

A
PROJECT REPORT ON

ERP SYSTEM

FOR
Threeng Technology

SUBMITTED BY
OMKAR BABAR (2000)

SUBMITTED TO
SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE
IN PARTIAL FULFILLMENT OF DEGREE
MASTERS OF COMPUTER APPLICATION SEM – IV

UNDER THE GUIDANCE OF
Dr.Rupali Kalekar



Through

Zeal Education Society's

**Zeal Institute of Business Administration, Computer
Application & Research, Pune-41**

2022-2023





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**ZEAL INSTITUTE OF BUSINESS ADMINISTRATION,
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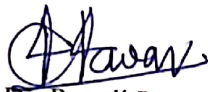
CERTIFICATE

This is to certify that the project report entitled, **ERP SYSTEM** for being submitted herewith for the internal work of the degree of **MASTER OF COMPUTER APPLICATION (SEM-IV)** to **Savitribai Phule Pune University, Pune** is the result of the original project work completed by **Omkar Babar** under my supervision and guidance and to the best of my knowledge and belief, the work embodies in this Project has not formed earlier the basis for the award of any Degree of similar title or any other University or examining body.

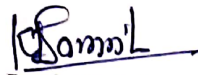
Date : 5 / 8 / 2023


Dr. Rupali Kalekar

Project Guide


Dr. Rupali Pawar

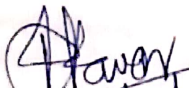
Project Coordinator

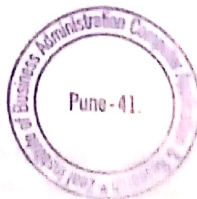

Prof. Kirti Samrit

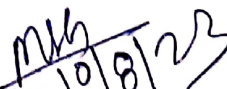
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Work Completion Certificate

This is to certify that Mr. Omkar Bharat Babar has successfully completed Project.

The work is Completed On 20-July-2023 successfully.

Thanking you and assuring you for our best services always

Name of Work/Project: ERP SYSTEM

Work Period 25-April-2023 To 20-July-2023

Regards,



Sheetal Gosavi
Founder, Threeng Techonologies

This is to certify that all works mentioned above been virtually completed in accordance with the specifications, provisions, and conditions of the period





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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Omkar Bharat Babar** was intern at Threeng Technologies LLP, Pune. As an Intern Software Developer from 24th April 2023 to 23rd Jul 2023

He worked good on Event Management mobile application during this period. We find it helpful in our application progress.

During the internship, he actively contributed to Software Development and exhibited professionalism, adaptability, and a willingness to learn. Their enthusiasm and positive attitude have made a significant impact on the overall success of the program

We wish him all the best in his future endeavor.

Regards,



Sheetal Gosavi
Founder, Threeng Techonologies



DECLARATION BY STUDENTS

To,
The Director,
ZIBACAR, Pune

I, undersigned hereby declare that this project entitled, **ERP SYSTEM** written and submitted by me to SPPU, Pune, in partial fulfillment of the requirement of the award of the degree of **MASTER OF COMPUTER APPLICATION (MCA-II) SEM-IV** under the guidance of **Dr. Rupali Kalekar**, is my original work.

I further declare that to the best of my knowledge and belief, this project has not been submitted to this or any other University or Institution for the award of any Degree.

Place: Pune

Date: 5 / 8 / 2023

Student Name


Omkar Babar

AKNOWLEDGEMENT

I extend my sincere gratitude to Honorable **Prof. Pandurang Patil**, Director of ZIBACAR. My special thanks to **Dr. Rupali Kalekar**, for allowing me to carry out the study and for his constant encouragement, valuable suggestions and guidance during the project work.

I extend my special thanks to **Dr. Rupali Kalekar, Dr. Rajesh Kashyap, Dr. Babasaheb Mohite, Dr. Madhavi Shamkuwar, Prof. Kirti Samrit, and Dr. Rupali Pawar** their kind cooperation and inspiration.

I extend my special gratitude to my dearest family members and friends who encouraged and motivated me to complete the project report.

Place: Pune

Student Name

Date: 5 / 8 / 2023


Omkar Babar



Chapter 1

Introduction

Introduction:

Enterprise Resource Planning (ERP) is college web application is the one kind of web application which integrates all the modules of college on a single system that can be handled by the admin and access by the students and faculties with their valid user id and password. The ERP System for College has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate the hardships faced by this existing system. Moreover, this system is designed for the particular need of the department to take away operations in a smooth and effective manner. The application is reduced to avoid errors while entering the data. The system can be used by users without any formal knowledge. It also gives message while entering valid and invalid data. Thus, by this all it shows it is user-friendly. It can lead to reliable, secure, error free and fast management system. In the dynamic and fast-paced world of higher education, colleges face numerous challenges in effectively managing their operations. Manual and fragmented systems often lead to inefficiencies, data inconsistencies, and a lack of coordination among different departments. A college ERP system addresses these challenges by integrating multiple functionalities into a unified software platform, providing a holistic view of the institution's activities.

The primary objective of a college ERP system is to enhance productivity, optimize resource allocation, and improve decision-making. By automating and centralizing administrative tasks, such as student management, course scheduling, fee collection, and payroll processing, the system eliminates redundant processes and minimizes errors. This allows college staff to focus more on strategic initiatives and providing high-quality education to students.

1.1 Client / Organization Profile:

- **Organization/Client Name** : Threeng Solution
- **Address:** 104, Sai Dwarka, ivy Estate Road ,Wagholi-412207
- **About client:** Designated Partners of Threeng Technologies Llp are Shital Sandeep Gosavi, Sapna Anandrao Patil and Dipti Mahesh Dhanwade. Threeng Technologies Llp's last financial year end date for which Statement of Accounts and Solvency were filed is N/A and as per records from Ministry of Corporate Affairs (MCA), date of last financial year end date for which Annual Return were filed is N/A. Threeng Technologies Llp's LLP Identification Number is (LLPIN)AAZ-0646. Its Email address is sandeep.gosavi@hotmail.com and its registered address is GAT No. 686/2,Flat No. 104, Sai Dwarka, Wagholi, Tal. Haveli NA Pune Pune Maharashtra 412207

1.2 Abstract

An Enterprise Resource Planning (ERP) system for colleges is a comprehensive software solution designed to streamline and automate various administrative and academic processes within an educational institution. It integrates multiple functionalities into a centralized platform, enabling efficient management of various departments, resources, and operations.

The abstract of a college ERP system includes the following key features and modules:

Student Management: This module focuses on student-related activities such as admission, enrollment, attendance tracking, grade management, and academic progress monitoring. It provides a centralized database for student records and facilitates communication between students, teachers, and administrators.

Course and Curriculum Management: This module assists in managing courses, subjects, and curriculum requirements. It allows administrators to define course structures, assign faculty, schedule classes, and track course progress. Students can access course catalogs, register for classes, and view their academic plans.

Financial Management: This module handles financial aspects like fee collection, payment tracking, and expense management. It generates invoices, tracks payment status, and provides financial reports for analysis and budgeting. It may also integrate with external financial systems for seamless accounting.

Human Resources and Payroll: This module streamlines HR processes, including employee recruitment, onboarding, attendance, leave management, and payroll processing. It maintains staff records, tracks employee performance, and ensures timely salary payments.

Library Management: This module enables efficient management of library resources, including book cataloging, circulation, reservations, and late fee tracking. It provides a searchable database for students and staff to access library materials and integrates with digital resources and e-books.

Examination and Grading: This module handles examination-related activities, including exam scheduling, seating arrangements, result processing, and report card generation. It automates grading processes, calculates GPA, and provides performance analysis for individual students and classes.

Communication and Collaboration: This module facilitates communication between students, teachers, parents, and administrators. It may include features such as announcements, messaging, discussion forums, and event calendars to ensure effective collaboration and information sharing.

Reporting and Analytics: This module provides comprehensive reporting capabilities to generate various academic and administrative reports. It allows administrators to analyze data, monitor performance metrics, and make data-driven decisions to improve institutional effectiveness.

Integration and Customization: A college ERP system can integrate with other existing systems such as learning management systems (LMS), email platforms, and student information systems (SIS). It also allows customization to meet the specific needs of the institution, such as adding new modules or configuring workflows.

Overall, a college ERP system aims to optimize administrative efficiency, enhance communication and collaboration, improve student services, and provide actionable insights for decision-making within the educational institution.

1.3 Existing System & Need for System:

Existing system:

In Existing System mode of working is based on manual system in which the all the data is first received from respective personnel and then entered in the registers or files. It is very complex job and time consuming also. The existing system is also dependent on students, if the students are absent. Then performance of student will be affected. Due to huge volume of data, a lot of problems are involved in maintaining, updating and retrieving selected information. Since previous system is totally maintained manually, some of the difficulties involved in existing system are as follows: -

- Redundancy of data.
- Difficulty in updating the data.
- Non-centralized data.
- Delay in retrieving information.
- Problem for keeping the data.
- Not proper retrieval of information

Need for system:

An ERP software can help you streamline your school's operations and make them more efficient and productive. The software can automate tasks such as grading, scheduling, Fee management etc. This automation can free up time for teachers and administrators to focus on more important tasks. Current System of college working with traditional approach has problems of interlinking and data repetition. Colleges have to structure their academic activities as well as manage their campus management and administration process. It's important that Colleges should not get tangled in administrative work for long time rather they should focus on planning their academic activities. Every year thousands of students apply for taking admission in various colleges. Imagine the number of inquiry forms and admission forms that colleges have to manage. Every form contains critical

information about the students and should be kept safe and in order.

1.4 Scope of System

College management is becoming a very essential component in education in this modern-day age. With the help of College Automation System, we can gather all the useful information needed to the management in few clicks. The College ERP system now computerizes all the details that are maintained manually. Once the details are fed into the system or computer there is no need for various persons to deal with separate sections. Only a person is enough to maintain all the reports and records. The security can also be given as per the user requirement.

1.5 Operating Environment

Hardware Specification of machine used

➤ **Hardware at Client Side:**

- Processor: intel / Ryzen
- RAM: 4 GB
- Memory: At least 20 GB free memory on disk
- Monitor: Any 14" or bigger
- Hard disk: 50Gb or above

➤ **Hardware at Server Side:**

- Processor: Ryzen 5 Hexa Core 5500U
- RAM: 8Gb
- CPU speed :3.0 GHz
- Memory: At least 120 GB free memory on disk
- Hard disk: 50 or above

Software Used

➤ Software at Client Side:

- Operating system: Windows /Linux, Mac etc.
- Web Browser: Internet Explorer / Mozilla Firefox / chrome / Microsoftedge

➤ Software at Server Side:

- OS: Windows 11
- Web Browser: chrome 102.0.5005.63
- Database: SQLite – 3.7.13
- Front End: HTML-4, CSS-3, JAVASCRIPT- 1.8.5
- Back End: Django 4.1.3, python-3.10,

1.2 Brief Description of Technology Used:

1.6.1 operating system used (windows 11):

Windows Stands for Wide Interactive Network Development for Office Work Solution. Windows is one of the most common operating systems that run on personal computers, tablets, and smartphones. Microsoft introduced an operating system named Windows on November 20. Microsoft Windows, also known as Windows and Windows Operating System developed by Microsoft Corporation to run personal computers (PCs). Microsoft choose "Windows" because multiple windows that allow different tasks and programs that run at the same time. Windows 11 is the latest major released version of Microsoft's Windows NT operating system, released in 2021. It is free upgrade to its previous version, Windows (2015), available for new Windows 10 devices that meets to new requirements of Windows 11 system.

The key five basic function of any windows are as following:

7 new features included in Windows 11:

- A new, more Mac-like interface. ...
- Integrated Android apps. ...
- Widgets. ...
- Microsoft Teams integration. ...
- Xbox tech for better gaming. ...
- Better virtual desktop support. ...
- Easier transition from monitor to laptop, and better multitasking.

1.6.2 RDBMS / SQLite / used to build database (SQLite / oracle / Teradata etc.):

- **JavaScript:**

JavaScript is used by programmers all over the world to create dynamic and interactive web content like browsers and applications. JavaScript is popular that it's the most used programming language in the world, used as a client-side programming language throughout of all websites. JavaScript is a text-based programming language used both on the client-side and server-side that allows you to create web pages interactive. HTML and CSS are languages that give structure and style to web pages, JavaScript gives web pages elements that engage a user. JavaScript is a very powerful tool that can do lots of things for a website.

- **Html:**

HTML (Hyper Text markup language) for document designed to show in web browser. Web pages combine to form a website. A website is a collection lots of different web pages. We use specific coding to create each page. So, there are three main components of a web page. First one, we consider HTML. Second one, JavaScript and last one, CSS. All these components are very important to develop a web. if any One without the other is something incomplete. if we see the importance and the power of HTML, we see that HTML, is capable to deal with text.

- Defines the size of the text.
- Defines the shape/ font style of the text.
- Aligns the text in different portions/ Directions.
- Arranges the text in tabular form.
- Refers page viewers to the next page.
- Supports images so, you can display them on the web page.
- Supports videos too.
- With the help of Java, it performs calculations and
- Performs conditional tasks.

- **CSS:**

CSS (Cascading Style Sheets) is the language for the presentation of Web pages, including colors, layout, and fonts etc. It allows to the presentation to different types of devices, such as large screens, small screens, or printers. CSS language is independent on HTML and can be used with any XML-based markup language. A web design is the soul of a website without CSS webpage like a skeleton. CSS plays the important role in a website's performance and success. This is the reason why web developers pay more attention to business web design. A perfect web design ensures better traffic and search engine ranking for a website. CSS or cascading style sheets have made the create of webpages a lot easier. CSS allows you to easily link to other documents in a website and with the help of CSS, you can have a control all over the various elements in different web pages of your website. CSS only define the structure and content to presentation of a website. It has nothing to do with the design of a website. You can control the webpage font, positioning, color and style of an entire website with the help of a single CSS sheet.

Some of the advantages of using CSS are:

- **Quick loading and less bandwidth:** The important reason why CSS is preferred by web developers is because it is lighter than the table layout which consumes a lot of bandwidth. The style sheet is loaded only once and it is stored in the cache memory. This way the subsequent webpages load faster.
- **Multiple Browsers Compatible:** CSS is interacted with all web browsers. Therefore, a website based on CSS will appear as same in all the web browsers.
- **Ability to position elements anywhere:**

With CSS, you can assist the elements position to anywhere in the web page. also, you can ask the developer to change the position of a particular element if it does not go well with the way, you had wanted it to be in website.

