COLLEGE INFORMATION MANAGEMENT SYSTEM

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Submitted in partial fulfillment of the Degree of Bachelor of Technology

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DECLARATION

We hereby declare that the work reported in 5th semester Minor project entitled "**COLLEGE INFORMATION MANAGEMENT SYSTEM**", in partial fulfillment for the award of the degree of B.Tech (CSE) submitted at Jaypee University of Engineering and Technology, Guna, as per the best of our knowledge and belief there is no infringement of intellectual property rights and copyright. In case of any violation, we will solely beresponsible.

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Date: 5/12/2022

CERTIFICATE

This is to certify that the project titled "**COLLEGE INFORMATION MANAGEMENT SYSTEM**" is the bona fide work carried out by **Abhishek Krishnan ,Divyansh Paliwal** and **Harsh Raghuwanshi**, a student ofB Tech (CSE) of Jaypee University of Engineering and Technology, Guna (M.P) during the academic year 2022-23, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology (Computer Science and Engineering)and that the project has not formed the basis for the award previously of any other degree, diploma, fellowship or any other similar tile.

Signature of the Guide

Jaypee University of Engineering and Technology, Raghogarh,

Guna – 473226

Date: 5/12/2022

ABSTRACT

This report specifies the various processes and techniques used in gathering requirements, designing, implementing and testing for the project on college management system. The problems regarding the current system in the college was analyzed and noted. This project aims to solve some of those problems and thus, add more value to the current system. The requirements were gathered from all the stakeholders and based on that we created a requirements models and designed the software based on the based. The project was implemented in the form of a website using Django(python).

Using the various resources and tools we gathered along the way, we implemented the **COLLEGE INFORMATION MANAGEMENT SYSTEM** using some features that solve the current problems in the system such as a provision to edit the attendance and marks before locking it at the end. The software was also tested using the various testing methods and results were positive.

Thus, the results can be integrated in the current system to improve it's working and solve some of the existing problems.

ACKNOWLEDGEMENT

We would like to express our gratitude and appreciation to all those who gave us theopportunity to complete this project. Special thanks to our supervisor **Dr. Prateek Pandey** whose help, stimulating suggestions and encouragement helped us in all the time of development process and in writing this report. We alsosincerely thanks for the time spent proofreading and correcting my many mistakes. We would also like to thank our parents and friends who helped us a lot in finalizingthis project within the limited period. Last but not the least I am grateful to all the team members of **COLLEGE INFORMATION MANAGEMENT SYSTEM.**

Thanking you

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LIST OF FIGURES

Table of Contents

CHAPTER-1

Introduction

The objective of College Information Management System is to allow the administrator of any organization the ability to edit and find out the personal details of a student and allows the student to keep up to date his profile. It'll also facilitate keeping all the records of students, such as their id, name, mailing address, phone number, DOB etc. So all the information about a student will be available in a few seconds. Overall, it'll make Student Information an easier job for the administrator and the student of any organization.

The main purpose of this project is to illustrate the requirements of the project College Information Management System and is intended to help any organization to maintain and manage personal data. It is a comprehensive project developed from the ground up to fulfill the needs of colleges as they guide their students. This integrated information management system connects daily operations in the college environment ranging from Attendance management to communicational means among students and teachers. This reduces data error and ensures that information is always up-to-date throughout the college. It provides a single source of data repository for streamlining your processes and for all reporting purposes. It has a simple user interface and is intuitive. This ensures that the users spend less time in learning the system and hence, increase their productivity. Efficient security features provide data privacy and hence, increase their productivity.

1.1 Introduction to problem domain

As we know that, a college consists of different departments, such as course departments, fees management, library, event management etc. Nowadays applications and uses of information technologies is increased as compared to before, each of these individual departments has its own computer system to do their own functionalities. By having one main system they can interact with each other from their respected system by having valid user id and password

1.2 Aim of problem

The objective of College Information Management System is to allow the administrator of any organization the ability to edit and find out the personal details of a student and allows the student to keep up to date his profile. It'll also facilitate keeping all the records of students, such as their id, name, mailing address, phone number, DOB etc. So, all the information about a student will be available in a few seconds. Overall, it'll make Student Information an easier job for the administrator and the student of any organization.

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1.3 Time schedule for completion of the project work

The Project schedule activities will consist of following:

1. Forming the Team
2. Selecting the Project Title
3. System Requirement Collection
4. System Design
5. Acquiring the required resources
6. Coding
7. Testing of the Application
8. Deployment

1.4 Hardware and Software Specification

Hardware

CPU : Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.60 GHz

Memory : 4GB(DDR4| DDR2) Ram or more

User Interface : The User interface is made using Bootstrap

Software

PyCharm

Operating System : Windows 11 (64-bit operating system, x64-based processor)

Database : We are using SQLite database, which comes as default with Django

CHAPTER-2

Requirement Engineering

2.1 Inception

Inception is a process of establishing a basic understanding of the problem and the nature of the solution. This includes the need for this software, identification of stakeholders and defining multiple viewpoints.

2.1.1 What is the purpose of this project?

There is currently an ERP system in our college. But not everyone is happy with the system. While it is a step towards automating the college activities, it comes with its own set of problems. This project is designed to implement a college ERP system to eradicate some of these problems and add some features of our own that would add value to system.

2.1.2 Why do we need ERP?

Nowadays, in schools and colleges, it is very difficult to manage each and everything manually. Supervising and maintaining the whole database of a school or college can be time-consuming and challenging especially if it’s done on a regular basis. So, we need to handle and manage everything smartly.

To solve this problem ERP(Enterprise Resource Planning) is used. ERP software makes it easy to track the progress of every department of school and automate different functions. With ERP everything can be seen on a single dashboard. The administrator can manage the college from anywhere. The possibilities of maintaining the whole database of a college with ERP software are endless.

Some of the prominent roles are:

• Manages the office and automates different functions.

• Helps in long-term management and planning of all departments of college.

• Eliminates the need for having multiple management software for each department.

• Daily activities like attendance can be digitalized and automated.

• Leave module for teachers can be automated.

2.1.3 Viewpoints

Teachers' viewpoint

For a teacher, this software must be easy to use. It should be easy to find different modules like attendance, leave module, internals marks, result etc...Teachers are the one who update the contents of the database, so it should be update save modify it.

Students' viewpoint

A student can only view the information about himself, other than that everything will be hidden from them. They will not have the option to edit anything. So the graphical user interface must be good. They expect it to be functional.

Administrator's viewpoint

Administrator will have the privilege to view all the information about the college. They will have the option to track goals like, Average marks of all the students in a subject, Average attendance of all the students of a class etc...

2.2 Elicitation

When we started the project, we decided to collect the information from a couple of stakeholders like teachers, administrators, students and parents. They stated their role in the ERP system, their problems, likes and dislikes, problems they are facing with the software and how it is implemented

2.2.1 Teachers

We had an opportunity to meet our college Computer Science Department Prof. Dr. Prateek Pandey and Prof. Dr. PS Banerjee. They gave us an idea about how our college ERP was working and explained about their role in the ERP. We asked the following questions

Can you explain the attendance entry process in detail?

Generally, just like the students, even teachers have their own user ID and password for the login purpose. There will be a column reserved for attendance purpose in a hierarchical manner. First there will be two columns class and subjects. Under the class column there will be a list of all the classes allotted to the faculty. On the other column there is subjects which is further divided into

theoretical subjects which are of 4 credits for the university batch students. Since there are autonomous batch students who are yet to complete their degree there are separate columns reserved for them since their pattern is different from the university syllabus. They will be having theoretical subjects of 4 credits each and they will also be having separate lab sessions of 1 credit each. Since the credits of autonomous subjects vary from those of the subjects of the university subjects there must be changes in terms of attendance and the credits allocated for each subject.

Can you explain how application for leave is managed in this system?

There will be a column for the type of class. In this there will be further two types. Regular classes and alternate classes. Regular classes are those which the faculty handles for the allocated class as specified in the time-table. Alternate classes are those which the faculty handles in the absence of another faculty. When the faculty is on leave, it must be informed in the ERP such that the message goes to the professors and at the same time another teacher who is free. If the faculty wants to take extra classes due to the incompletion of the courses, then they should inform the students in the forum about the extra class and they can handle it Generally, for the teachers there are basically 4 types of leave.

