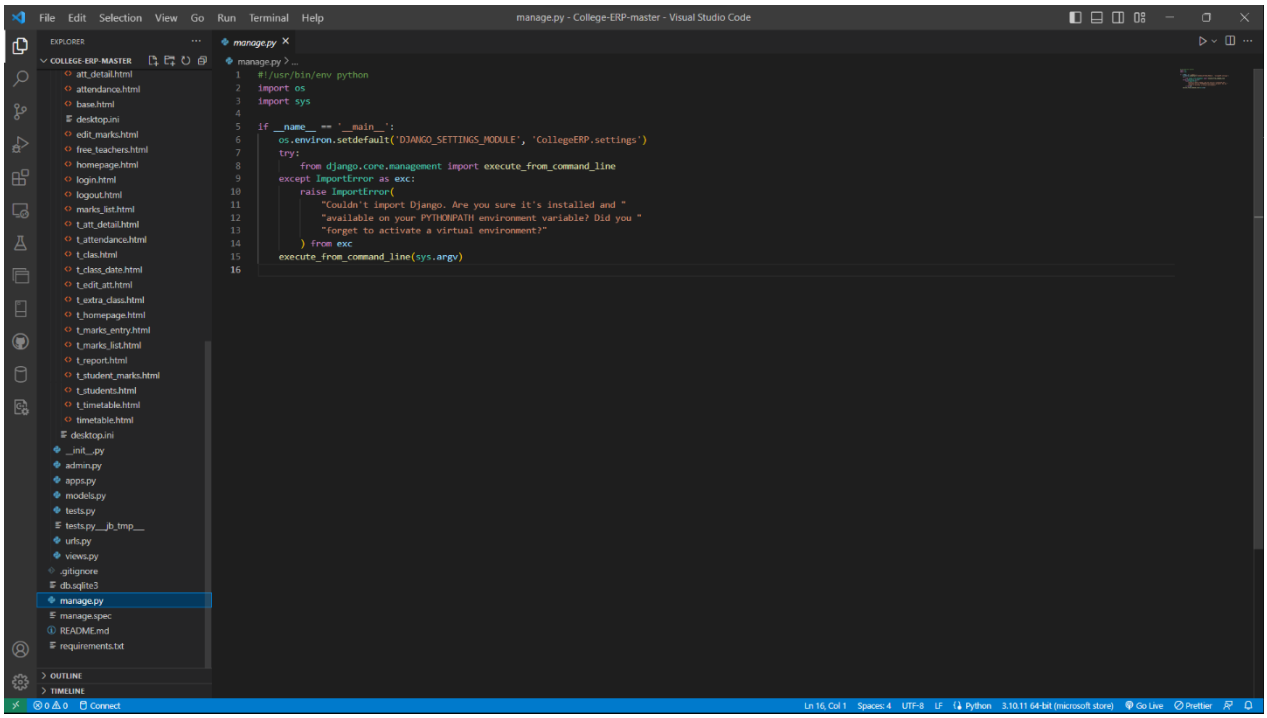




Admin Console :



Final Integration :



CONCLUSION

The College Management System Project Report aims to provide a comprehensive overview of the development and implementation of a college management system. Throughout the report, we have covered various aspects of the project, including the project's objectives, requirements analysis, system design, development, testing, and deployment.

The College Management System is a crucial tool for educational institutions to streamline and automate their administrative processes. By implementing this system, colleges can efficiently manage student information, course registration, attendance tracking, grade calculation, and other administrative tasks.

During the project, we conducted a thorough analysis of the system requirements to ensure that the developed solution meets the needs of the college and its stakeholders. The frontend of the system was designed with a focus on user experience, providing an intuitive and responsive interface for students, faculty, and administrators. The backend was developed to handle data processing, storage, and retrieval, implementing business logic, user authentication, and integration with external systems.

Throughout the development process, we followed industry best practices, such as modular and well-documented coding, version control, and collaboration between frontend and backend developers. We also emphasized security considerations, implementing measures to protect sensitive data and prevent unauthorized access.

In conclusion, the College Management System Project has successfully delivered an efficient and user-friendly solution for managing various aspects of college administration. The system streamlines processes, reduces manual effort, enhances data accuracy, and improves overall operational efficiency. With its implementation, the college can now effectively manage student information, academic records, and administrative tasks, leading to improved productivity and enhanced student and staff experience.

The successful completion of this project showcases the ability to design, develop, and implement a complex software solution while adhering to industry standards and best practices. The project team's dedication, collaboration, and technical expertise were key factors in achieving the desired outcomes.

As with any software project, there is always room for future enhancements and expansion. It is recommended to continue gathering user feedback, monitoring system performance, and incorporating new features and functionalities to further optimize and improve the College Management System.

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GITHUB LINK

https://github.com/sahil1402/College-Management-System