- **Print friendly web pages:** Another feature of CSS is that it provides print friendly web pages means the web pages can be easily printed. The colors, images and other things which are difficult to print, CSS can be eliminated all those things and printed easily.
- **Customization:** CSS sheets give the rights the users to customize the web page. A number of browsers give the liberty of defining their own style sheets to the users. Thus, a user can change font properties easily.
- **Portability:** CSS also give portability to the content. With the help of CSS style, you can create separate style sheets for different media. That way the content can be presented in a flexible way. It also allows you to re-define the characteristics of elements in a website to the need of the situation. Therefore, it can be said that CSS plays a very important role in a web design. CSS contributes in making it simple, good looking and user-friendly website.

- **SQLite:**

SQLite is an open-source structured query language (SQL) relational database management system from Oracle, which is most popular for retrieve and managing the records in database. In relational database, the data is stored in smaller storage areas called tables. This makes it easy to locate the data you need, but more importantly, it helps to organize data.

For example, let's say you store data what your customer recently bought and also their contact information. It's pretty basic stuff that you would be expected to store. In SQLite, each of these data would be stored in a separate table. Thus, you could examine the table then you want to get the information you need. If it was not a relational database, then both part of data would be stored in the same location in SQLite. First, this makes it very difficult to find the data you are looking for. And secondly, there would be a lot of duplicate information taking up space in database. This makes relational databases very efficient overall in SQL. You can also view multiple part of data by using a key. key allows you to take data related to from multiple tables. The key is the unique ID assigned to that part of data. So, for example, let's say you want to view Prakash contact information and shopping details. then, you would take his unique key ID number, and you would

pull up all data related to it in another table. It should be relatively clear why SQL is important when we creating a website. SQL determines the speed of when different things load on your website and how fast you can access that stored data in site. It has a direct impact on website performance, which makes it an integral part of web design and Speed is always king after all. If your database is not optimized, it makes it hard to find the information you are looking for, it takes up larger amounts of space due to duplicate data, and slow down your website. This is why many developers will use a tool that allows them to see all of the requests to the database in real-time. If That way, the moment a request does not go through, then the developer can see what is causing the issue exactly. So, SQL allows users to diagnose problems within the database and improve loading times throughout their websites.

- **Bootstrap:**

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. Bootstrap is an HTML, CSS & JS Library that focuses on simplifying the development of informative web pages (as opposed to web apps). The primary purpose of adding it to a web project is to apply Bootstrap's choices of color, size, font and layout to that project.

Why to use Bootstrap?

- It is Faster and Easier way for Web-Development.
- It creates Platform-independent web-pages.
- It creates Responsive Web-pages.
- It designed the responsive web pages for mobile devices too.
- It is Free and open-source framework.

▪ **Python:**

Python is general-purpose, open source, high-level programming language, interpreted, object-oriented programming language and provides number of libraries and frameworks. Python was created by Guido Van Rossum in Netherlands in 1990 which was named after the popular British comedy Monty Python's Flying Circus. It was mainly developed for writing and presenting code in such a way that it can be easily understood. Python has its syntax which allows programmer to express their concepts in few lines of code. Python is also flexible and widely used in every technical field, such as Machine Learning, Artificial Intelligence, Web Development, Mobile Development, Desktop Development, etc.

Python is very popular because of its simplicity, easy syntax and user-friendly environment.

Django:

Django is a high-level Python web framework that enables rapid development of secure and maintainable websites. Built by experienced developers, Django takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It is free and open source, has a thriving and active community, great documentation, and many options for free and paid-for support.

Versatile

Django can be (and has been) used to build almost any type of website — from content management systems and wikis, through to social networks and news sites. It can work with any client-side framework, and can deliver content in almost any format (including HTML, RSS feeds, JSON, and XML). Internally, while it provides choices for almost any functionality you might want (e.g., several popular databases, templating engines, etc.), it can also be extended to use other components if needed.

Secure

Django helps developers avoid many common security mistakes by providing a framework that has been engineered to "do the right things" to protect the website automatically. For example, Django provides a secure way to manage user accounts and passwords, avoiding common mistakes like putting session information in cookies where it is vulnerable (instead cookies just contain a key, and the actual data is stored in the database) or directly storing passwords rather than a password hash.

Chapter 2

Proposed System

2.1 Proposed System :

Each teacher in the college is assigned a unique username and password by the administrator. The username is their teacher ID and the same for password. The teacher may change the password later.

- The proposed system will be a web-based application.
- The system will store the details of student and teachers.
- The software is user -friendly software.
- The system will be very simple in design and to implement.
- The system will require very low system resources and the system will work in almost all configurations.

Attendance:

There is a list of all the class assigned to teacher. So, for each class there are 3 actions available. They are,

- Enter Attendance
- Edit Attendance
- Student Attendance details

Marks:

On this page, the list of classes assigned to the teacher are displayed along with two actions for each class. These actions are,

- Enter Marks
- Edit marks

2.2 Feasibility Study :

As the name implies, a feasibility analysis is used to determine the viability of an idea, such as ensuring a project is legally and technically as well as economically justifiable. It tells us whether a project is worth the investment in some cases, a project may not be doable.

There can be many reasons for this, including requiring too many resources, which not only prevents those resources from performing other tasks but also may cost more than an organization would earn back by taking on a project that isn't profitable. A well-designed study should offer a historical background of the business or project, such as a description of the product or service, accounting statements, details of operations and management, marketing research and policies, financial data, legal requirements, and tax obligations. Generally, such studies precede technical development and project implementation

Types of Feasibility Study.

Technical Feasibility:

Technical feasibility assesses the practicality and compatibility of implementing the e-commerce website from a technical standpoint. Consider the following factors:

- a. **Infrastructure:** Evaluate the required hardware, software, and network infrastructure to support the website. Assess if your existing resources are sufficient or if additional investments are needed.
- b. **Development and Maintenance:** Analyze the technical expertise and resources required for website development, customization, and ongoing maintenance. Consider factors like programming languages, content management systems, hosting options, and security measures.
- c. **Scalability:** Determine if the website infrastructure can handle increasing traffic, transactions, and data volumes. Assess if the platform can be easily scaled to accommodate future growth and evolving customer needs.
- d. **Integration:** Consider the need for integrating with other systems or third-party services, such as payment gateways, inventory management, shipping providers, or customer relationship management (CRM) systems.

Economic Feasibility:

Operational feasibility focuses on evaluating the practicality and effectiveness of running the e-commerce website on a day-to-day basis. Consider the following aspects:

- a. **Staffing and Skills:** Determine the required staffing levels and skill sets to operate the website effectively. Evaluate if existing personnel can handle the tasks or if additional hiring or training is necessary.
- b. **User Experience:** Consider factors such as website responsiveness, search functionality, product categorization, and checkout process optimization.
- c. **Customer Support:** Determine the support channels and processes for handling customer inquiries, complaints, and returns. Evaluate if your existing support infrastructure can meet the demands of an e-commerce website or if additional resources or outsourcing are needed.

Operational Feasibility:

Economic feasibility assesses the financial viability of the e-commerce website.

Consider the following factors:

- a. **Cost Analysis:** Evaluate the costs associated with website development, hosting, maintenance, marketing, staffing, and other operational expenses. Calculate the initial investment required and the ongoing costs to determine if the expected revenue can cover these expenses.
- b. **Revenue Generation:** Analyze the potential revenue streams, such as product sales, advertising, subscriptions, or commissions. Estimate sales volumes, profit margins, and customer acquisition and retention rates to project the expected revenue and profitability.
- c. **Return on Investment (ROI):** Calculate the expected ROI and payback period for the e-commerce website.

2.3 Objective Of System :

The main aim of developing the current project entitled –COLLEGE ERP|| is to build effective system which is fast, accurate, consistency, reliable and flexible enough so thatit can incorporate any future enhancements.

- To provide a user-friendly interface and powerful data system.
- To computerizes all the details of the college.
- To reduce the human paper work on demand and update data.
- To manage the information of student and college.
- To improve the editing, adding and updating records.
- To provide information and description of the parts (components).
- To avoid the data redundancy of client and parts.
- To generate reports of the all data of users in details.
- To save all the service record accurately and computerized.
- To provide a user friendly and easy to understand website.
- To design a system that replaces paper-based manual system for user who workmanually on writing and keeping the records in hard copies or in files.

2.4 Users of System

➤ **Teachers:**

- Profile Setting
- Change Password
- Add Student data
 - Student mark
 - Student Attendance
- Sign-out

➤ **Student:**

- Profile
- Change Password
- Check attendance
- Check marks
- Sign-out

➤ **Administrator:**

- Profile
- Change all info / data
- Full access of system

Chapter 3

Analysis And Design

3.1 System Requirements (Functional and Non-Functional)

FUNCTIONAL REQUIREMENT

- Each user shall be able to view information in the database based on their user class.
- The administrator shall be able to view all the information in the database.
- Teachers shall be able to view, update and edit the attendance and marks of the students, part of their class.
- Teacher shall be able to take extra classes, switch classes with other teachers.
- Students shall be able to communicate with their teachers by sending personal messages.
- Students shall be able to communicate with other students through a forum section.

Non-Functional Requirements:

Safety requirements:

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed-up log, up to the time of failure.

Security requirements

The database contains sensitive information of all the students and staff. Therefore, optimal security measures must be taken to ensure data is safe from unauthorized users.

Software Quality Attributes

Availability: The users must always be able to view their information so that they can keep track regularly.

Correctness: The information about attendance and marks must be correct to not feed wrong information to the users.

portability: The users access the ERP from various platforms such as desktops and mobile phones. The webapp must be portable to all platforms and the user experience must be optimal.

System Design

Various Design concepts and processes were applied to this project. Following concepts like separation of concerns, the software is divided into individual modules that are functionally independent and incorporates information hiding. The software is divided into 3 modules which are students, teachers and administrators. We shall look at each module in detail.

Student

Each student belongs to a class identified by semester and section. Each class belongs to a department and are assigned a set of courses. Therefore, these courses are common to all students of that class. The students are given a unique username and password to login. Each of them will have a different view. These views are described below.

- Student information

Each student can view only their own personal information. This includes their personal details like name, phone no, address etc. Also, they can view the courses they are enrolled in and the attendance, marks of each of those.

- Attendance information

Attendance for each course will be displayed. This includes the number of attended classes and the attendance percentage. If the attendance percentage is below a specified threshold, say 75%, it will be marked in red otherwise it will be in green. There will also be a day wise attendance view for each course which shows the date and status. This will be presented in a calendar format.

- Marks information

There will be 5 events and 1 semester end examination for each course. The marks for each of these will be provided in the ERP system.

- Notifications and events

This section is common to all students. Notifications are messages from the admin such as declaration of holidays, test time-table etc. The events and their details are specified here.

Teacher

Each teacher belongs to a department and are assigned to classes with a course. Teachers will also have a username and password to login. The different views for teachers are described below.

Information

The teachers will have access to information regarding the courses and classes they are assigned to. Details of the courses include the credits, the syllabus plan. Details of the class include the department, semester, section and the list of students in each class. The teacher will also have access to information of students who belong to the same class as the teacher.

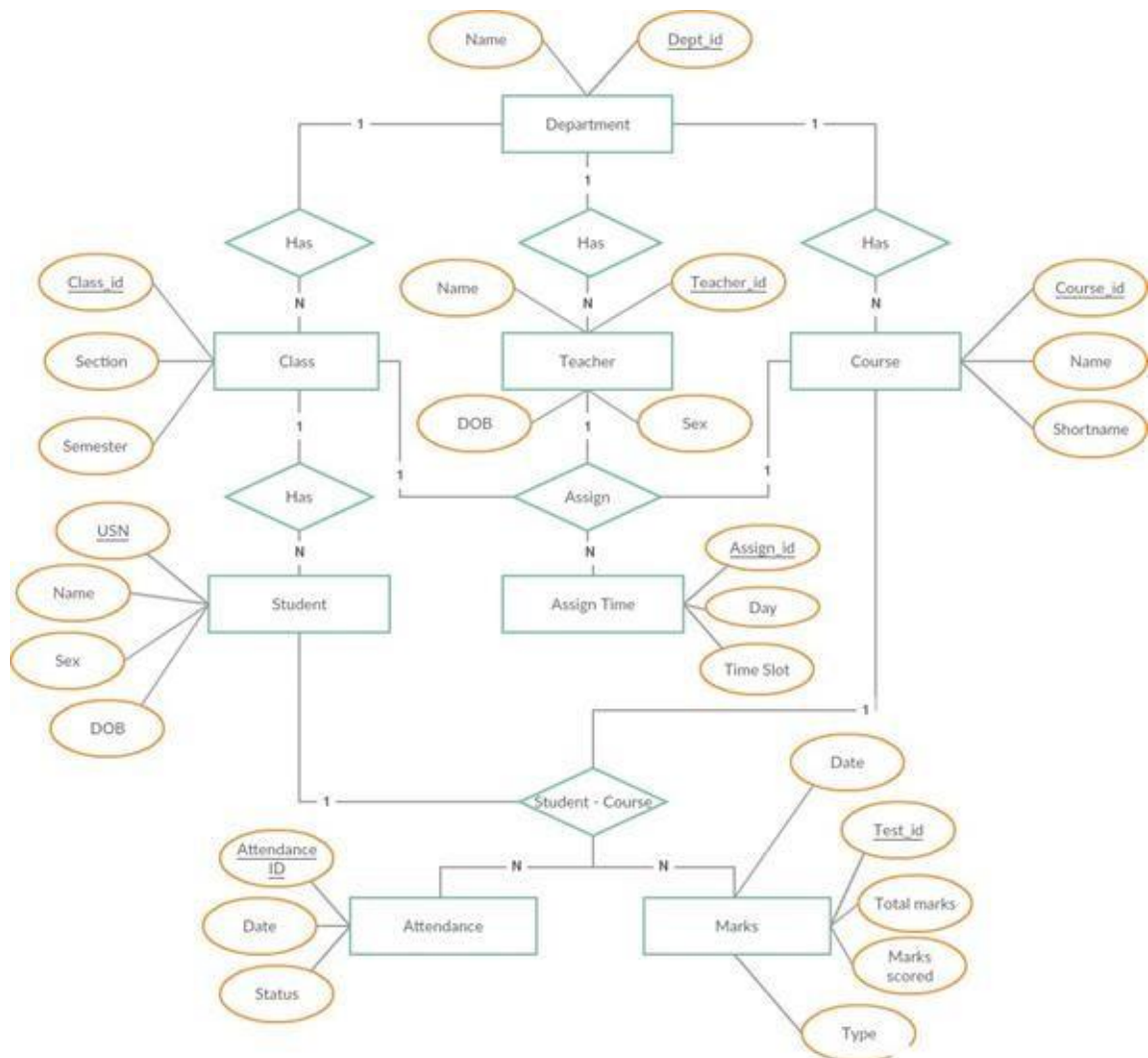
Attendance

The teacher has the ability to add and also edit the attendance of each student. For entering the attendance, they will be given the list of students in each class and they can enter the attendance of the whole class on a day-to-day basis. There will be two radio buttons next to each student name, one for present and the other for absent. There will also be an option for extra classes. Teachers can edit the attendance of each student either for each student individually or for the whole class.