1. Earned leave
2. Restricted leave.
3. Casual leave.
4. Sick leave.

What are some problems that you face with the current system?

When the faculty is inserting the attendance into the system, there must be a separate space for the faculty to fill what topics they have covered in the class. It will be time consuming for the faculty to enter the topic every time. So, for this purpose the software must be designed in such a way that it inserts the topic automatically. Firstly, all the topics and the duration for the faculty in which the faculty must cover must be mentioned. And then the faculty must investigate it and cover the syllabus according to the plan. This can also keep a track of the lecturer what they are teaching. If the doubts are raised by the students, then that would lead to shortage of time to cover the syllabus. So, for this purpose the faculty can have the freedom to extend the duration to cover those topics by handling extra classes when the students are free. For taking the extra class, the faculty must

block in the time table and it must be visible to all the faculties of that class so that there would be no collision in handling the extra class. Once if the faculty enters the attendance and if they press lock option, then there won't be any option to change the attendance of the students. Lastly, the teachers would like it if they could enter the attendance in the class itself. This would minimize the paper work and they could update the details at any place and at any time.

What do you expect from the module the lets you enter the marks of the students?

There will be another section to enter the CGPA of all the students. The internals will be for 25 marks and when the faculty enters it into the system. There will be 3 internals, followed by two events such as quiz, assignment. If the student scores below 50% of the allocated marks in the subject, then there must be a warning message sent to the student to score more marks in the upcoming internals.

At the end of all the events if the student could not mark the 50 marks, then there will be a make-up test conducted by the faculty so that the student would be having another chance to come up to the mark of 40%. This make-up test marks must be altered with the minimum marks of the CGPA scored. And the final CGPA marks should be displayed and be stated that the student is eligible or not eligible to take up the Semester End Examination. If the student is not able to take up the CGPA due to personal reasons or if he is representing the college in any form of the activity, then it must be brought into the notice of the lecturer and the leave can be availed. If the student is ill, then the medical certificate must be attested, and a letter must be sent to the HOD to take up re-test. After the faculty enters the CGPA there must be an option to save the CGPA marks. When the CGPA marks are saved then the students will not be able to see the marks in their marks. They can view their CGPA only when the marks are locked by the faculty. If the faculty locks the CGPA, then there would not be any chance to change the CGPA. The CGPA must be locked after confirming the marks with the students only.

2.2.2 Student

We met several of our classmates and asked them some questions on behalf of the students in the college.

As a student, what are some problems you are facing with the current system?

The GUI that is used in the interface is not up to the mark. For the students who were in supplementary batch, they could not attend the first few weeks of class as they had exams. But, in the system they were marked as absent which made their attendance drastically low. When the students are into college activities such as LCC sessions, IEEE sessions, representing our college in sports or any other activities then students are marked absent. There must be another way to handle these problems so that there will be justice for the students for their hard work

2.2.3 Administrator

We met the college administrator and asked the following question

What are your requirements from the ERP system as an admin?

As an administrator, they deal with large amount of data and functions. The system must be modular with a simple interface. The admin performs many functions on the database. These include searching for a record, add, update and delete a record. Thus, their interface needs to be quick and searching for records in the huge database must be optimized.

2.3 Specification

2.3.1 Introduction

Purpose

The purpose of this project is to develop a College Management System that helps the teachers and students in easier management of college activities such as attendance, marks.

Intended Audience and Reading Suggestions

This project is intended for staff and students of Jaypee University of Engineering and Technology. This document has been made under the guidance of college professors. This document has been organized into Overall description followed by the features and then the functional and non-functional requirements. The document may be read to desire of the reader.

Project Scope

The project is designed to help the teachers and students manage their college activities. It consists of relational databases of students, departments, faculty, courses of the entire university. Using these databases, various functions that include Attendance management, marks management and leave management are provided. Within attendance management, a teacher can enter the attendance status of each student for each course with their respective dates. Similar to attendance, Internal and Semester end marks can also be entered for each student.

2.3.2 Overall Description

Product Perspective

This project is modeled based on the current ERP system in the college. Students and teachers face several problems while using the system. Therefore, we wanted to build a system that has lesser number of features than the current system but, has more functionality.

Product Features

• Each teacher will be able to enter attendance and marks for their respective students.

• Each student will be able to view the attendance status for their respective courses.

• The teachers will be able to apply for various types of leave directly through the system.

• The students will be able to Communicate and provide feedback to their teachers.

• The administrator will be able to view and update information such as departments, classes, teachers, students, courses.

User Classes and Characteristics

There are several types of end users for the college ERP system. They are broadly divided as Students, Staff and the Administrator. Each of these classes have their own set of features. The student should have the following features:

• View the Attendance status of the courses to which they are enrolled.

• View the Marks of the courses to which they are enrolled.

• View the notification from the college administrator.

• Communicate or give feedback to their respective teachers.

The staff should have the following features:

• Access to the information of all students that attend their courses.

• Add and edit the Attendance status of those students.

• Add and edit the exam marks of those students.

The administrator should have the following features:

• Add and update students, teachers and courses.

• Assign teachers and students to courses

Operating Environment

The operating environment for College ERP system are listed below:

• Operating System: Windows 10

• Database: SQLite database

• Front end: HTML/CSS/Bootstrap

• Back end: Django

2.3.3 System features

Expected requirement: Student and staff information

Description and priority Information regarding students, teachers and courses are stored in the database. Every user can view only certain information based on their user class. For example, a teacher can view student and course information that they are handling. This feature is of high priority as the information must be viewed by only the authorized users.

Functional requirements

• 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.

Normal requirement: Attendance and marks entry

Description and priority Attendance and marks entry is the main feature of the College ERP system. Hence, the priority is high. Teachers update the attendance and marks of the students who are part of her class. Students can view their respective Attendance and marks of the courses they have taken.

Functional requirements

• 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.

2.3.4 External Interface Requirements

User Interfaces

The User interface is made using Bootstrap. Firstly, there will be a simple login page separate for students and teachers. Each student and teacher will have a unique interface. There will be a fixed sidebar with links to all the modules. The teachers will be able to view their respective students and update their attendance and marks using an effortless interface.

Hardware Interfaces

Since neither the mobile application nor the web portal have any designated hardware, it does not have any direct hardware interfaces. Any browser can be used to access the webapp.

Software Interfaces

The following is a list of software used in making of the project.

• Operating System: We have chosen Windows operating system for its best support.

• Django: We have chosen to use Django for the back-end of the website as Django is a simple python framework and is suitable for beginners.

• Database: We are using SQLite database, which comes as default with Django.

Communications Interfaces

This project is to be deployed an online website. All the users can connect to the database server from anywhere and have access to their information.

CHAPTER-3

SYSTEM ANALYSIS & DESIGN

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 incorporate information hiding. The software is divided into 3 modules which are students, teachers and administrators. We shall look at each module in detail.

3.1 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 if below a specified threshold, say 75%, It will be marked in red otherwise it 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. Notification are messages from the admin such as declaration of holidays, test time-table etc. The events and their details are specified here.

3.2 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 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.

3.3 Administrator

The administrator will have access to all the information in the different tables in the database. They will access to all the tables in a list form. They will be able to add a entry in any table and also edit them. The design of the view for the admin will provide a modular interface so that querying the tables will be optimized. They will be provided with search and filter features so that they can access data efficiently.

3.4 Class Diagram

The class diagram states the different classes involved in the software. For each class, a set of attributes and method are included. The relationship between the classes are also specified. For example, the teacher class has the attributes Id, name, phone no, address and methods such as marking attendance, declaring marks and preparing report cards. Each instance of the teacher class belongs to a department. This is specified by the relationship between Teacher and Department classes.

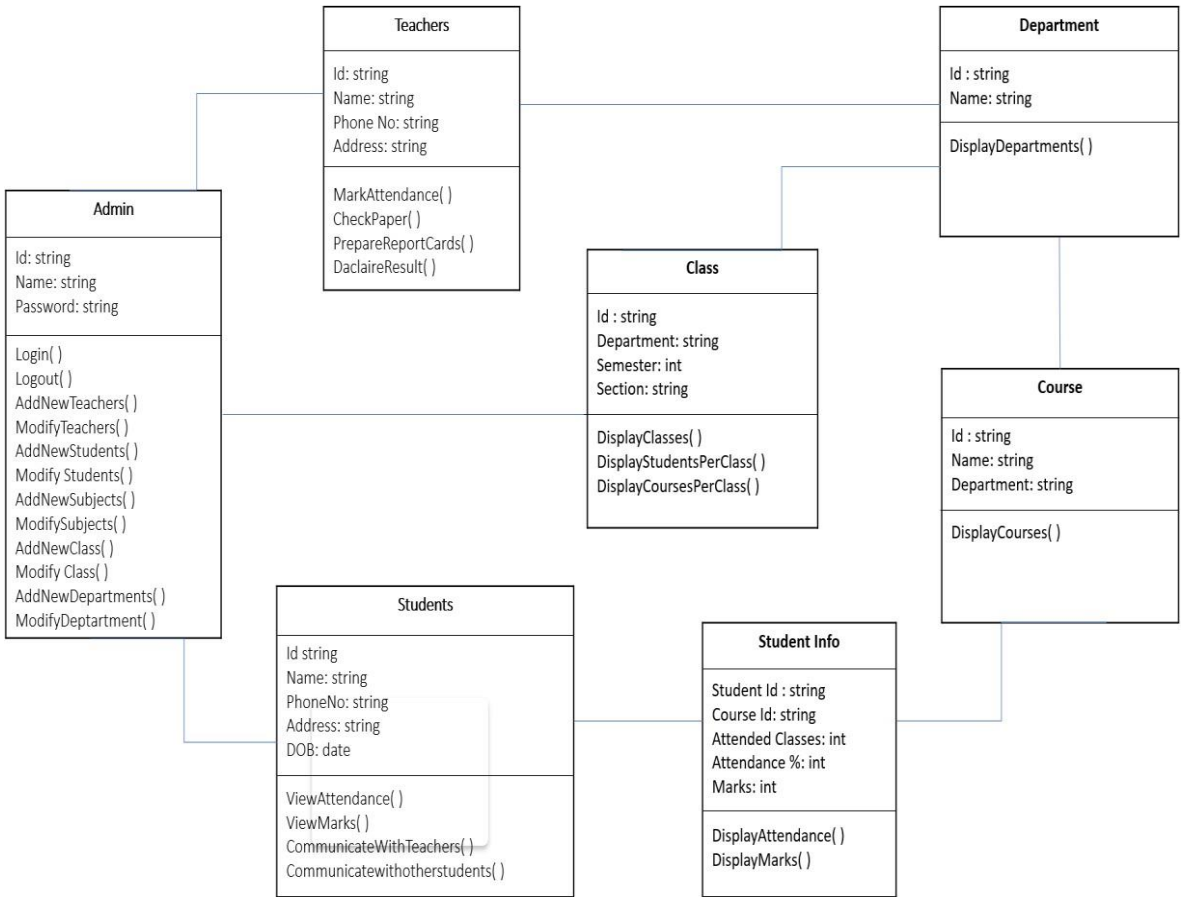

Figure 3.1 Class Diagram

3.5 Entity Relationship Diagram

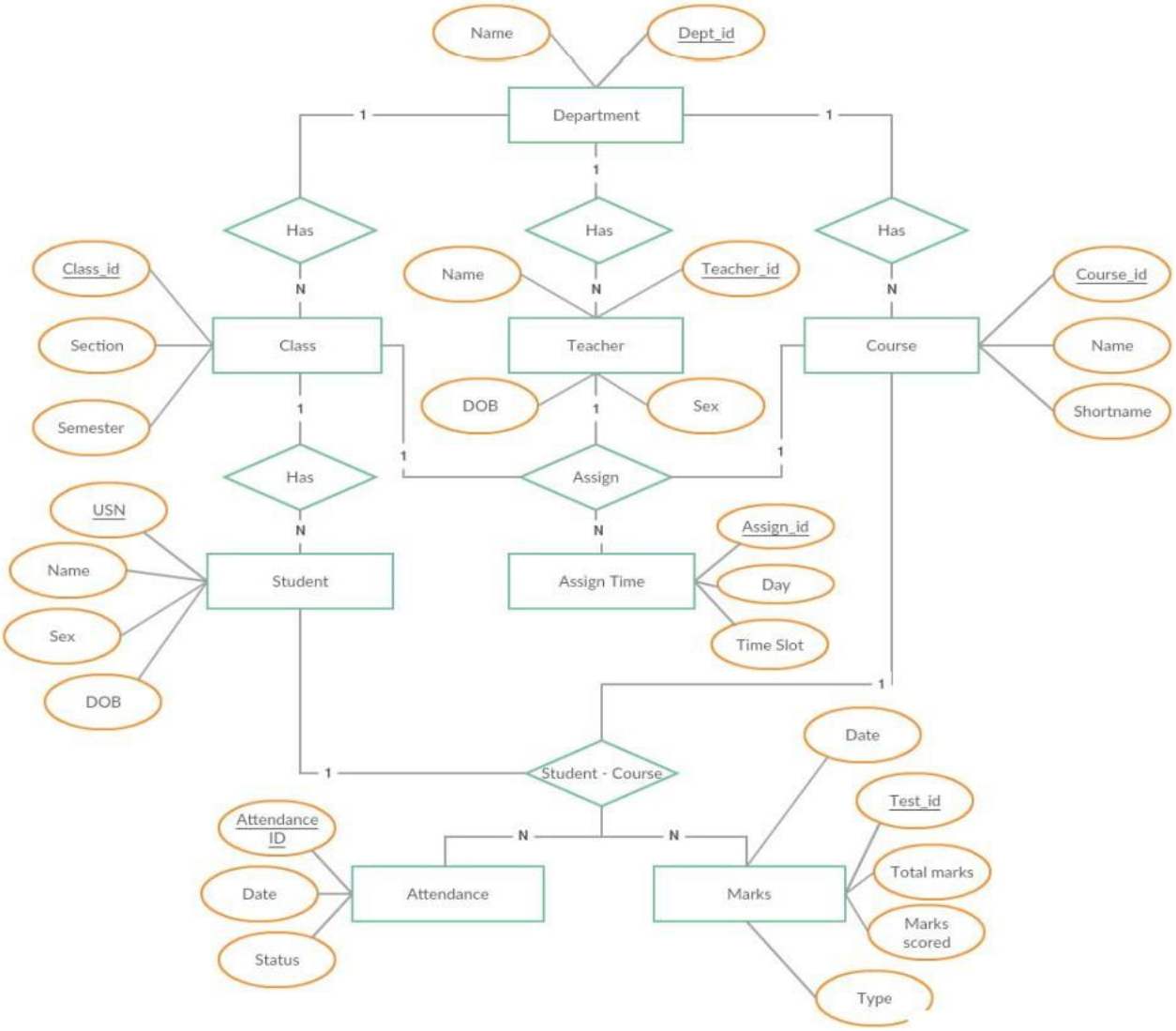

Figure 3.2 E-R Diagram

3.6 Architectural design

The ERP software requires the architectural design to represent the design of the software. Here we define a collection of hardware and software components and their interfaces to establish the framework for the development of this software.

There exists number of components of the system which are integrated to form a system. The set of connectors will help in coordination, communication, and cooperation between the components. The ERP software is built for computer-based system. It exhibits the data centric style of architecture.