Marks

The teacher can enter the marks for the 5 events and 1 SEE for each course they are assigned. They also have the ability to edit the marks in case of any changes. Reports such as the report card including all the marks and CGPA of a student can be generated.

3.2 Entity Relationship Diagram For College ERP:



3.3 Table Structure:

3.3.1 Data Dictionary :

Field Name	Type	Description	Constraint
age	Int (11)	age	
College_yr	Int (11)	College year	
Contact_add	VARCHAR (255)	Contact address	
Course_desc	VARCHAR (255)	Course description	
Course_id	Int	Course id	Primary key
Course_name	VARCHAR (255)	Course name	
Day	Date	Day of schedule	
fname	VARCHAR (255)	first name	
gender	VARCHAR	gender	
lname	VARCHAR (255)	last name	
Name	Varchar (255)	Subject name	Name
Sched_id	Int (11)	Schedule id	Primary key
Stud_email	VARCHAR (255)	Student email id	
Stud_ID	Int (11)	student id (unique)	Primary key
Stud_pass	VARCHAR (255)	Student password	
Teach_email	VARCHAR (255)	Teacher email	
Teach_id	Int (11)	Teacher id	Primary key
Time_end	Time	Ending time	
Time_start	Time	Starting time	
Trans_date	Date	Transaction date	
Trans_id	Int (11)	Transaction id	Primary key
Trans_name	Varchar (255)	Transaction name	

3.3.2 Table Specification (Database) :

Table1: Student

Field Name	Type	Description	Constraint
Stud_ID	Int (11)	student id (unique)	Primary key
fname	VARCHAR (255)	Student first name	
lname	VARCHAR (255)	Student last name	
gender	VARCHAR	Student gender	
age	Int (11)	Student age	
Contact_add	VARCHAR (255)	Contact address	
Stud_email	VARCHAR (255)	Student email id	
Stud_pass	VARCHAR (255)	Student password	

Table 2: Teacher

Field Name	Type	Description	Constraint
Teach_id	Int (11)	Teacher id	Primary key
fname	VARCHAR (255)	Teacher first name	
lname	VARCHAR (255)	Teacher last name	
Gender	VARCHAR (255)	Teacher gender	
age	Int (11)	Teacher age	
Contact_add	VARCHAR (255)	Contact address	
Teach_email	VARCHAR (255)	Teacher email	

Table 3: Course

Field	Type	Description	constraint
Course_id	Int	Course id	Primary key
Course_name	VARCHAR (255)	Course name	
Course_desc	VARCHAR (255)	Course description	
College_yr	Int (11)	College yeat	

Table name: Subject

Field	Type	Description	constraint
Sub_id	Int (11)	Subject id	Primary key
Name	Varchar (255)	Subject name	
Course_id	Int (11)	Course id	Foreign key

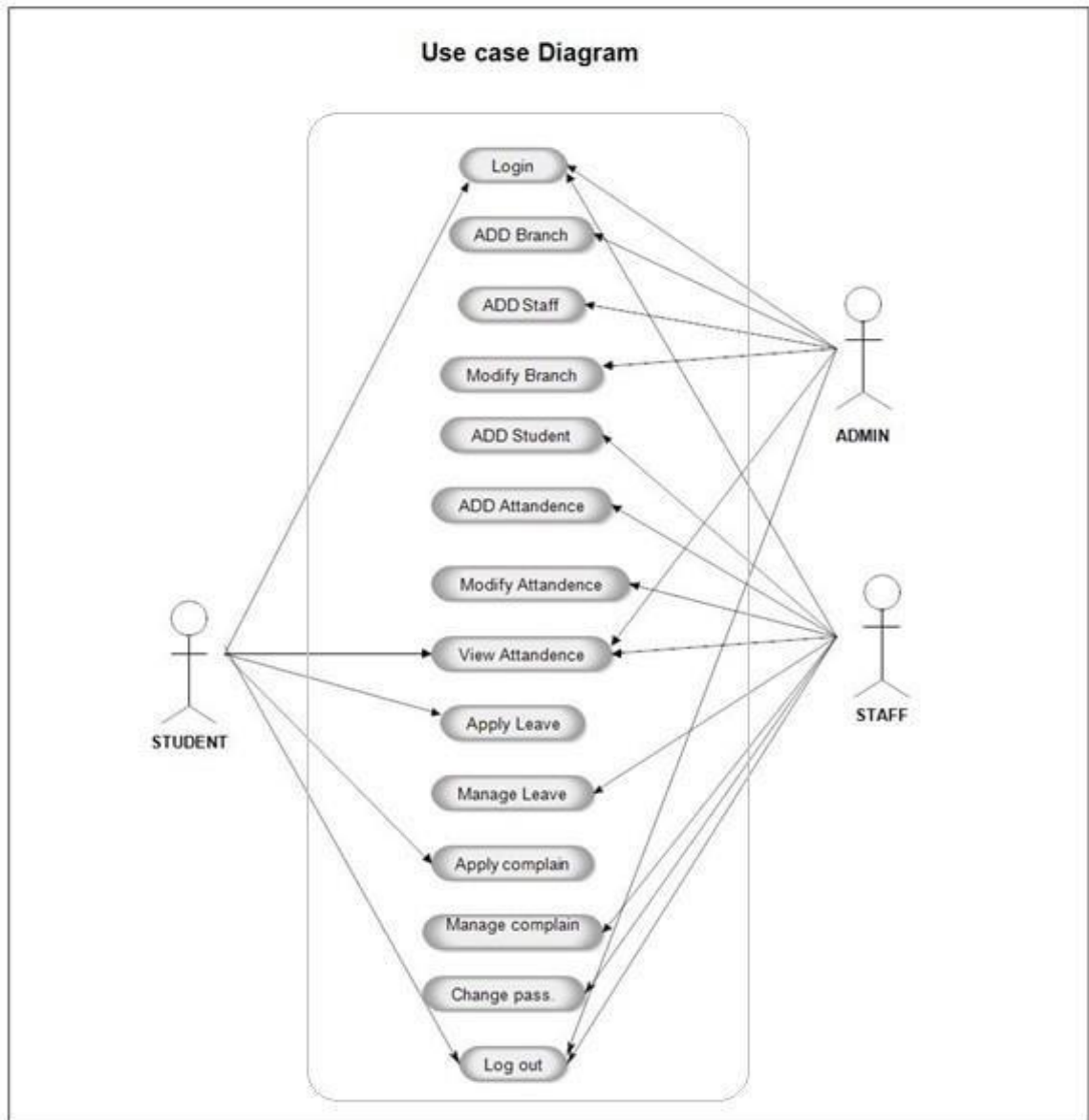
Table name: Schedules

Field	Type	Description	constraint
Sched_id	Int (11)	Schedule id	Primary key
Course_id	Int (11)	Course id	Foreign key
Sub_id	Int (11)	Subject id	Foreign key
Teach_id	Int (11)	Teacher id	Foreign key
Stud_id	Int (11)	Student id	Foreign key
Day	Date	Day of schedule	
Time_start	Time	Starting time	
Time_end	Time	Ending time	

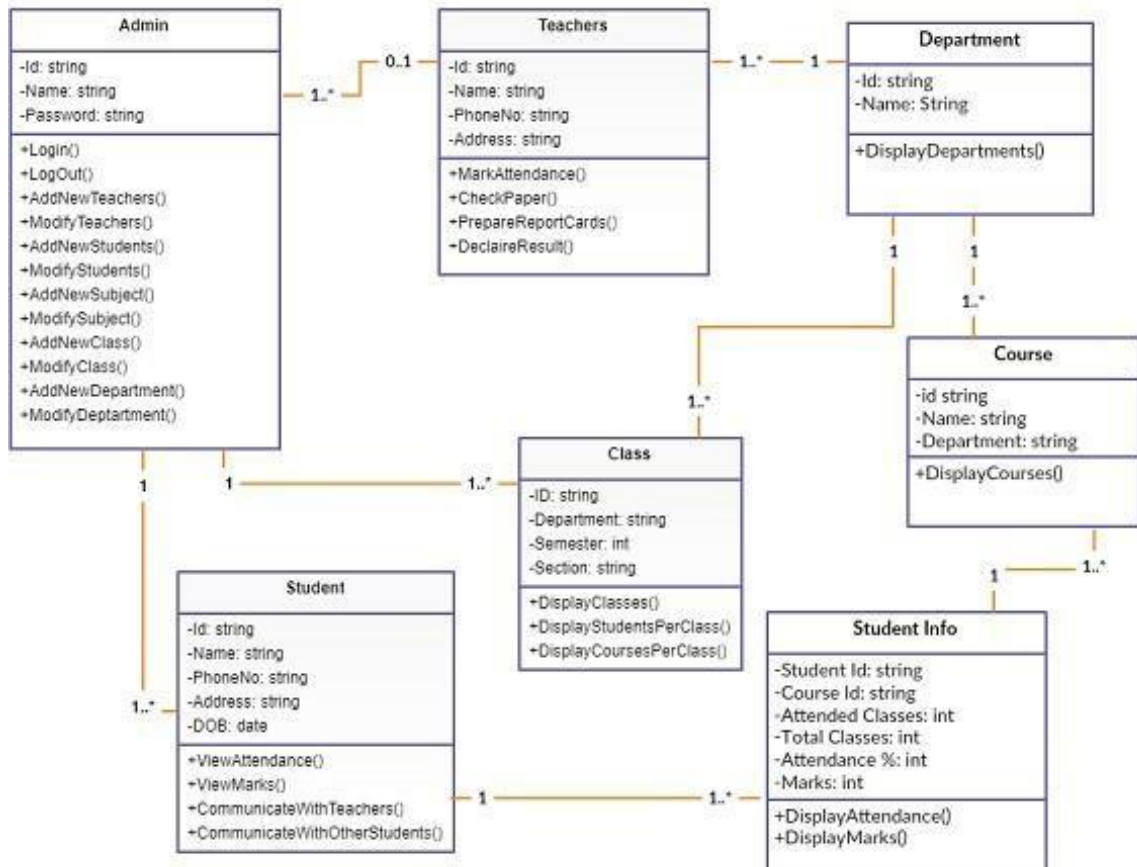
Table name: Transaction

Field	Type	Description	constraint
Trans_id	Int (11)	Transaction id	Primary key
Trans_name	Varchar (255)	Transaction name	
Stud_id	Int (11)	Student id	Foreign key
Trans_date	Date	Transaction date	

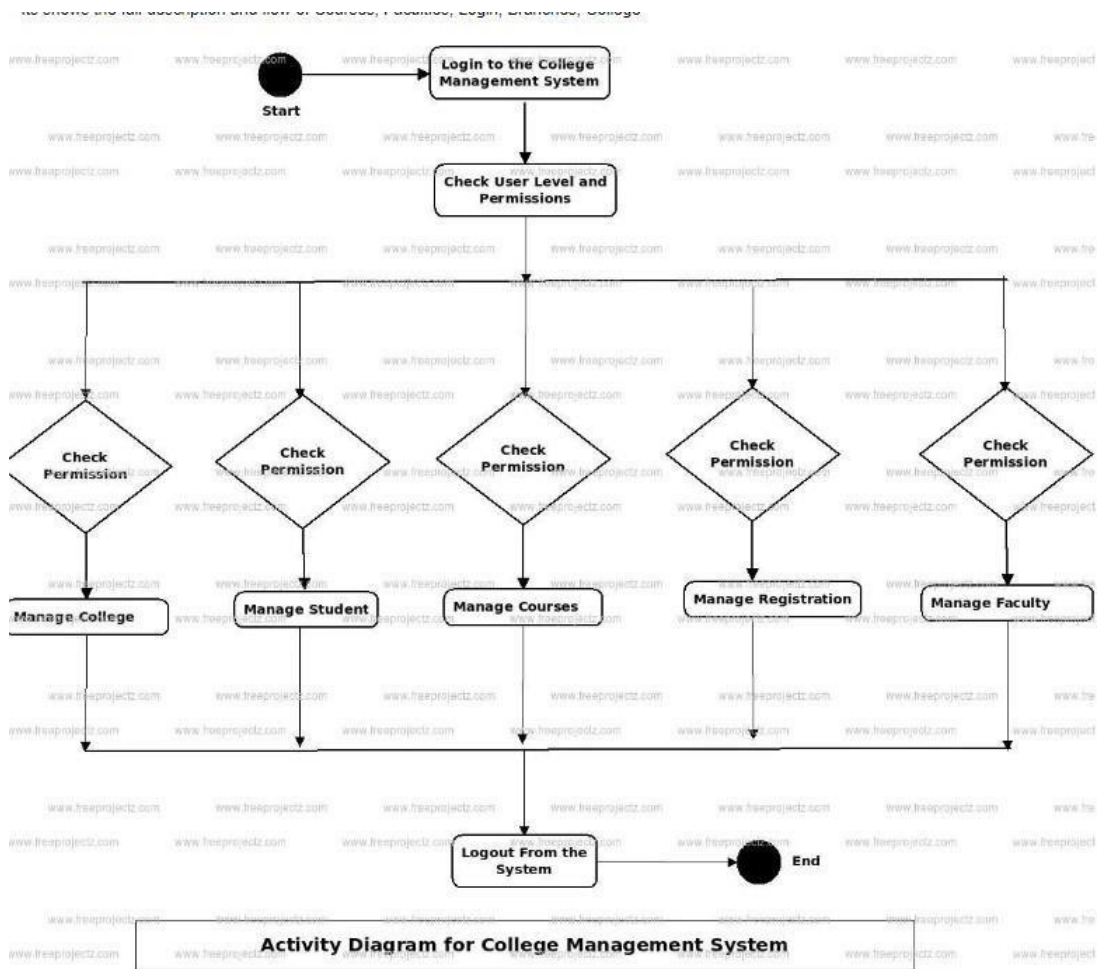
3.4 Use case Diagram For College ERP:



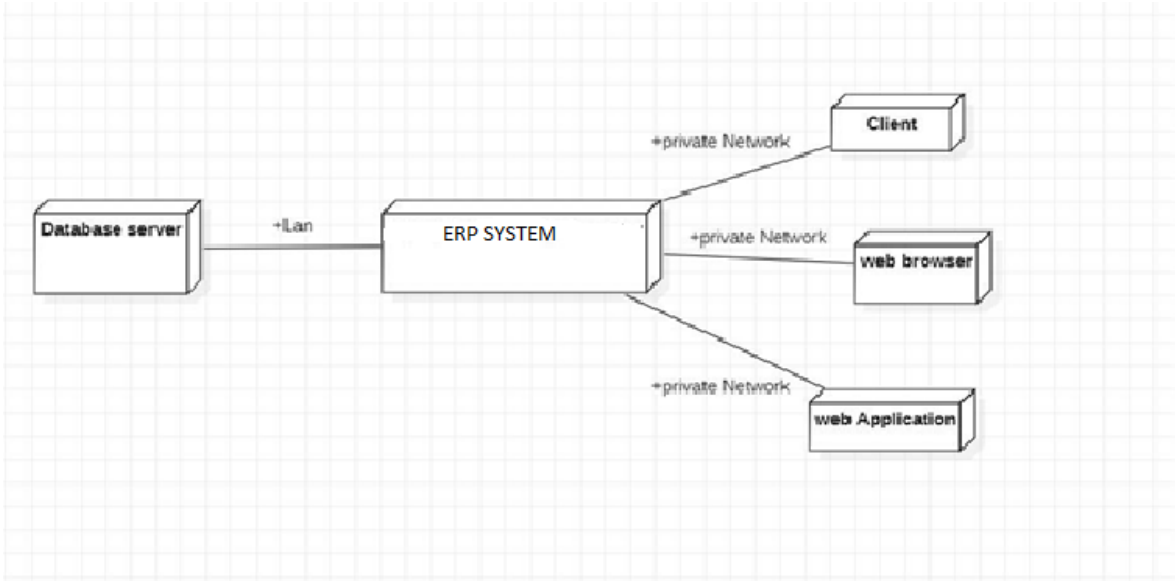
3.5 Class Diagram For College ERP:



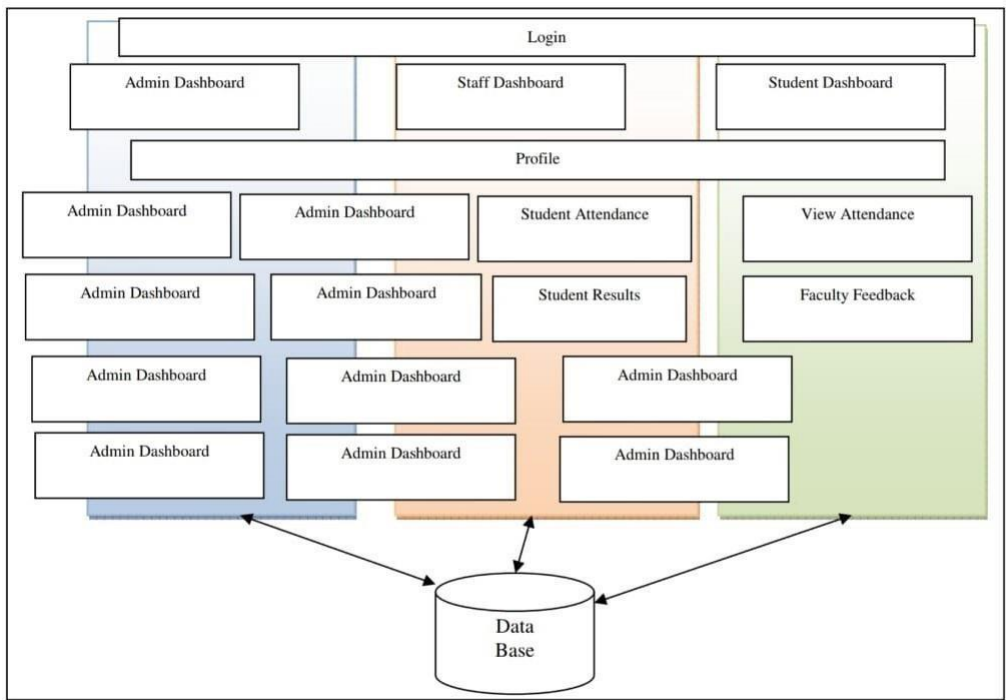
3.6 Activity Diagram For College ERP:



3.7 Deployment Diagram For College ERP:



3.8 Module Hierarchy Diagram For College ERP:



3.9 Sample Input and Output Screens:

3.2 Student

3.9.1 Login

Each student in the college is assigned a unique username and password by the administrator. The user- name is the same as their USN and so is the password. They may change it later according to their wish.

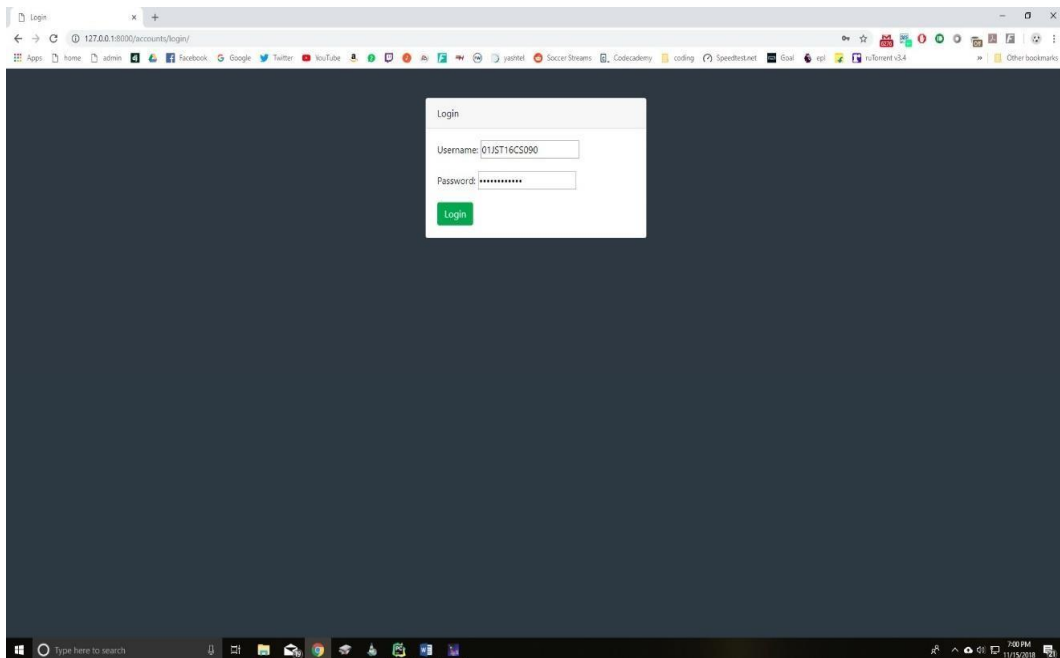


Figure 4.1: Student Login Page

3.9.2 Homepage

After successful login, the student is presented a homepage with their main sections, attendance, marks and timetable. In the attendance section the student can view their attendance status which includes the total classes, attended classes and the attendance percentage for each of their courses.

In the marks section, the student can view the marks for each of their courses out of 20 for 3 internal assessments, 2 events. Also, the semester end examination for 100 marks. Lastly, the timetable provides the classes assigned to that student and day and time of each in a tabular form.

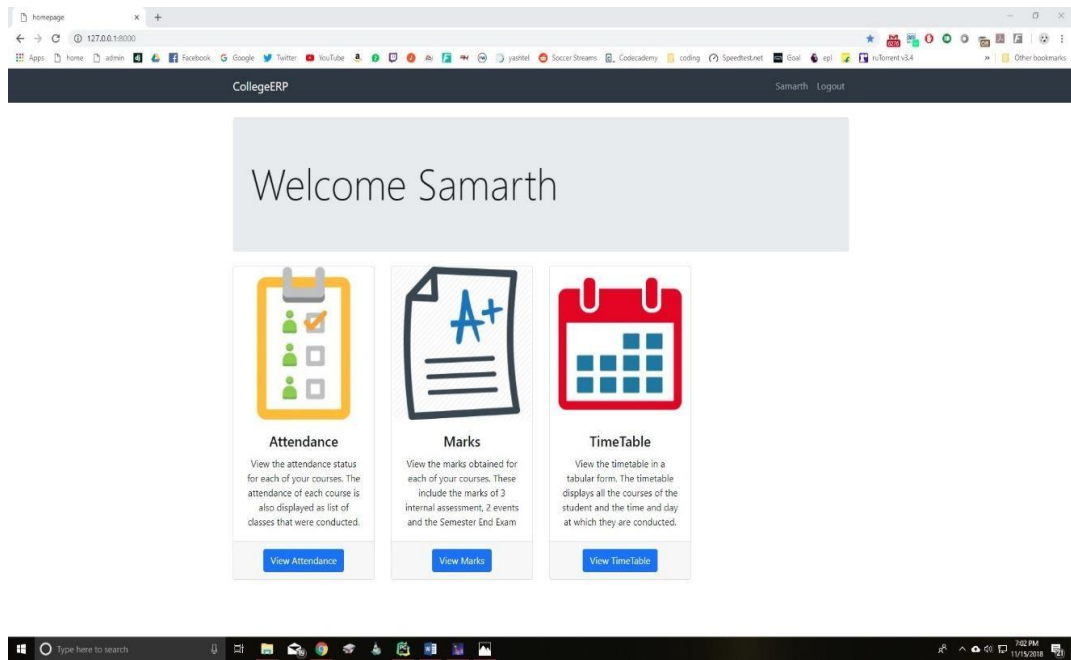


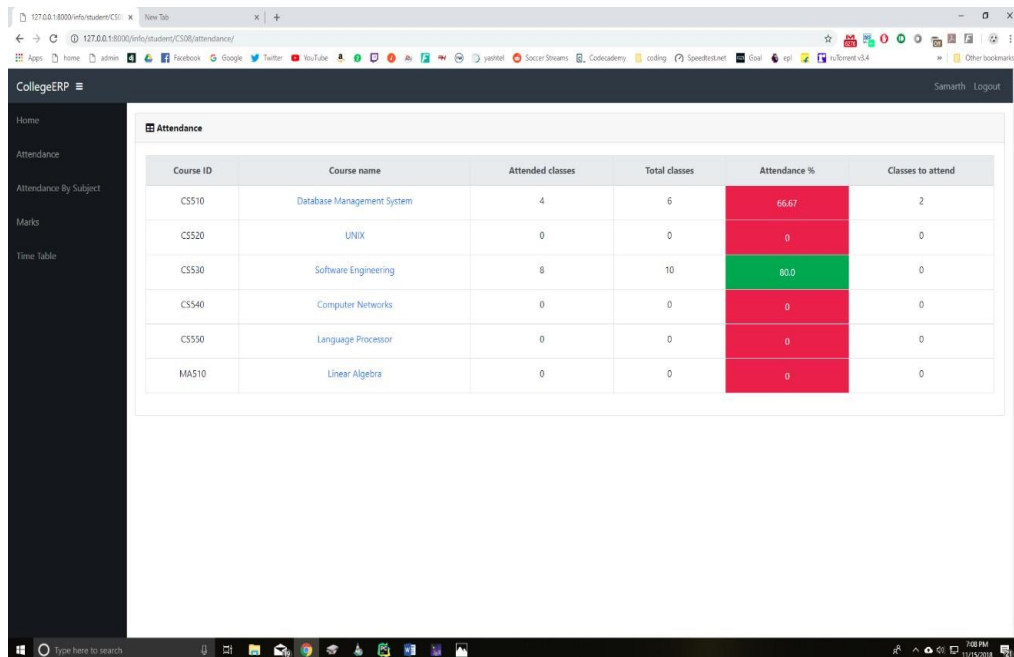
Figure 4.2: Student Home Page

3.9.3 Attendance

On the attendance page, there is a list of courses that is dependent on each student. For each course, the course id and name are display along with the attended classes, total classes and the attendance percentage for that particular course. If the attendance percentage is below 75 for any course, it is displayed in red denoting shortage of attendance, otherwise it is green. If there is any shortage, it specifies the number of classes to attend to make up for it. If you click on each course, it takes you to the attendance detail page.

Attendance Detail

This page displays more details for the attendance in each course. For each the course, there is a list of classes conducted and each is marked with the date.



Course ID	Course name	Attended classes	Total classes	Attendance %	Classes to attend
CS510	Database Management System	4	6	66.67	2
CS520	UNIX	0	0	0	0
CS530	Software Engineering	8	10	80.0	0
CS540	Computer Networks	0	0	0	0
CS550	Language Processor	0	0	0	0
MA510	Linear Algebra	0	0	0	0

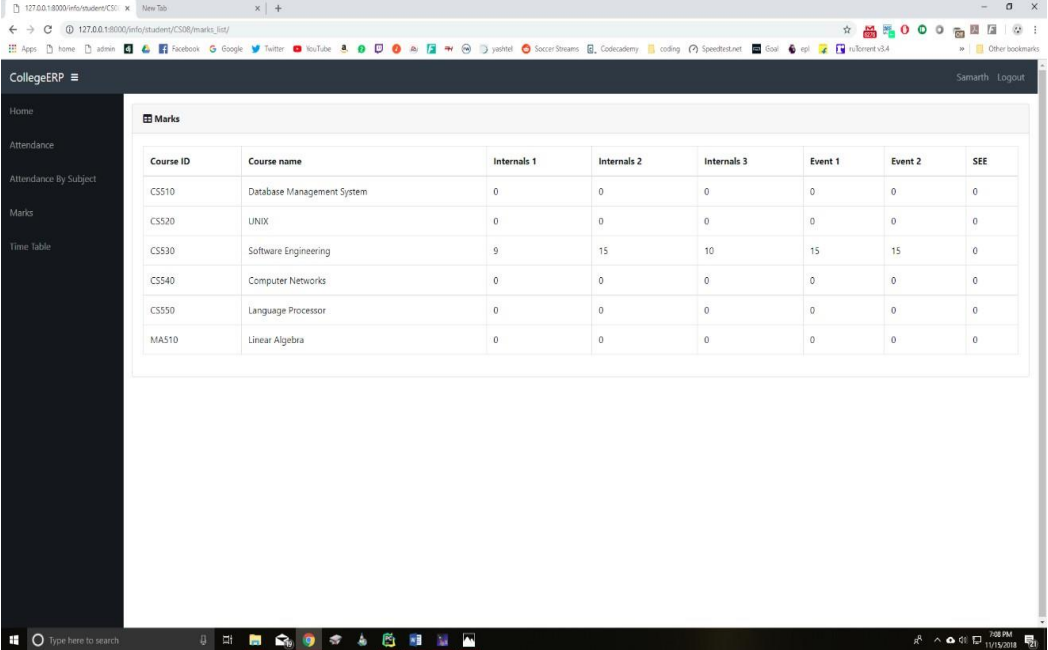
Figure 4.3: Student Attendance Page

The screenshot shows a web browser window with the URL `127.0.0.1:8000/info/student/CS20/CS510/attendance/`. The page title is "CollegeERP" and the user is logged in as "Samarth". The main content area is titled "Software Engineering" and contains a table with the following data:

#	Date	Day	Status
1	Oct. 26, 2018	Friday	Present
2	Oct. 29, 2018	Monday	Absent
3	Oct. 31, 2018	Wednesday	Present
4	Nov. 1, 2018	Thursday	Present
5	Nov. 2, 2018	Friday	Present
6	Nov. 7, 2018	Wednesday	Present
7	Nov. 8, 2018	Thursday	Present
8	Nov. 9, 2018	Friday	Present
9	Nov. 12, 2018	Monday	Absent
10	Nov. 15, 2018	Thursday	Present

Figure 4.4: Student Attendance Detail Page

3.9.4 Marks: The Marks page is a table with an entry for each of their courses. The course id and name are specified along the marks obtained in each of the tests and exams. The tests include 3 internal assessments with marks obtained out of a total of 20, 2 events such as project, assignment.