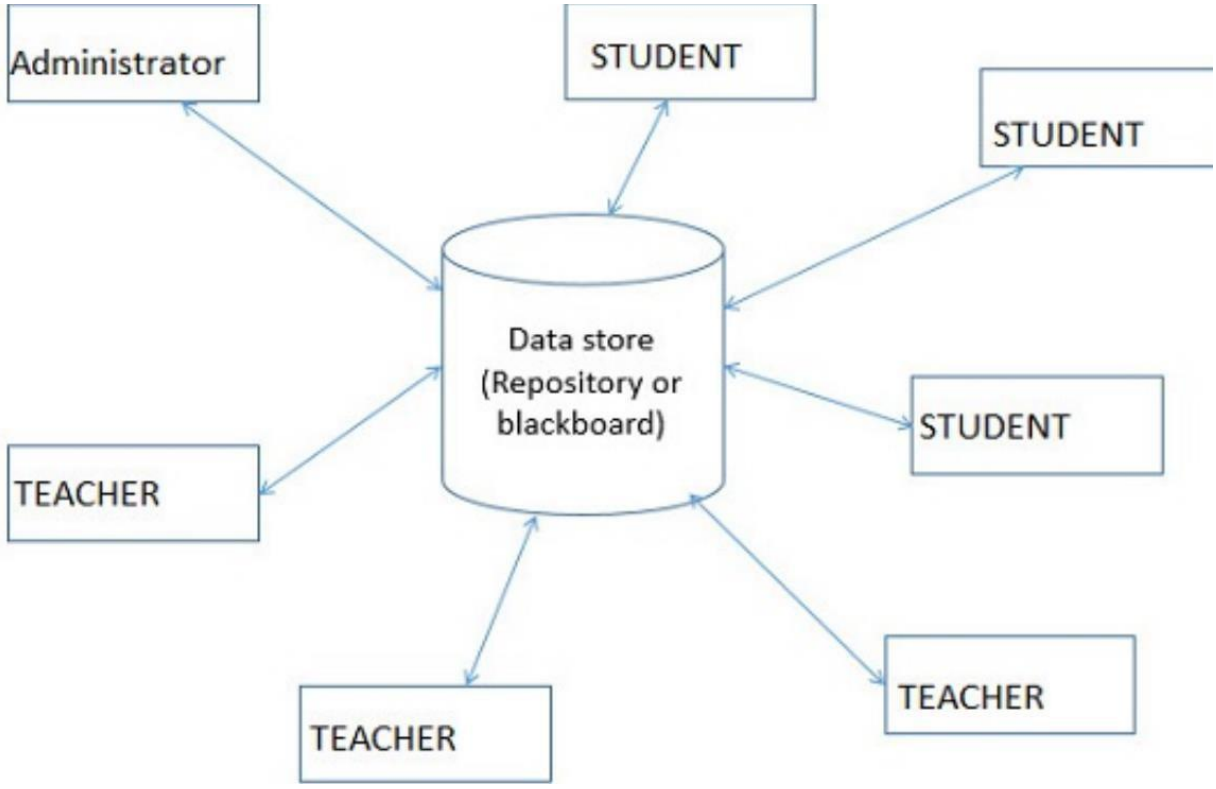

Figure 3.3 Centric data architectural design

CHAPTER-4

SYSTEM IMPLEMENTATION

The college ERP system has three main user classes. These include the students, teachers and administrator. This section will explain in detail all the features and the working of those for each user class.

4.1 Student

4.1.1 Login

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

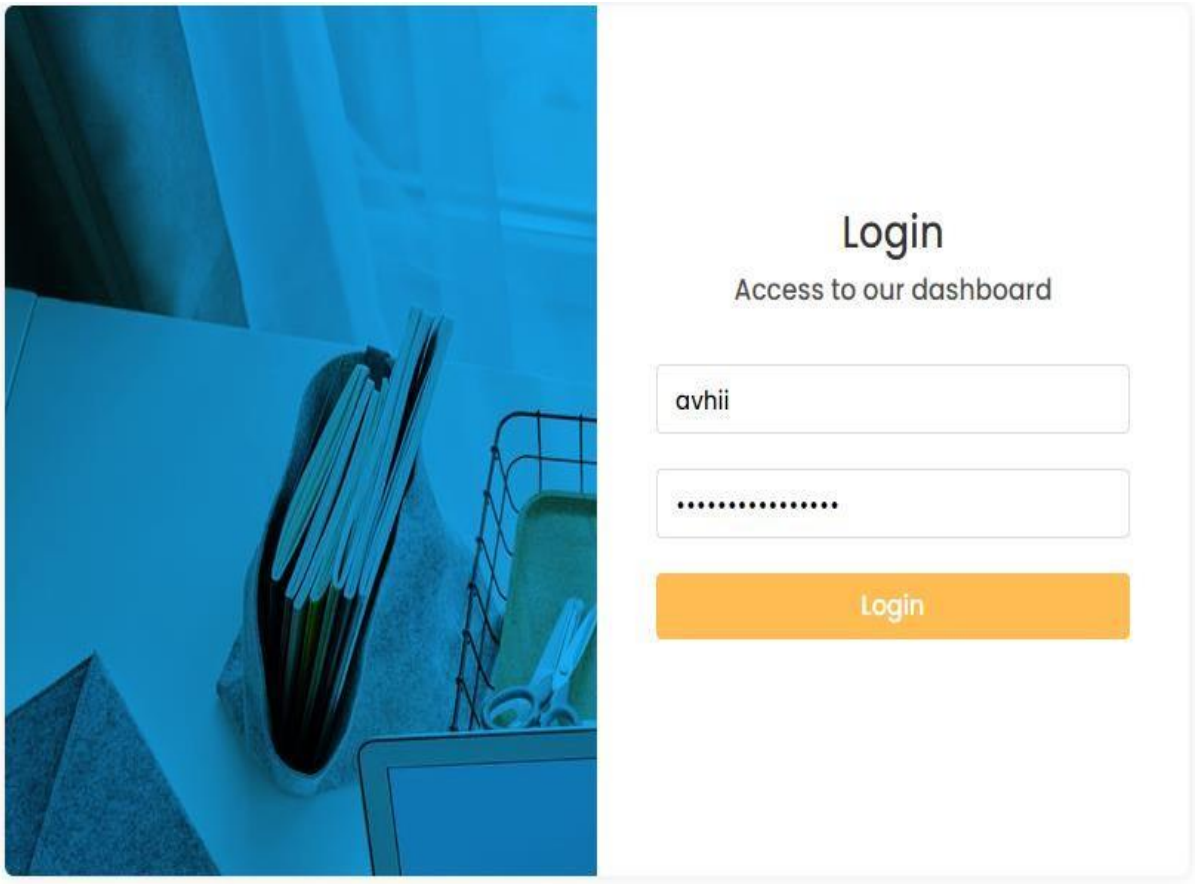

Figure 4.1 Student Login page

4.1.2 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 subjects.