The screenshot shows a web browser displaying the 'CollegeERP' interface. The main content area is titled 'Marks' and contains a table with the following data:

Course ID	Course name	Internals 1	Internals 2	Internals 3	Event 1	Event 2	SEE
CSS10	Database Management System	0	0	0	0	0	0
CSS20	UNIX	0	0	0	0	0	0
CSS30	Software Engineering	9	15	10	15	15	0
CSS40	Computer Networks	0	0	0	0	0	0
CSS50	Language Processor	0	0	0	0	0	0
MAS10	Linear Algebra	0	0	0	0	0	0

Figure 4.5: Student Marks Page

3.9.5 Timetable

This page is a table which lists the day and timings of each of the classes assigned to the student. The row headers are the days of the week and the column headers are the time slots. So, for each day, it specifies the classes in the time slots. The timetable is generated automatically from the assign table, which is a table containing the information of all the teachers assigned to a class with a course and the timings the classes.

Timetable

	7:30 - 8:30	8:30 - 9:30	9:30 - 10:30	Break	11:00 - 11:50	11:50 - 12:40	12:40 - 1:30	Lunch	2:30 - 3:30	3:30 - 4:30	4:30 - 5:30
Monday			CS540		CS510	CS530	CS550				
Tuesday					MA510	CS510	CS540		CS520	CS550	
Wednesday					MA510	CS520	CS530				
Thursday									CS540	CS530	CS510
Friday			MA510		CS520	CS550	CS530				
Saturday		MA510	CS510		CS540	CS520	CS550				

Figure 4.6: Student Timetable

3.3 Teacher

3.10.2 Login

Each teacher in the college is assigned a unique username and password by the administrator. The username is their teacher ID and the same for password. The teacher may change the password later.

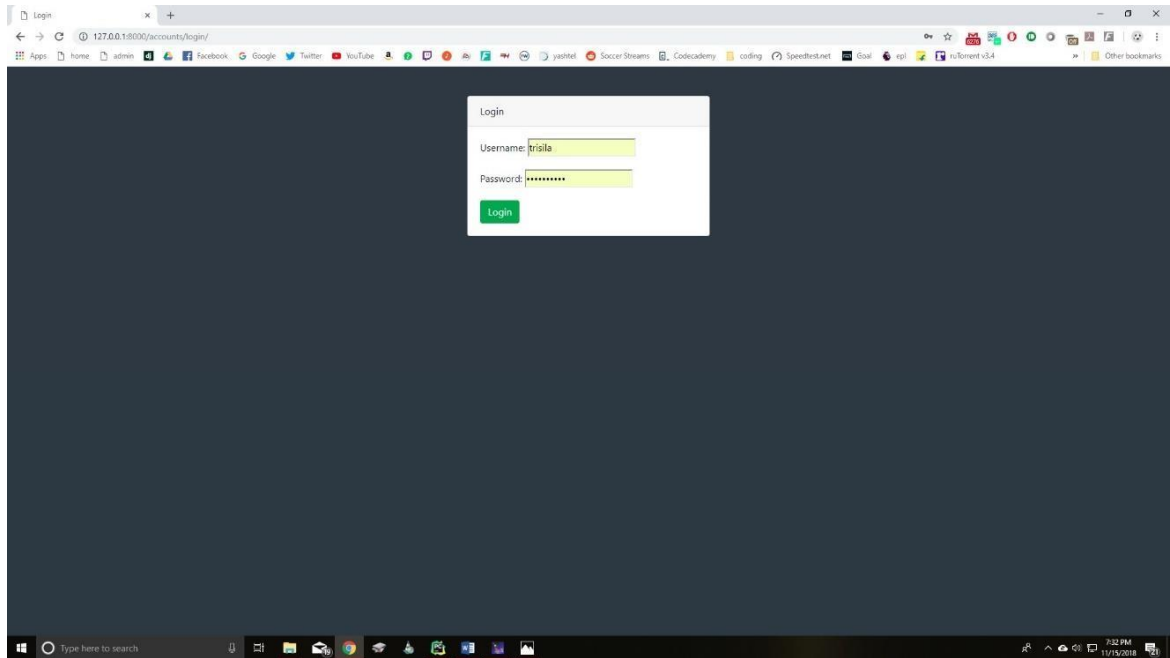


Figure 4.7: Teacher Login

3.10.3 Homepage

After successful login, the student is presented a homepage with their main sections, attendance, marks, timetable and reports. In the attendance section, the teacher can enter the attendance of their respective students for the days on which classes were conducted. There is a provision to enter extra classes and view/edit the attendance of each individual student. In the marks section, the teacher may enter the marks for 3 internals, 2 events and 1 SEE for each student. They can also edit each of the entered marks. The timetable provides the classes assigned to the teacher with the day and timings in a tabular form. Lastly, the teacher can generate reports for each of their assigned class.

3.10.4 Attendance

There is a list of all the class assigned to teacher. So, for each class there are actions available.

Enter Attendance

On this page, the classes scheduled or conducted is listed in the form of a list. Initially, all the scheduled classes will be listed from the start of the semester to the current date. Thus, if there is class scheduled for today, it will automatically appear on top of the list. If the attendance of any day is not marked it will be red, otherwise green if marked. Classes can also be cancelled which will make that date as yellow. While entering the attendance, the list of students in that class is listed and there are two options next to each. These options are in the form of a radio button for present and absent. All the buttons are initially marked as present and the teacher just needs to change for the absent students.

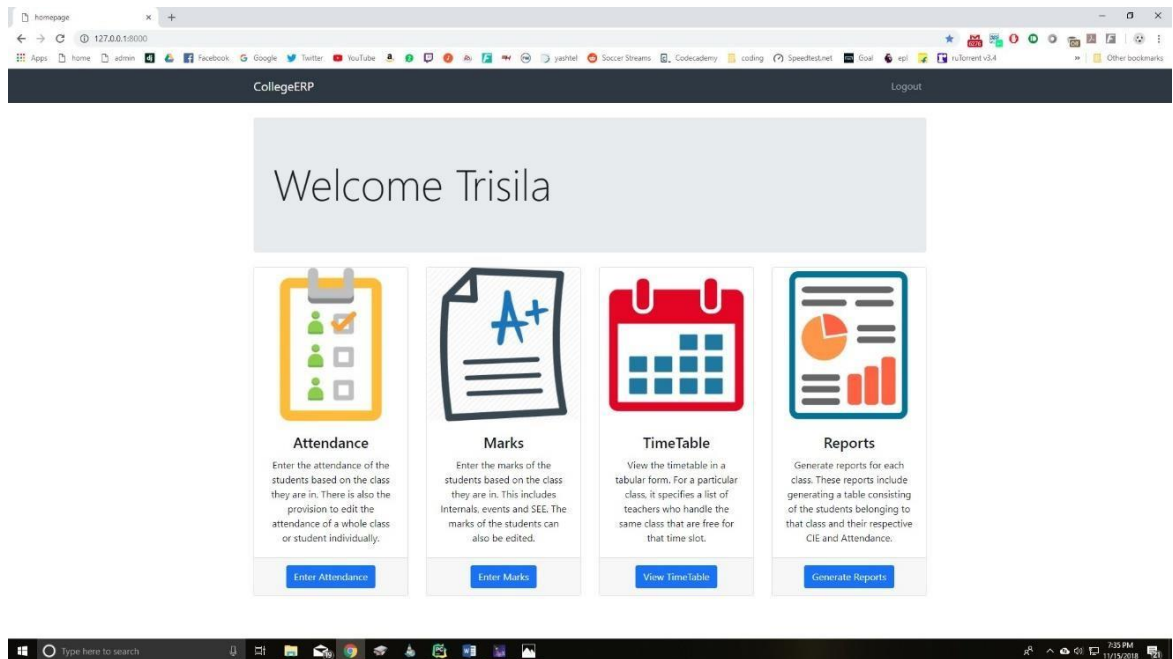


Figure 4.8: Teacher homepage

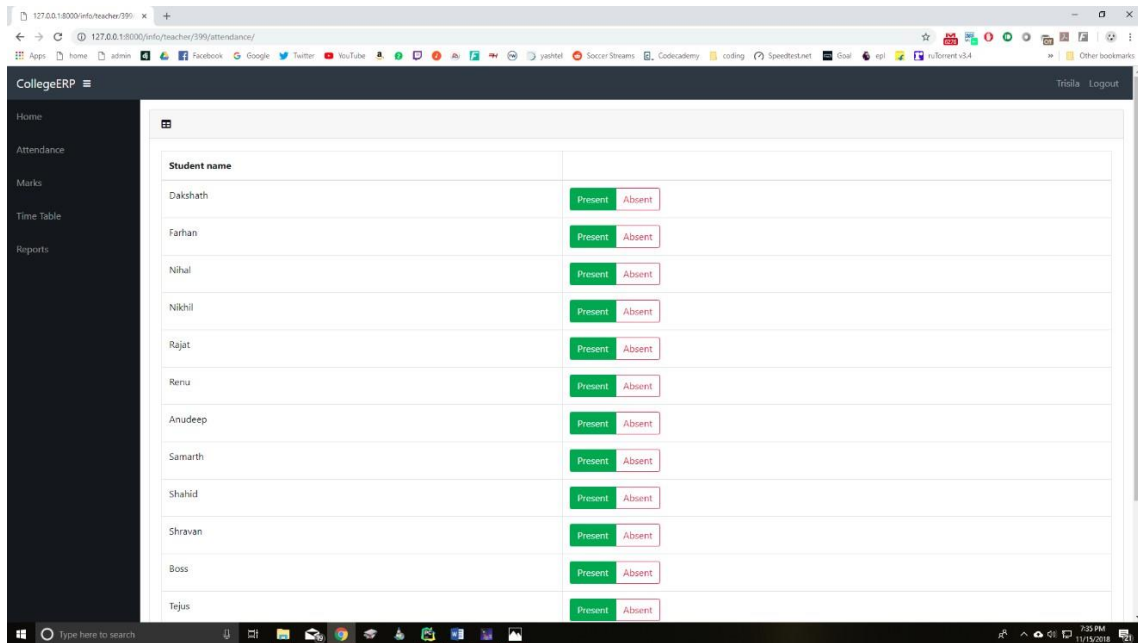


Figure 4.9: Entering attendance

Edit Attendance

After entering attendance, the teacher can also edit it. It is similar to screen for entering attendance, only the entered attendance is saved and display. The teacher can change the appropriate attendance and save it.

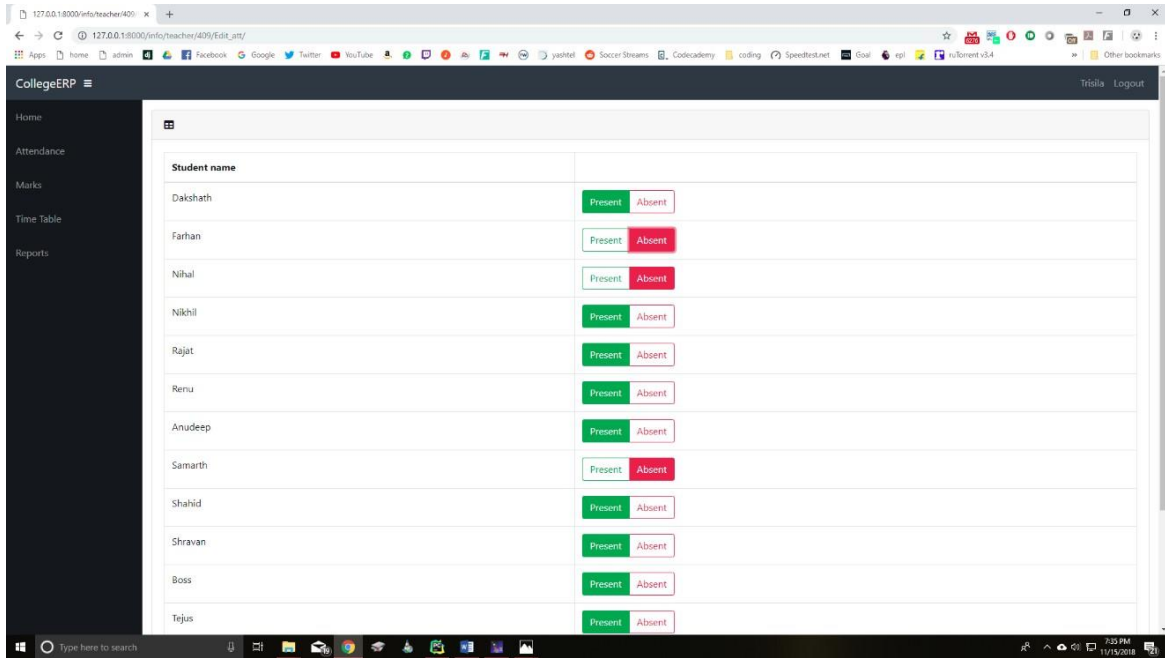


Figure 4.10: Editing attendance

Extra Class

If a teacher has taken a class other than at the scheduled timings, they may enter the attendance for that as well. While entering the extra class, the teacher just needs to specify the date it was conducted and enter the attendance of each of the students. After submitting extra class, it will appear in the list of conducted classes and thus, it can be edited.

Student Attendance

For each assigned class, the teacher can view the attendance status of the list of students. The number of attended classes, total number of classes conducted and the attendance percentage is displayed. If the attendance percentage of any of the students is below 75, it will be displayed in red. Thus, the teacher may easily find the list of students not eligible to take a test.

Student Attendance Details

The teacher can view the attendance detail of all their assigned students individually. That is, for all the conducted classes, it will display whether that student was present or absent. The teacher can also edit the attendance of each student individually by changing the attendance status for each conducted class.

The screenshot shows the 'Attendance' page in the College ERP system. The table lists 13 students (CS01 to CS13) with their attendance details. The 'Attendance %' column is color-coded: green for 80% or higher, and red for 70% or lower. The 'Classes to attend' column shows the number of classes a student still needs to attend.

USN	Student name	Attended classes	Total classes	Attendance %	Classes to attend
CS01	Dakshath	8	10	80.0	0
CS02	Farhan	10	10	100.0	0
CS03	Nihal	7	10	70.0	2
CS04	Nikhil	8	10	80.0	0
CS05	Rajat	10	10	100.0	0
CS06	Renu	10	10	100.0	0
CS07	Anudeep	8	10	80.0	0
CS08	Samarth	8	10	80.0	0
CS09	Shahid	10	10	100.0	0
CS10	Shravan	7	10	70.0	2
CS11	Boss	10	10	100.0	0
CS12	Tejus	9	10	90.0	0
CS13	Vijeth	8	10	80.0	0

Figure 4.11: Attendance of students in a class

The screenshot shows the 'Software Engineering' attendance details for an individual student. The table lists 10 dates from Oct. 26, 2018, to Nov. 15, 2018, with the status of attendance (Absent or Present) and a 'Change' button for each entry.

#	Date	Day	Status
1	Oct. 26, 2018	Friday	Absent
2	Oct. 29, 2018	Monday	Present
3	Oct. 31, 2018	Wednesday	Present
4	Nov. 1, 2018	Thursday	Present
5	Nov. 2, 2018	Friday	Present
6	Nov. 7, 2018	Wednesday	Present
7	Nov. 8, 2018	Thursday	Absent
8	Nov. 9, 2018	Friday	Present
9	Nov. 12, 2018	Monday	Present
10	Nov. 15, 2018	Thursday	Present

Figure 4.12: Attendance details of an individual student

3.10.5 Marks

On this page, the list of classes assigned to the teacher are displayed along with two actions for each class. These actions are,

Enter Marks

On this page, the teacher can enter the marks for 3 internal assessments, 2 events and one semester end exam. Initially all of them are marked red to denote that the marks have not been entered yet. Once the marks for a test is entered, it turns green. While entering the marks for a particular test, the list of students in that class is listed and marks can be entered for all of them and submitted. Once, the marks are submitted, the students can view their respective marks. In case if there is a need to change the marks of any student, it is possible to edit the marks.

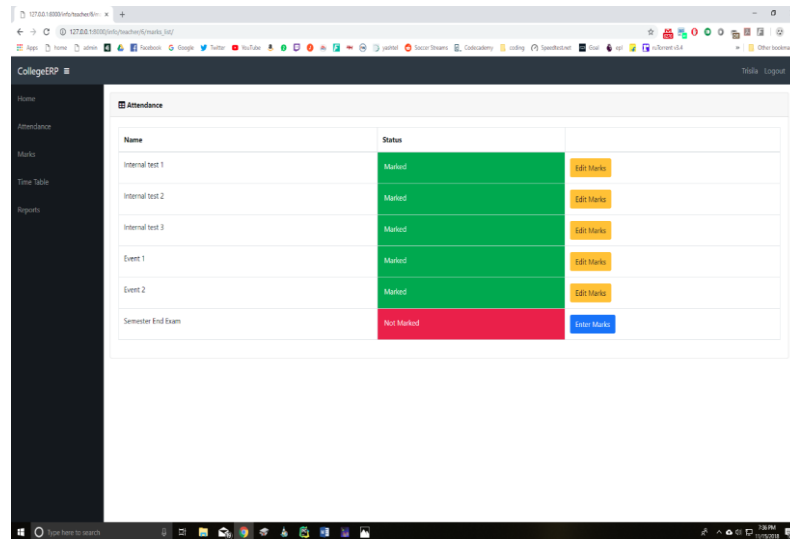


Figure 4.13: Entering marks

Edit Marks

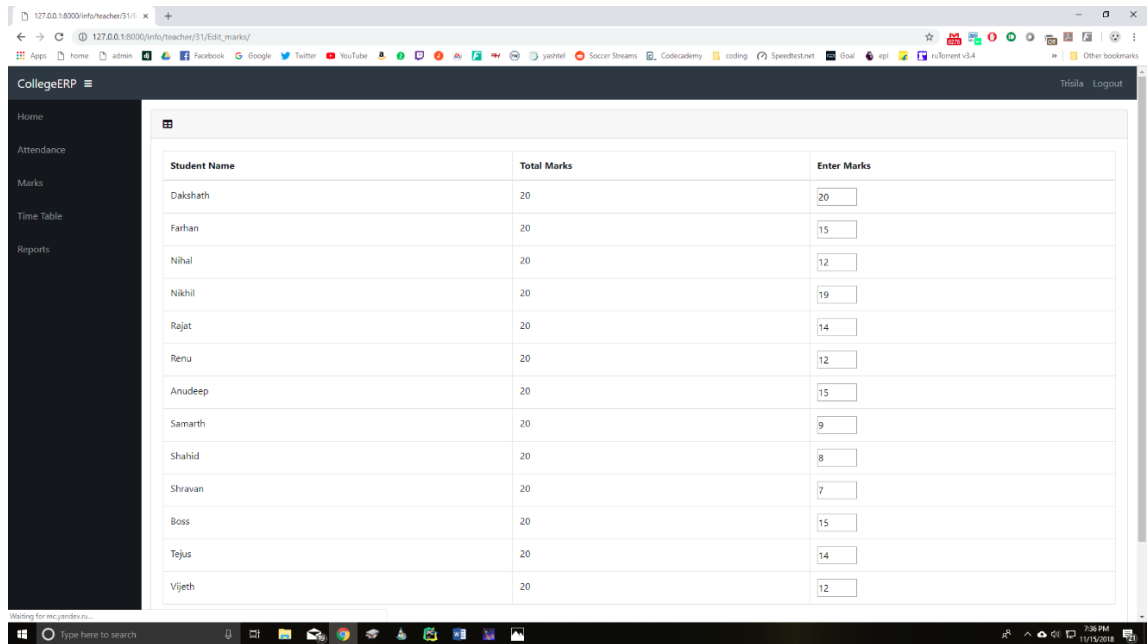
Marks for a test can be edited. While editing, the list of students in that class is displayed along with already entered marks. The marks to be updated can be changed and submitted. The students can view this change immediately.

Student Marks

For each assigned class, the teacher has access to the list of students and the marks they obtained in all the tests. This is displayed in a tabular form.

3.10.6 Timetable

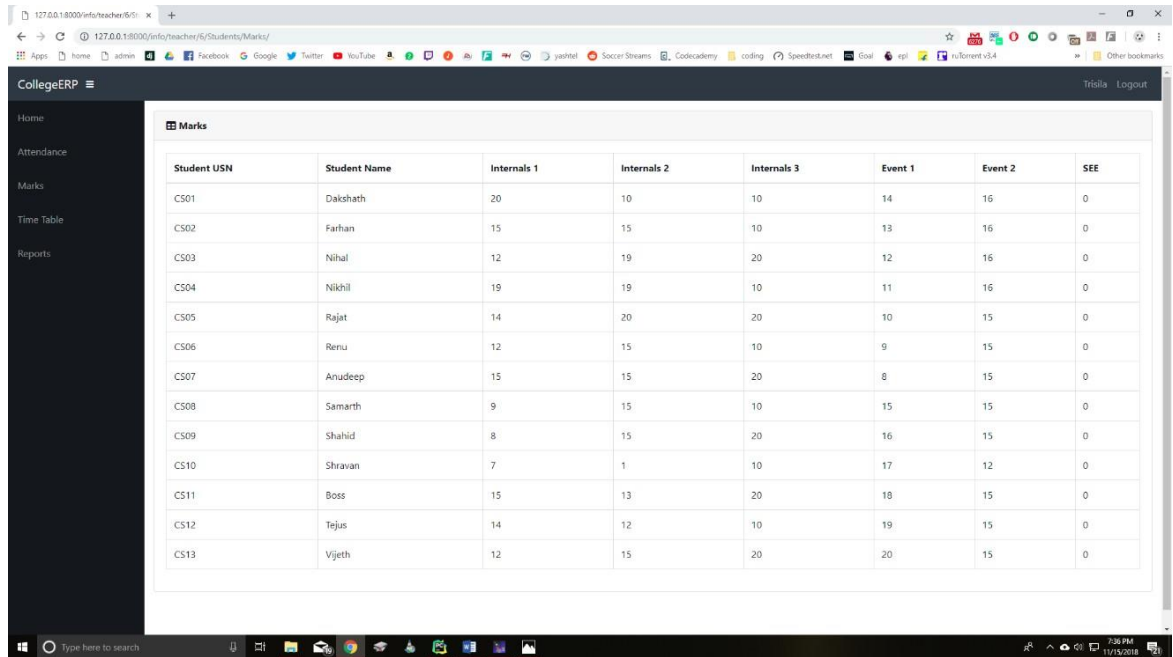
This page is a table which lists the day and timings of each of the classes assigned to the teacher. The row headers are the days of the week and the column headers are the time slots. So, for each day, it specifies the classes in the time slots. The timetable is generated automatically from the assign table, which is a table containing the information of all the teachers assigned to a class with a course and the timings the classes.



The screenshot shows a web browser window displaying the CollegeERP interface. The browser address bar shows the URL `127.0.0.1:8000/info/teacher/31/Edit_marks/`. The interface has a dark sidebar on the left with navigation options: Home, Attendance, Marks, Time Table, and Reports. The main content area displays a table with the following data:

Student Name	Total Marks	Enter Marks
Dakshath	20	<input type="text" value="20"/>
Farhan	20	<input type="text" value="15"/>
Nihal	20	<input type="text" value="12"/>
Nikhil	20	<input type="text" value="19"/>
Rajet	20	<input type="text" value="14"/>
Renu	20	<input type="text" value="12"/>
Anudeep	20	<input type="text" value="15"/>
Samarth	20	<input type="text" value="9"/>
Shahid	20	<input type="text" value="8"/>
Shravan	20	<input type="text" value="7"/>
Boss	20	<input type="text" value="15"/>
Tejus	20	<input type="text" value="14"/>
Vijeth	20	<input type="text" value="12"/>

Figure 4.14: Editing marks



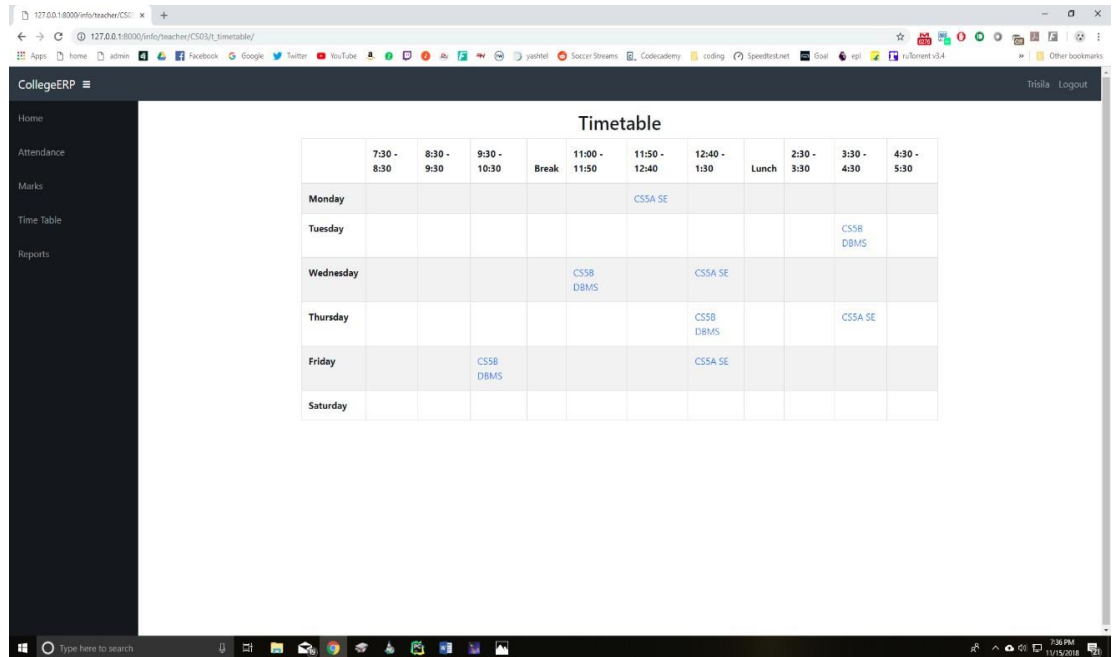
The screenshot shows a web browser window displaying the 'CollegeERP' interface. The main content area is titled 'Marks' and contains a table with the following data:

Student USN	Student Name	Internals 1	Internals 2	Internals 3	Event 1	Event 2	SEE
CS01	Dakshath	20	10	10	14	16	0
CS02	Farhan	15	15	10	13	16	0
CS03	Nihal	12	19	20	12	16	0
CS04	Nikhil	19	19	10	11	16	0
CS05	Rajat	14	20	20	10	15	0
CS06	Renu	12	15	10	9	15	0
CS07	Anudeep	15	15	20	8	15	0
CS08	Samarth	9	15	10	15	15	0
CS09	Shahid	8	15	20	16	15	0
CS10	Shravan	7	1	10	17	12	0
CS11	Boss	15	13	20	18	15	0
CS12	Tejus	14	12	10	19	15	0
CS13	Vijeth	12	15	20	20	15	0