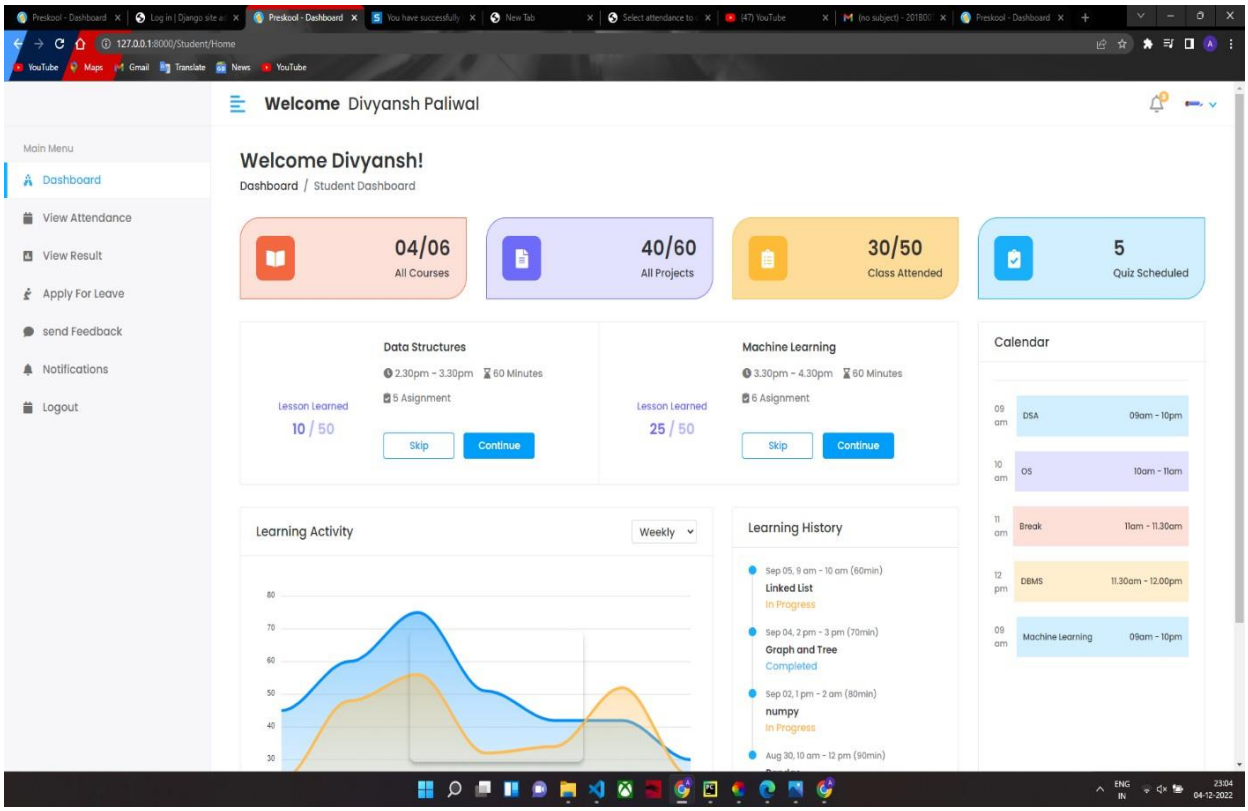

Figure 4.2 Student Home Page

4.1.3 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, day and whether the student was present or absent on that particular date.

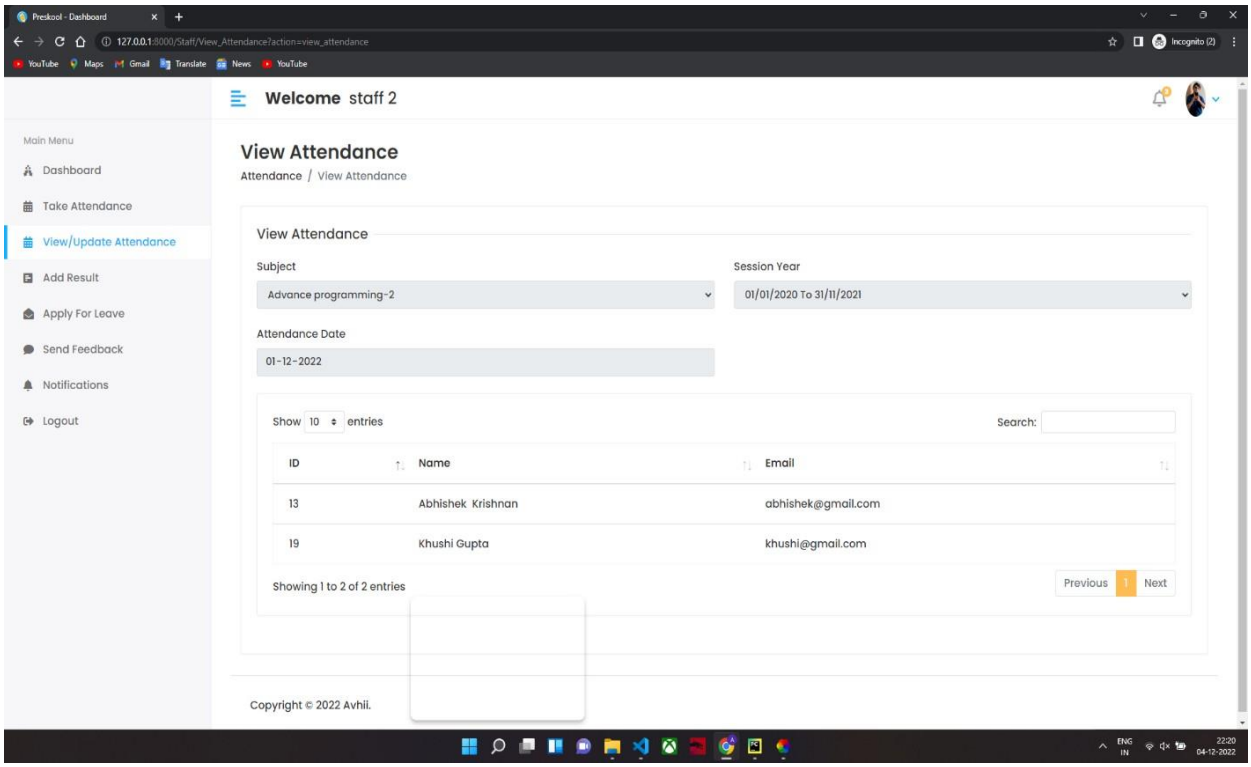

Figure 4.3 Attendance Details

4.1.4 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.

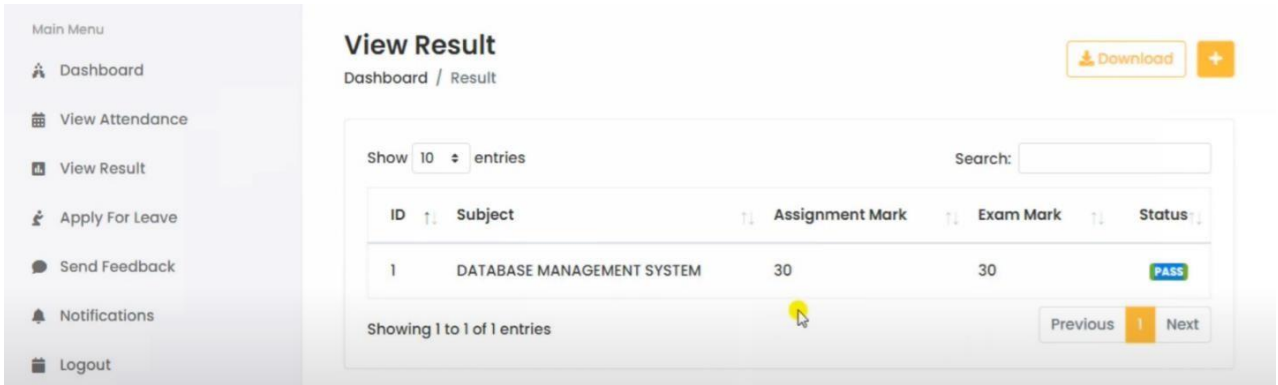

Figure 4.4 Student Marks Details

4.1.5 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.

4.2 Teacher

4.2.1 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.

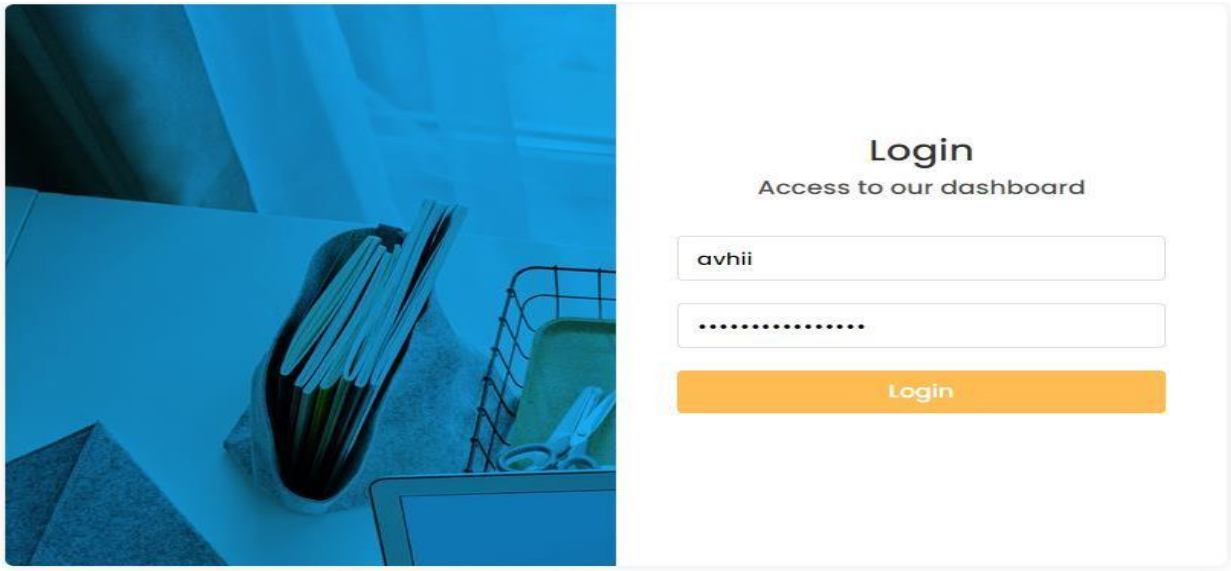

Figure 4.5 Teacher Login page

4.2.2 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.