Figure 4.15: Marks of all the students in a class

Free teachers

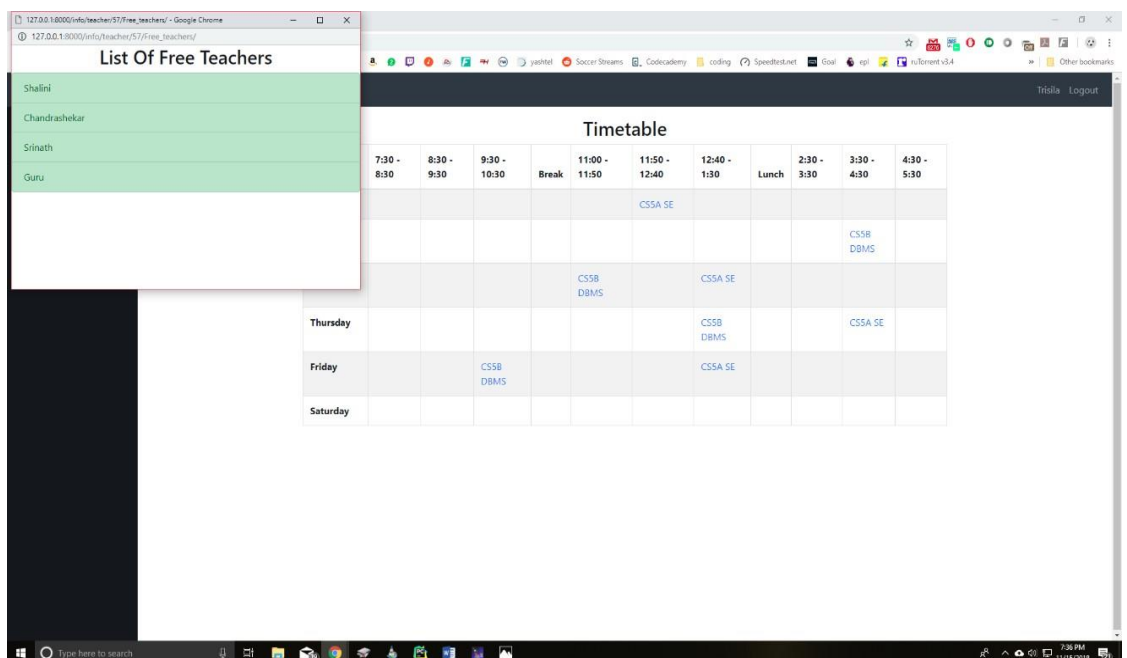
For each entry in the table, the list of free teachers can be generated. Free teachers are the teachers who assigned to the class and are free for that time slot on that day. This is very useful for the teachers particularly when they are on leave as it helps them find a suitable replacement for that class.



The screenshot shows the CollegeERP interface with a sidebar on the left containing navigation options: Home, Attendance, Marks, Time Table, and Reports. The main content area displays a 'Timetable' table with the following structure:

	7:30 - 8:30	8:30 - 9:30	9:30 - 10:30	Break	11:00 - 11:50	11:50 - 12:40	12:40 - 1:30	Lunch	2:30 - 3:30	3:30 - 4:30	4:30 - 5:30
Monday						CSSA SE					
Tuesday										CSSB DBMS	
Wednesday					CSSB DBMS		CSSA SE				
Thursday							CSSB DBMS			CSSA SE	
Friday			CSSB DBMS				CSSA SE				
Saturday											

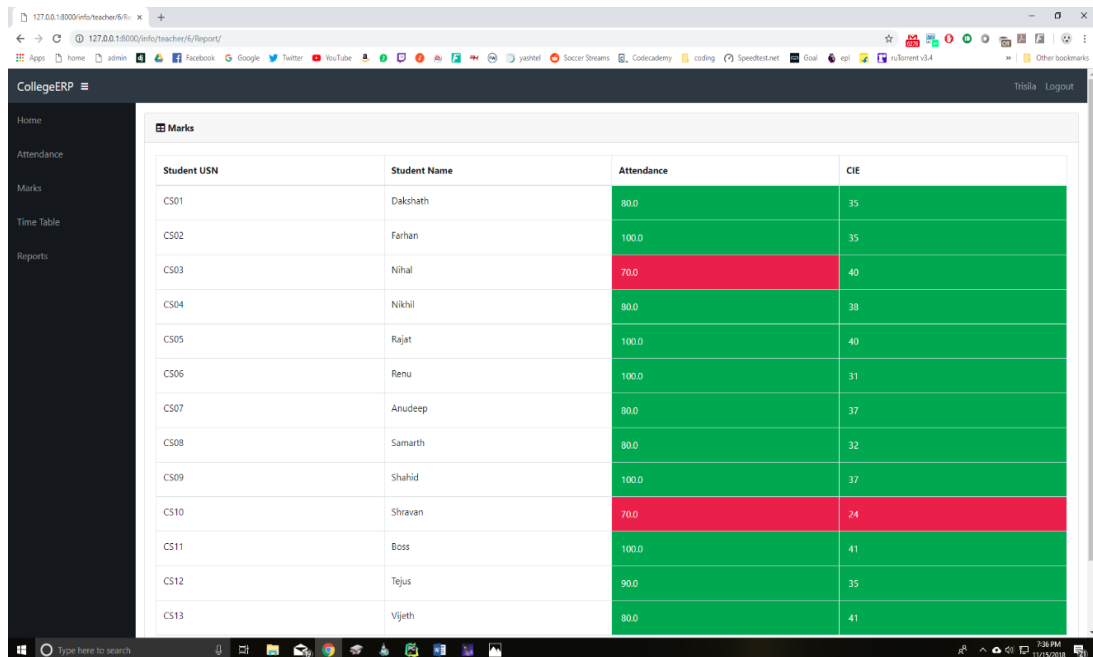
Figure 4.16: Teacher Timetable



The screenshot shows the same CollegeERP interface as Figure 4.16, but with a 'List Of Free Teachers' popup window overlaid on the left side. The popup lists the following teachers: Shalini, Chandrashekar, Srinath, and Guru. The background Timetable table is partially visible behind the popup.

Figure 4.17: List of free teachers for a time slot

3.10.7 Reports: The last page for the teachers is used to generate reports for each class. The report specifies the list of students in that class and their respective CIE and attendance percentage. CIE is the average of the marks obtained from the tests, 3 internals and 2 events. The CIE is out of 50 and the students with CIE below 25 are marked in red and are not eligible to write the semester end exam. Also, the attendance percentage is displayed with students below 75% marked in red.



The screenshot shows a web browser displaying the 'Marks' report page in the College ERP system. The page features a table with columns for Student USN, Student Name, Attendance, and CIE. The table lists 13 students (CS01 to CS13). The 'Attendance' column shows percentages, and the 'CIE' column shows scores out of 50. Rows for CS03 and CS10 are highlighted in red, indicating attendance below 75% and CIE below 25, respectively. The interface includes a sidebar with navigation options like Home, Attendance, Marks, Time Table, and Reports, and a top navigation bar with a user profile and Logout option.

Student USN	Student Name	Attendance	CIE
CS01	Dakshath	80.0	35
CS02	Farhan	100.0	35
CS03	Nihal	70.0	40
CS04	Nikhil	80.0	38
CS05	Rajat	100.0	40
CS06	Renu	100.0	31
CS07	Anudeep	80.0	37
CS08	Samarth	80.0	32
CS09	Shahid	100.0	37
CS10	Shravan	70.0	24
CS11	Boss	100.0	41
CS12	Tejus	90.0	35
CS13	Vijeth	80.0	41

Figure 4.18: CIE and attendance for a class of students

3.4 Administrator

The administrator is responsible for adding and maintaining all the departments, students, teachers, classes and courses. All this data is stored in the database in their respective tables. The admin is also responsible for adding and maintaining the list of teachers assigned to class with a course and the timings. This information is stored in the Assign table. The admin also has access to the marks and attendance of each student and can modify them.

There are several features in place to ensure that querying the database is quick and efficient for the administrator. As the database has the potential to become huge, there is a search feature for every table including student, teacher etc. The search has get a specific record based on name or id. Also, it can filter the record based on department, class etc.

Figure 3.19 shows the homepage for the admin, it lists all the different tables in the database. Figure 3.20 shows the details of the classtable. Each class consists of a list of students as shown.

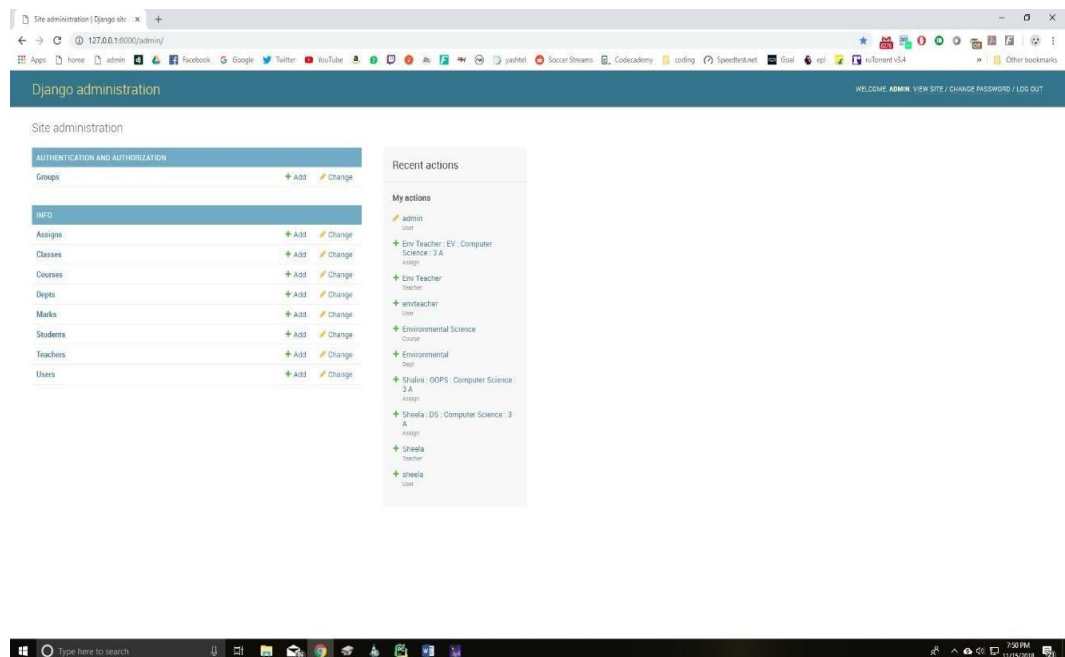


Figure 4.19: Admin homepage

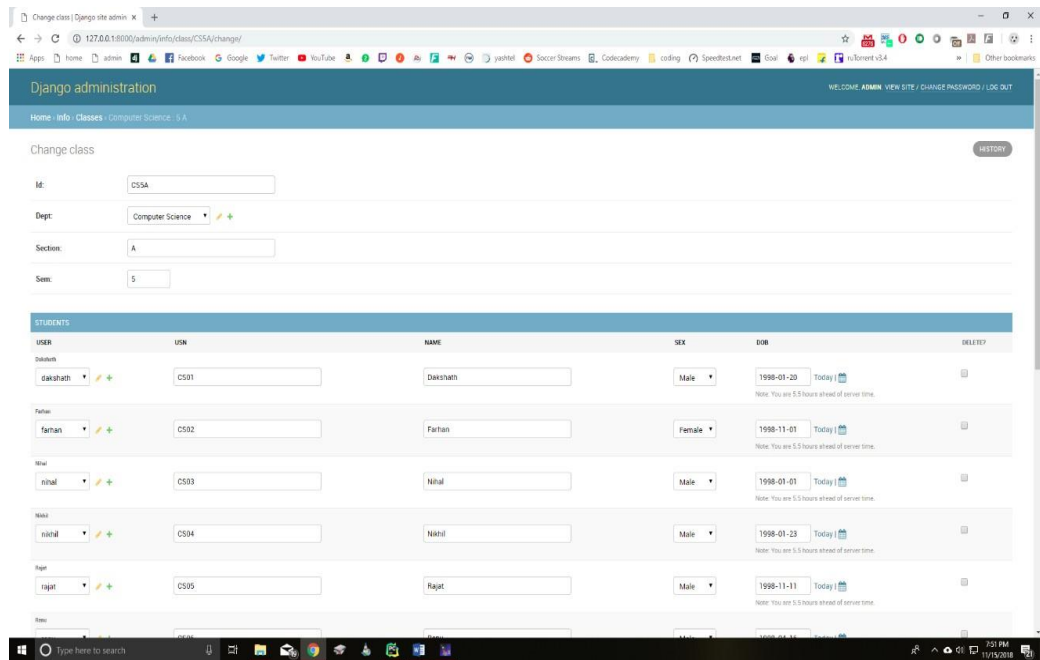


Figure 4.20: Admin students table page

Chapter 4

Coding

4.1 Code Snippets :

Home page:

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-
fit=no">
<meta name="description" content="">
<meta name="author" content="">

<title>homepage</title>
{% load static %}

<!-- Bootstrap core CSS -->
<link href="{% static '/info/homepage/vendor/bootstrap/css/bootstrap.min.css' %}"
rel="stylesheet">

<!-- Custom styles for this template -->
<link href="{% static '/info/homepage/css/heroic-features.css' %}" rel="stylesheet">
<link href="{% static '/info/bootstrap/vendor/fontawesome-free/css/all.min.css'
%}" rel="stylesheet" type="text/css">

</head>

<body>

<!-- Navigation -->
<nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top">
<div class="container">
<a class="navbar-brand" href="{% url 'index' %}">CollegeERP</a>
```

```

<button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarResponsive" aria-controls="navbarResponsive" aria-
expanded="false" aria-label="Toggle navigation">
<span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="navbarResponsive">
<ul class="navbar-nav ml-auto">
<li class="nav-item">
<a class="nav-link text-capitalize">{{ request.user.student.name }}</a>
</li>
<li class="nav-item">
<a class="nav-link" href="#" data-toggle="modal" data-
target="#logoutModal">Logout</a>
</li>
</ul>
</div>
</div>
</nav>

<!-- Page Content -->
<div class="container">

<!-- Jumbotron Header -->
<header class="jumbotron my-4">

<h1 class="display-3 text-capitalize">Welcome {{
request.user.student.name
}}</h1>
{{ <p class="lead">Lorem ipsum dolor sit amet, consectetur adipisicing elit. Ipsa,
ipsam, eligendi, in quo sunt possimus non incidunt odit vero aliquid similique quaerat
nam nobis illo aspernatur vitae fugiat numquam repellat.</p>#}}
{{ <a href="#" class="btn btn-primary btn-lg">Call to action!</a>#}}
</header>

<!-- Page Features -->
<div class="row text-center">

<div class="col-lg-3 col-md-6 mb-4">
<div class="card">
<a href="{% url 'attendance' request.user.student.USN %}">

```