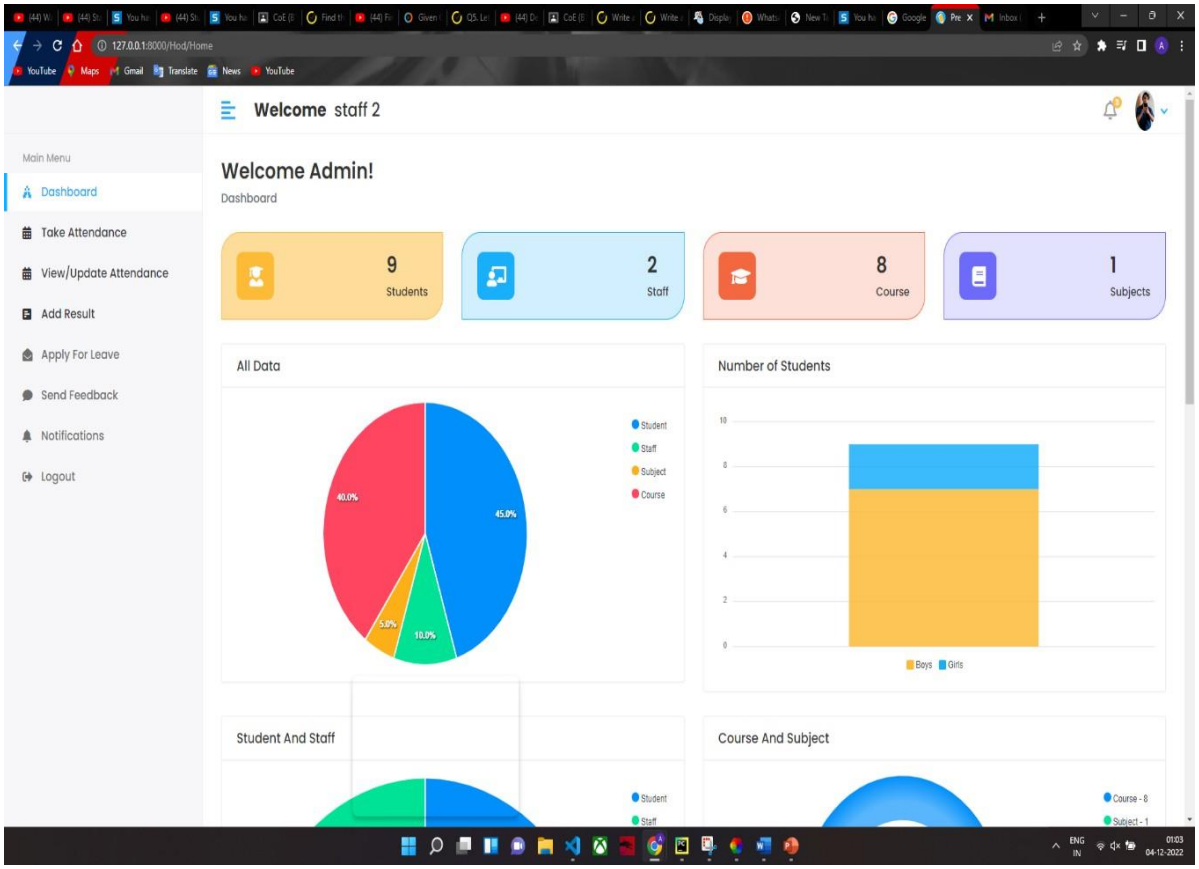

Figure 4.6 Teacher Home Page

4.2.3 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

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.

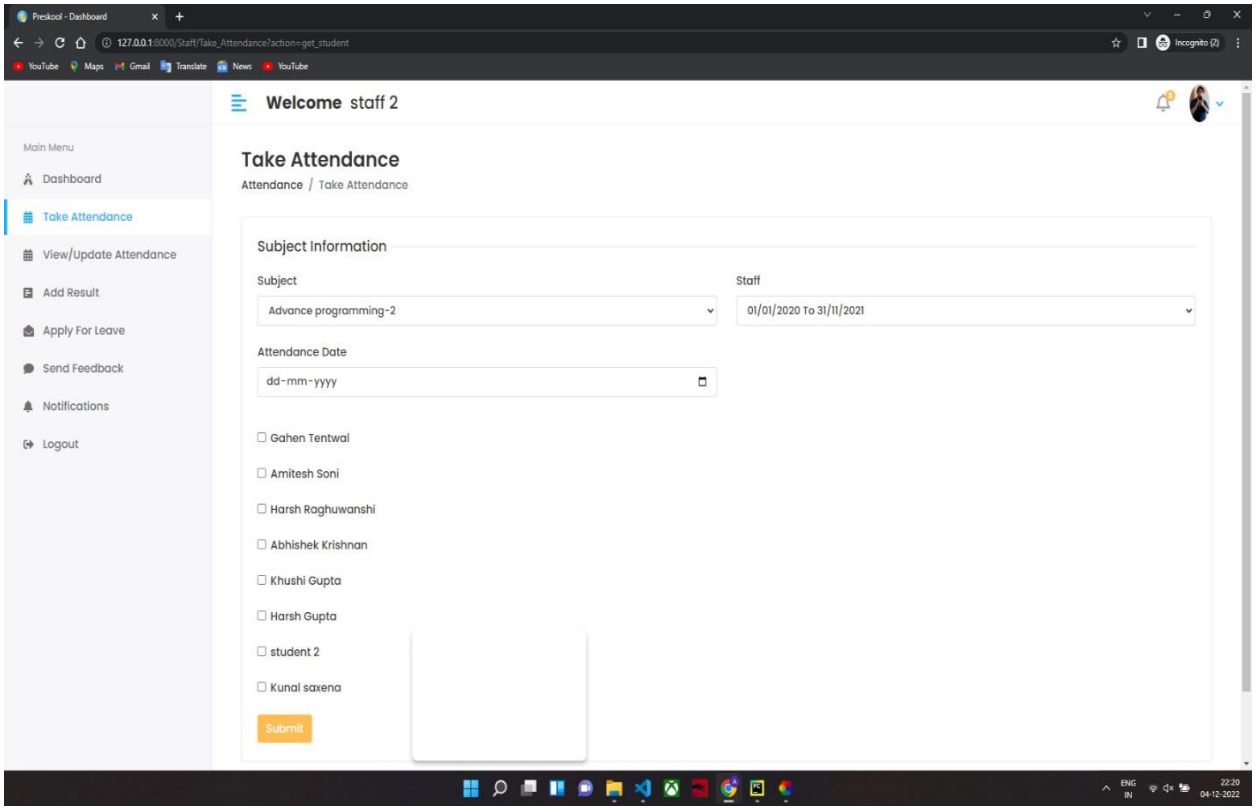

Figure 4.7 Teacher Attendance Section

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.

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.

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.

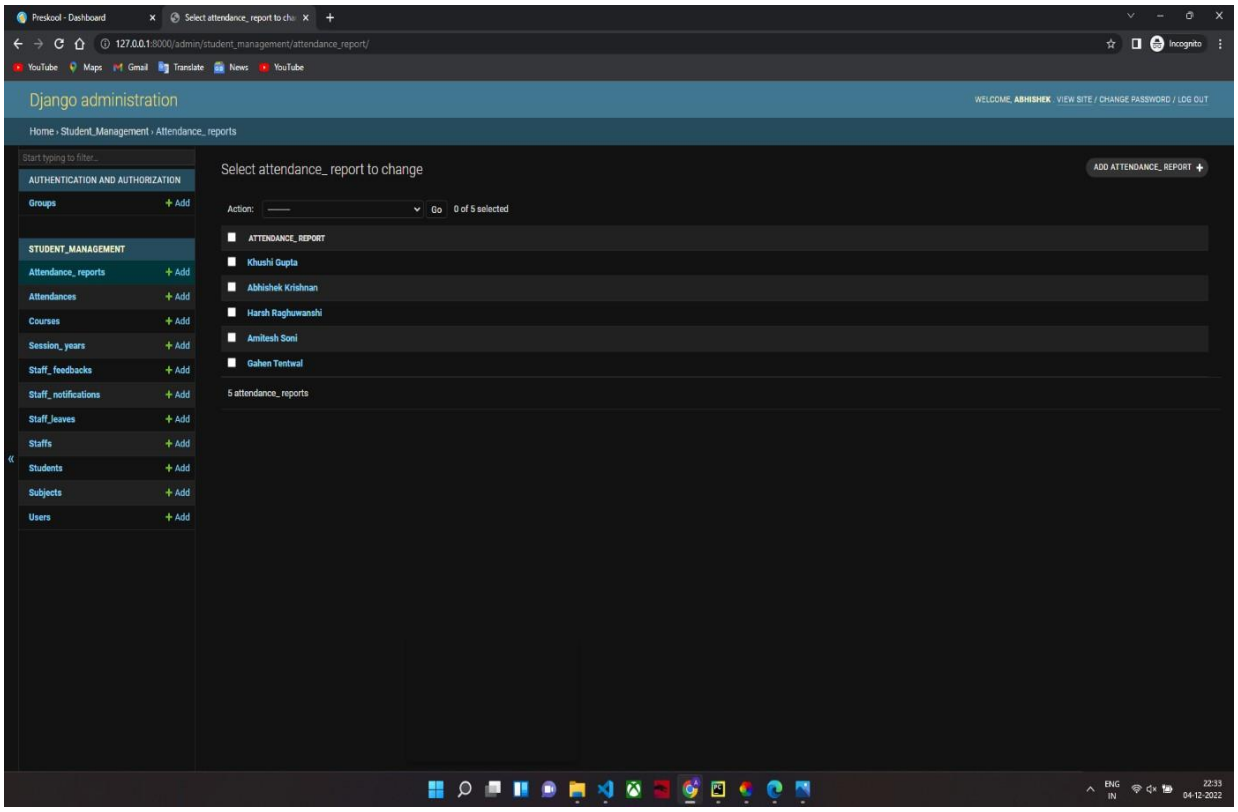

Figure 4.8 Backend Attendance list

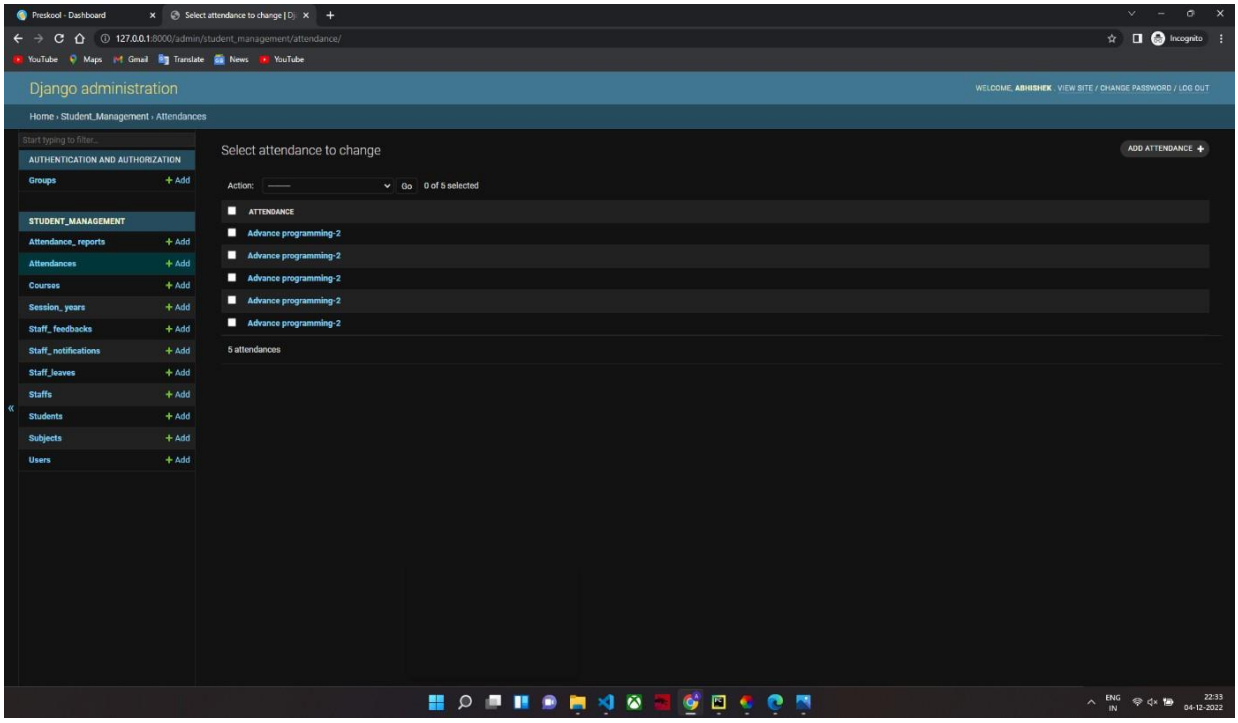

Figure 4.9 Backend Attendance Details

4.2.4 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. Incase if there is a need to change the marks of any student, it is possible to edit the marks.

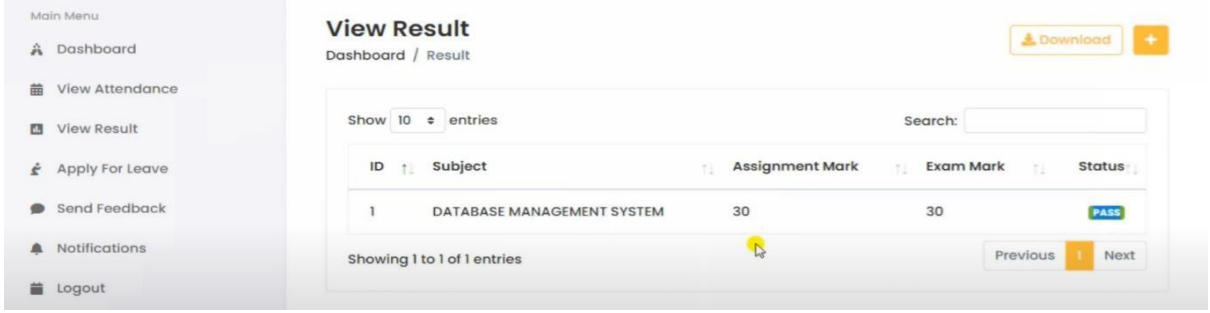

Figure 4.10 Marks Entry

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.

4.2.5 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.

4.2.6 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 CGPA and attendance percentage. CGPA is the average of the marks obtained from the tests, 3 internals and 2 events. The CGPA is out of 50 and the students with CGPA below 25 are marked in red and are not eligible to write the semester end exam. Also, the attendance 43 percentage is displayed with students below 75% marked in red.

4.3 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 got a specific record based on name or id. Also, it can filter the record based on department, class etc.