```



</a>

<div class="card-body">
<h4 class="card-title">Attendance</h4>
<p class="card-text">View the attendance status for each of your courses. The
attendance of each course is
also displayed as list of classes that were conducted.</p>
</div>
<div class="card-footer">
<a class="btn btn-primary" role="button" href="{% url
'attendance' request.user.student.USN %}"> View Attendance</a>
</div>
</div>
</div>

<div class="col-lg-3 col-md-6 mb-4">

<div class="card">
<a href="{% url 'marks_list' request.user.student.USN %}">

</a>
<div class="card-body">
<h4 class="card-title">Marks</h4>
<p class="card-text">View the marks obtained for each of your courses. These
include the marksmarkss of 3
internal assessment, 2 events and the Semester End Exam </p>
</div>
<div class="card-footer">
<a class="btn btn-primary" role="button" href="{% url
'request.user.student.USN %}'>View Marks</a>
</div>
</div>

```

```

</div>

<div class="col-lg-3 col-md-6 mb-4">
<div class="card">
<a href="{% url 'timetable' request.user.student.class_id_id %}">


</a>
<div class="card-body">
<h4 class="card-title">TimeTable</h4>
<p class="card-text">View the timetable in a tabular form. The timetable

displays all the courses of the
student and the time and day at which they are conducted.</p>
</div>
<div class="card-footer">

<a class="btn btn-primary" role="button" href="{% url 'timetable'
request.user.student.class_id_id %}">View TimeTable</a>
</div>
</div>
</div>
</div>

</div>
<!-- /.row -->

</div>
<!-- /.container -->
<!-- Logout Modal-->
<div class="modal fade" id="logoutModal" tabindex="-1" role="dialog" aria-
labelledby="exampleModalLabel" aria-hidden="true">
<div class="modal-dialog" role="document">
<div class="modal-content">
<div class="modal-header">
<h5 class="modal-title" id="exampleModalLabel">Ready to Leave?</h5>
<button class="close" type="button" data-dismiss="modal" aria-label="Close">
<span aria-hidden="true">×</span>

```

```
</button>
</div>
<div class="modal-body">Select "Logout" below if you are ready to end your current
session.</div>
<div class="modal-footer">
<button class="btn btn-secondary" type="button" data-
dismiss="modal">Cancel</button>
<a class="btn btn-primary" href="/accounts/logout">Logout</a>
</div>
</div>

</div>
</div>
<!-- Bootstrap core JavaScript -->

<script src="{ % static '/info/homepage/vendor/jquery/jquery.min.js' % }"></script>
<script src="{ % static '/info/homepage/vendor/bootstrap/js/bootstrap.bundle.min.js'
% }"></script>
</body>
</html>
```

Chapter 5

Testing

5. Testing:

5.1 Testing Strategy:

A testing strategy is a plan for evaluating the quality and functionality of a software system. It outlines the approach to be taken for testing, the types of testing to be performed, the resources needed, and the schedule for testing. A good testing strategy helps ensure that the software meets its requirements, is free of defects, and is delivered on time. Key components of a testing strategy include:

1. **Objectives:** The objective of the testing should be to ensure that the e-commerce application is functioning correctly and meets the requirements set out by stakeholders.
2. **Test Types:** Types of testing that should be considered include functional testing, performance testing, security testing, compatibility testing, and usability testing.
3. **Test Environment:** The test environment should mirror the production environment as closely as possible.
4. **Test Data:** Test data should be created to accurately reflect a variety of real-world scenarios. This data should include products, customers, and payment methods.
5. **Test Procedures:** Detailed test plans and test cases should be developed that cover all the major functionality of the e-commerce application, including product search and display, product detail pages, shopping cart functionality, checkout process, and order confirmation.
6. **Test Scheduling:** The testing schedule should take into account the overall project timeline, as well as any deadlines for releasing new features or bug fixes.
7. **Test Resources:** A team of experienced testers should be put in place, along with tools such as automated testing software and load testing tools.
8. **Test Deliverables:** The output of testing should include detailed test results, bug reports, and test documentation.

5.2 Unit Test Plan:

A Unit Test Plan is a document that outlines the testing strategy for individual units or components of a software system. It provides a detailed description of the tests that will be performed, the testing environment, and the resources required. The main purpose of a Unit Test Plan is to ensure that each unit of the software system is thoroughly tested and meets the specified requirements before it is integrated into the overall system. The Unit Test Plan should include the following elements:

1. **Objectives:** The objectives of the unit testing should be to validate the functionality of individual components of the e-commerce application, such as product listings, shopping cart, and checkout process, to ensure they are working as expected.
2. **Test Types:** The types of unit testing that should be performed include functional testing, integration testing, and regression testing.
3. **Test Environment:** The test environment should include a development server and a test database that can be populated with test data.
4. **Test Data:** Test data should be created to accurately reflect a variety of real-world scenarios and should include products, customers, and payment methods.
5. **Test Procedures:** Detailed test plans and test cases should be developed for each unit of the e-commerce application, including product listings, shopping cart, checkout process, and order confirmation. The test plans should include test inputs, expected outputs, and the steps needed to perform the tests.
6. **Test Resources:** A team of experienced testers and automated testing software should be put in place to perform the unit testing.
7. **Test Deliverables:** The output of the unit testing should include detailed test results, bug reports, and test documentation.
8. **Test Status and Reporting:** The status of the unit testing should be regularly reported to stakeholders, including progress, issues encountered, and any changes to the testing schedule. Metrics such as test coverage, bug count, and test pass/fail rates should be used to measure progress.

5.3 Acceptance Test Plan

Test Plan Title: Acceptance Test Plan for E-commerce Website

1. Introduction:

The acceptance test plan outlines the approach and procedures for testing the e-commerce website to ensure its compliance with specified requirements and readiness for deployment. This plan focuses on validating the functionality, usability, performance, security, and integration aspects of the website.

2. Test Objectives:

- Validate the functionality of the e-commerce website, including product browsing, search, shopping cart management, checkout process, and order placement.
- Verify the usability and user-friendliness of the website, ensuring intuitive navigation, clear instructions, and responsive design.
- Evaluate the performance of the website, including response time, scalability, and concurrent user handling.
- Ensure the security of the website, including protection against unauthorized access, data breaches, and secure payment transactions.
- Validate the integration of the website with external systems such as payment gateways, inventory management systems, and shipping services.
- Verify compatibility with different browsers, devices, and operating systems.

3. Test Scope:

The acceptance testing will cover the following aspects of the e-commerce website:

- User registration and login
- Product browsing and search functionality
- Product details and reviews

4. Test Approach:

The acceptance testing will follow a combination of manual and automated testing approaches. It will involve the following steps:

- Test Case Identification: Identify test scenarios and create test cases to cover all functionalities.
- Test Data Preparation: Prepare test data, including sample products, user accounts, and orders.
- Test Execution: Execute test cases, following predefined test scripts and instructions.
- Defect Reporting: Document any defects or issues encountered during testing, including steps to reproduce and screenshots.
- Test Result Analysis: Analyze the test results to determine the website's compliance with specified requirements.
- Test Completion: Prepare a test summary report, including overall test coverage, results, and any outstanding issues.

5. Test Environment:

The test environment will include:

- E-commerce website deployed on appropriate web servers and databases
- Different browsers (e.g., Chrome, Firefox, Safari) and versions
- Various devices (e.g., desktop, laptop, mobile, tablet) and operating systems
- Test accounts with different user roles (e.g., admin, customer)

6. Test Procedures:

The following test procedures will be followed during the acceptance testing:

- Test Case Preparation: Identify and create test cases based on functional requirements.
- Test Data Setup: Prepare relevant test data, including sample products, user accounts, and orders.
- Test Execution: Execute test cases, recording observations and outcomes.
- Defect Reporting: Document any defects encountered, providing detailed information and prioritization.
- Defect Resolution: Work with the development team to address reported defects.
- Retesting: Verify that resolved defects have been fixed successfully.
- Test Completion: Prepare a test summary report, including test coverage, results, and any open issues.

7. Test Schedule:

The acceptance testing will be conducted according to the following schedule:

- Test Planning and Preparation: [Start Date] - [End Date]
- Test Execution: [Start Date] - [End Date]
- Defect Reporting

Resolution: Ongoing throughout the testing phase

- Retesting: [Start Date] - [End Date]
- Test Completion and Reporting: [End Date]
- Risks and Contingencies:

Identify potential risks that may impact the acceptance testing process, such as delays in test data preparation, dependencies on external systems, or resource constraints. Develop contingency plans to mitigate these risks and ensure the timely completion of testing activities.

8. Test Deliverables:

The following deliverables will be produced during the acceptance testing:

- a. Acceptance Test Plan document
- b. Test cases and test scripts
- c. Test data prepared for different scenarios
- d. Test execution results, including defects and observations
- e. Test summary report with overall findings and recommendations

9. Responsibilities:

Clearly define the roles and responsibilities of the individuals involved in the acceptance testing, including testers, developers, project managers, and stakeholders. This ensures effective communication and accountability throughout the testing phase.

10. Approval and Sign-off:

Define the process for obtaining approval and sign-off on the acceptance test plan from relevant stakeholders. This ensures that everyone is in agreement with the outlined testing approach and objectives.

11. Change Control:

Establish a process for managing changes to the acceptance test plan, including documenting and assessing the impact of proposed changes, and obtaining appropriate approvals before implementing them. This helps maintain the integrity and effectiveness of the testing process.

5.4 Test Cases:

1.egistration page:

Test Scenario Id	Test Scenario Description	Test Case Id	Description	Expected Result	Actual Result	Test Result
T1_001	Required Fields	T1_001_1	Check user should register by filling all the details	User should able to login after registration him or herself.	User are able to login after registration him or herself.	Pass
		T1_001_2	Check if user not register by filling all the details	User should able to login after registration him or herself.	User are not able to login after registration him or herself.	Fail
T1_002	Email validation	T1_002_1	Check the valid email	User should enter valid email.	User should be able to login.	Pass
		T1_002_2	Check if email is invalid.	User should enter valid email.	-Invalid email error message should be	Fail

					shown to user.	
T1_003	Password validation	T1_003_1	Check if password is valid	User should enter valid password	User should be able to login and see home page.	Pass
		T1_003_2	Check if password is invalid.	User should enter valid password.	-Invalid email error message should be shown to user.	Fail

1. Login form:

Test Scenario Id	Test Scenario Description	Test Case Id	Description	Expected Result	Actual Result	Test Result
TC_001	Email validation	TC_001_1	Check if email is valid.	User should enter valid email.	User should be able to login.	Pass
		TC_001_2	Check if email is	User should enter valid	—Invalid email	Fail

			invalid.	email.	error message should be shown to user.	
TC_002	Password validation	TC_002_1	Check if password is valid	User should enter valid password	User should be able to login and see home page.	Pass
		TC_002_2	Check if password is invalid.	User should enter valid password.	-Invalid email error message should be shown to user.	Fail
TC_003	Required Fields	TC_003_1	Check user should register by filling all the details	User should be able to login after registration him or herself.	User are able to login and see home page.	Pass
		TC_003_2	Check if user not register by filling all the details	User should be able to login after registration him or herself.	User are not able to login.	Fail

3.Admin page:

Test Scenario Id	Test Scenario Description	Test CaseId	Description	Expected Result	Actual Result	Test Result
A1_001	Verify the login functionality for login page	A1	Enter a valid username and valid password	Software should display main window	Software should display main window	Pass
A1_002	Add the student mark and attendance	A2	Select the student and add the mark and attendance Click on add button and enter	Student mark will be added in student profile and he can see his mark and attendance	Student mark will be added in student profile and he can see his mark and attendance	Pass
A1_003	Update the student mark and attendance	A3	Admin can update the student mark. Click on update button and enter.	Display the updated mark.	As Expected,	Pass

Limitations of Proposed System

Limitations of Proposed System :

- System can generate the fees receipt.
- Customization: College ERP systems are often designed to meet the needs of a broad range of institutions. Customizing the system to meet specific requirements of a particular college can be costly and time-consuming, and may require ongoing maintenance and support.
- User Adoption: College ERP systems can be complex, and user adoption can be a challenge, particularly for staff who may not be familiar with using technology. This can lead to lower adoption rates, reduced efficiency, and lower return on investment.
- Integration with Legacy Systems: Many colleges have legacy systems that may not be fully compatible with the new ERP system. Integrating data from these legacy systems into the ERP system can be challenging and may require significant customization or data conversion efforts.
- Security: College ERP systems can contain sensitive data, such as student and staff information. Ensuring the security and privacy of this data can be a significant challenge and requires ongoing monitoring and management.

Chapter 7

Proposed Enhancement

Proposed Enhancement :

- Develop dedicated mobile applications for the ERP system that provide remote access to key functionalities, enabling employees to work on the go and have real-time visibility into operations.
- Integrate the ERP system with an advanced Customer Relationship Management (CRM) system to enable a unified view of customer data, sales pipeline, and customer interactions.
- Enhancing the security levels.
- Advancing the user interface.
- Adding the more task sections
- Generating the student performance in graphical way.

Chapter 8

Conclusion

Conclusion:

By using Existing System accessing information from files is a difficult task and there is no quick and easy way to keep the records of students and staff. Lack of automation is also there in the Existing System. The aim of Our System is to reduce the workload and to save significant staff time. Title of the project as College ERP System is the system that deals with the issues related to a particular institution. It is the very useful to the student as well as the faculties to easy access to finding the details. The college ERP provides appropriate information to users based on their profiles and role in the system. This project is designed keeping in view the day-to-day problems faced by a college system. The fundamental problem in maintaining and managing the work by the administrator is hence overcome. Prior to this it was a bit difficult for maintaining the time table and also keeping track of the daily schedule. But by developing this web-based application the administrator can enjoy the task, doing it ease and also by saving the valuable time. The amount of time consumption is reduced and also the manual calculations are omitted, the reports can be obtained regularly and also whenever on demand by the user. The effective utilization of the work, by proper sharing it and by providing the accurate results. The storage facility will ease the job of the operator. Thus, the system developed will be helpful to the administrator by easing his/her task. This System provide the automate admissions no manual processing is required. This is a paperless work. It can be monitored and controlled remotely. It reduces the man power required. It provides accurate information always. All years together gathered information can be saved and can be accessed at any time. The data which is stored in the repository helps in taking intelligent decisions by the management providing the accurate results. The storage facility will ease the job of the operator. Thus, the system developed will be helpful to the administrator by easing his/her task providing the accurate results. The storage facility will ease the job of the operator. This project is successfully implemented with all the features and modules of the college management system as per requirements.

Chapter 9

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