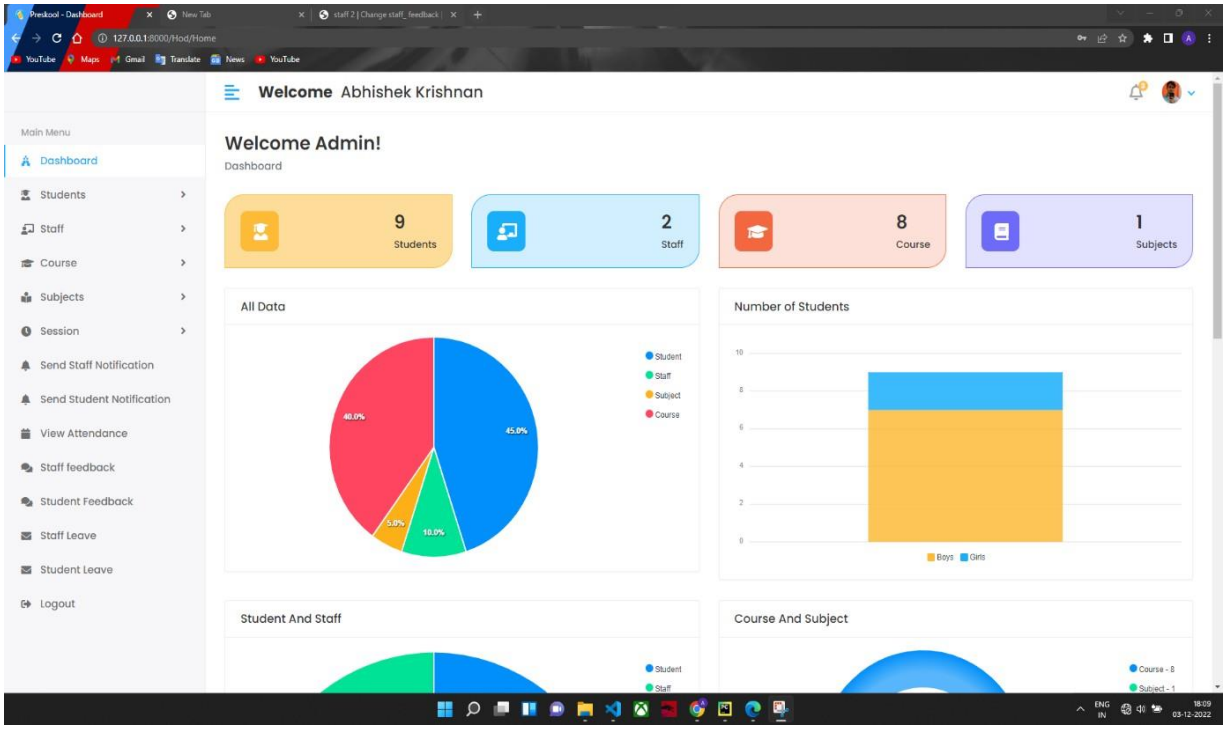

Figure 4.11 Admin Homepage

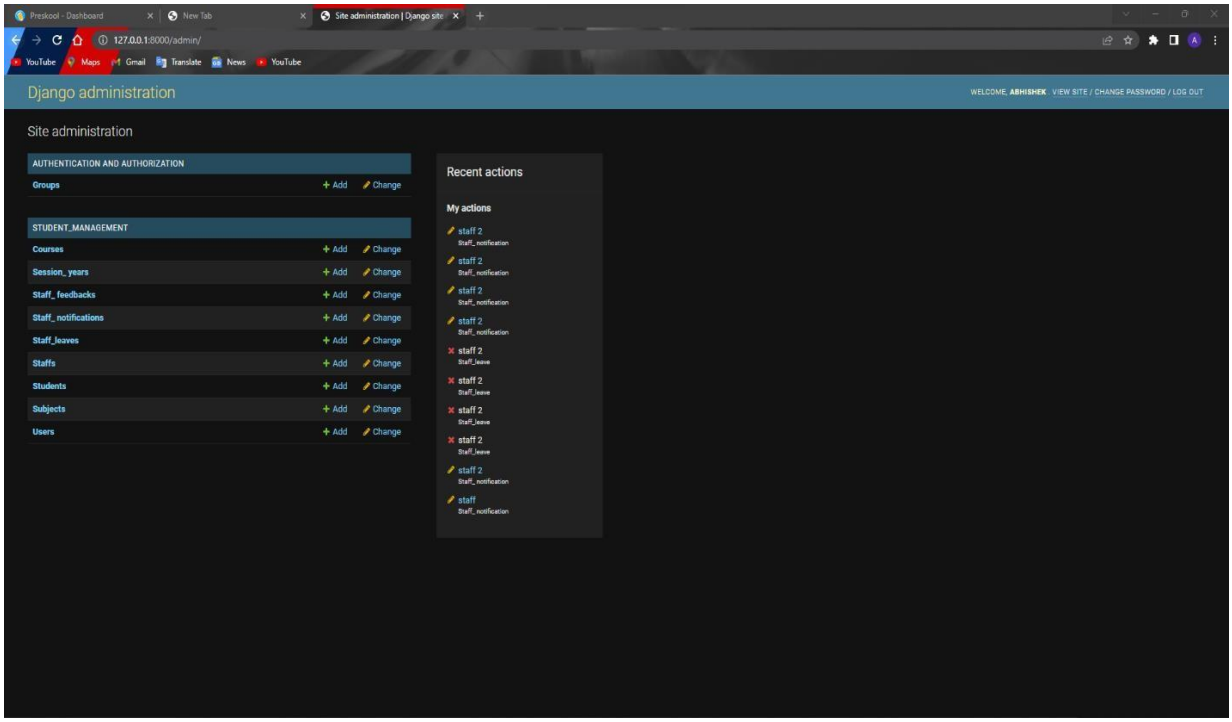

Figure 4.12 Backend Homepage

CHAPTER-5

SYSYEM TESTING AND RESULT ANALYSIS

The completion of a system will be achieved only after it has been thoroughly tested. Though this gives a feel the project is completed, there cannot be any project without going through this stage. Hence in this stage it is decided whether the project can undergo the real time environment execution without any break downs, therefore a package can be rejected even at this stage.

5.1 Testing methods

Software testing methods are traditionally divided into black box testing and white box testing. These two approaches are used to describe the point of view that a test engineer takes when designing test case

```
from django.test import TestCase
from info.models import Dept, Class, Course, User, Student, Teacher, Assign, Attendance
from django.urls import reverse
from django.test.client import Client
class InfoTest(TestCase):
def create_user(self, username='testuser', password='project123'):
self.client = Client()
return User.objects.create(username=username, password=password)
# test to check whether an object in the user table is created without errors
def test_user_creation(self):
us = self.create_user()
ut = self.create_user(username='teacher')
s = Student(user=us, USN='CS01', name='test')
s.save()
t = Teacher(user=ut, id='CS01', name='test')
t.save()
self.assertTrue(isinstance(us, User))
```

self.assertEqual(us.is_student, hasattr(us, 'student'))

self.assertEqual(ut.is_teacher, hasattr(ut, 'teacher'))

 # function used to create test users

def create_dept(self, id='CS', name='CS'):

return Dept.objects.create(id=id, name=name)

 # test to check whether an object in the user table is created without errors

def test_dept_creation(self):

d = self.create_dept()

self.assertTrue(isinstance(d, Dept))

self.assertEqual(d._str_(), d.name)

5.1.1 Black Box

Testing Black box testing treats the software as a "black box," without any knowledge of internal implementation. Black box testing methods include: equivalence partitioning, boundary value analysis, all-pairs testing, fuzz testing, model-based testing, traceability matrix, exploratory testing and specification-based testing.

We performed black box testing on the teacher page to make sure every page was working as desired. We took into consideration various test cases and noted down the results. Below we have recorded various test cases and their respective results

Test Case: 1

Request the attendance page for a teacher with no assigned classes.

The web page loaded with message "Teacher has no classes assigned".

Test Case: 2

Request the attendance page for a teacher with 1 assigned class.

The web page displayed the assigned class and options to enter attendance and view the students

Test Case: 3

Request to enter the attendance for an assigned class with one test student

The web page displays the student with his/her details and options to mark present or absent. On marking absent, it can be viewed by the student.

Test Case: 4

Request to edit the attendance for an assigned class with one test student

The student is listed with his/her details and is initially marked as absent from the previous test. On marking present, the attendance for that student and can be viewed by the student.

Test Case: 5

Request to view the student information for an assigned class with no students

The requested page is display with no content and a message stating ”This class has no students assigned”

5.2 Results of testing

After applying various testing methods such as black box testing, white box testing and acceptance testing, We can conclude that the testing for the software is completed. To summarize the testing phase, white box testing is done using the inbuilt feature of Django to apply unit tests to all the components in the software. After any changes to the software, we can run the tests on the software automatically and thus we can find and eliminate any bugs or errors in the system easily instead of performing rigorous manual testing after every change.

In black box testing, we testing all the components and system as a whole. Several test cases were considered and extensive tests were conducted. The results of these tests were positive and any errors were fixed during the testing phase.

Chapter 6

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.

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. 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.

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 7

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