Internet and Web Systems

Project Report

COLLEGE ERP SYSTEM

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DECLARATION

We hereby declare that the work, which is being presented in the Project Report, entitled "College ERP System" in fulfilment as our Internet and Web Systems Final Project is a record of our own investigations carried under the guidance of Dr. Dolly Sharma , Department of Computer Science and Engineering.
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We have not submitted the matter presented in this Project Report anywhere for the award of any other course.

Date: 26/11/19
Place: Greater Noida

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 were 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 ERP 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 ERP system to improve it's working and solve some of the existing problems.
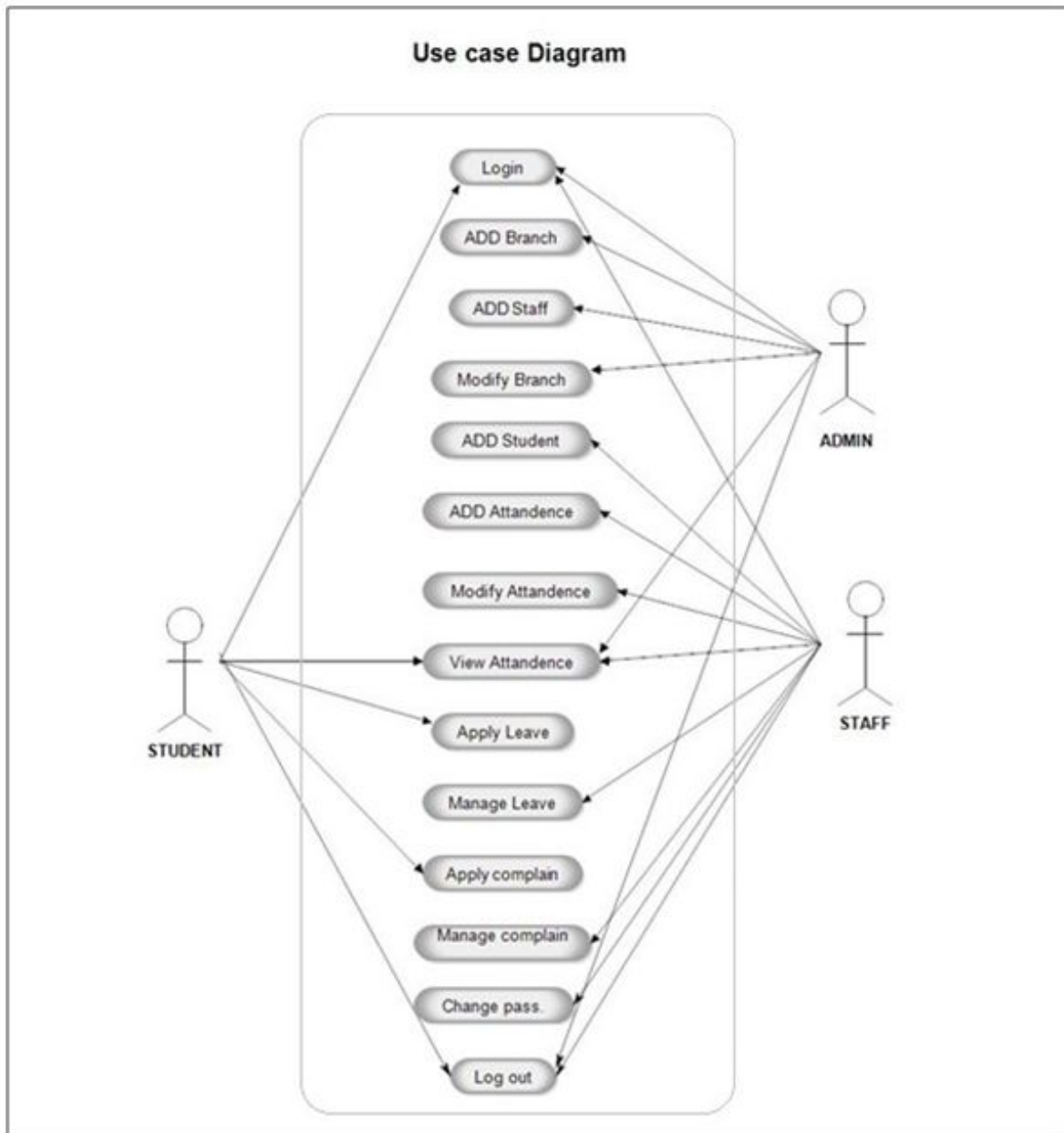
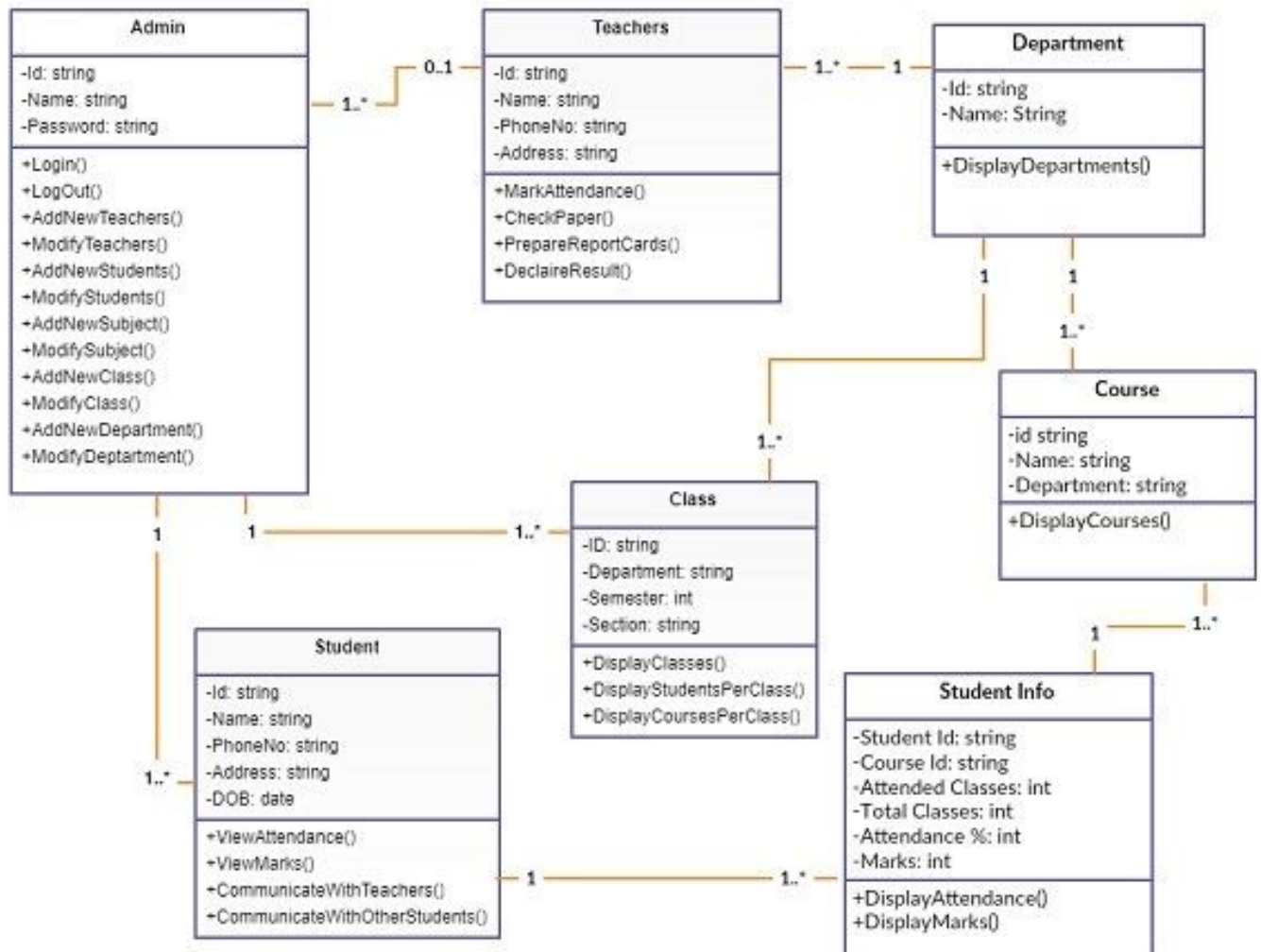# TABLE OF CONTENTS:

LIST OF FIGURES

Use Case Diagram

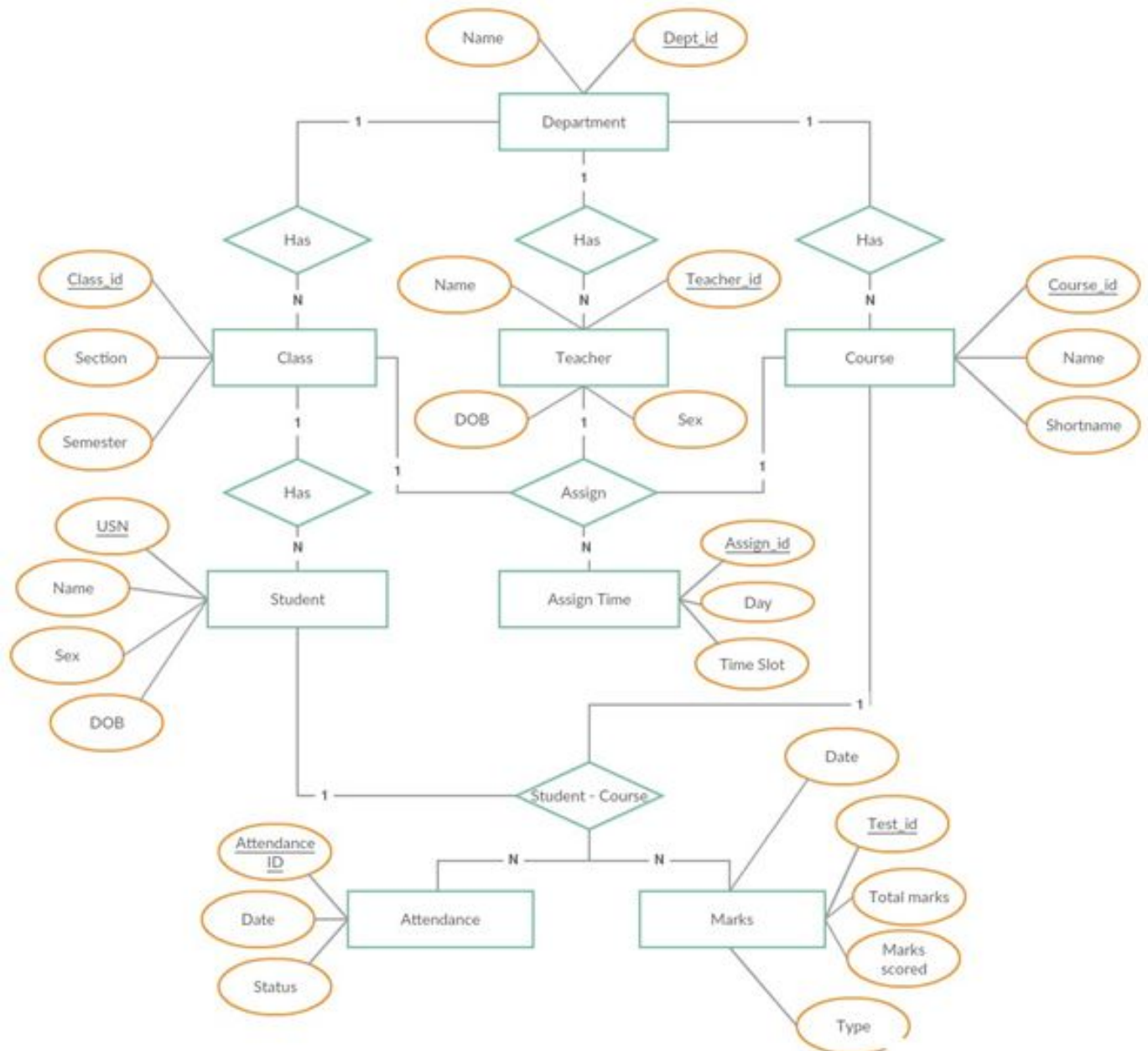(shows the relationship between the user and the different use cases in which the user is involved)

Class Diagram

(Shows the attributes and methods of each class and also gives the relationship between the classes)

Admin

-Id: string
-Name: string
-Password: string

+Login()
+LogOut()
+AddNewTeachers()
+ModifyTeachers()
+AddNewStudents()
+ModifyStudents()
+AddNewSubject()
+ModifySubject()
+AddNewClass()
+ModifyClass()
+AddNewDepartment()
+ModifyDeptartment()

Teachers

-Id: string
-Name: string
-PhoneNo: string
-Address: string

+MarkAttendance()
+CheckPaper()
+PrepareReportCards()
+DeclaireResult()

Department

-Id: string
-Name: String

+DisplayDepartments()

Course

-id string
-Name: string
-Department: string

+DisplayCourses()

Class

-ID: string
-Department: string
-Semester: int
-Section: string

+DisplayClasses()
+DisplayStudentsPerClass()
+DisplayCoursesPerClass()

Student

-Id: string
-Name: string
-PhoneNo: string
-Address: string
-DOB: date

+ViewAttendance()
+ViewMarks()
+CommunicateWithTeachers()
+CommunicateWithOtherStudents()

Student Info

-Student Id: string
-Course Id: string
-Attended Classes: int
-Total Classes: int
-Attendance %: int
-Marks: int

+DisplayAttendance()
+DisplayMarks()

Entity Relationship Diagram
(ER diagrams are used to sketch out the design of a database.)

INTRODUCTION

Institutes need a central resource planning that can manage the entire information and operations of the institutions, and hence an Enterprise Resource Planning system is implemented. The end-user of the system will be the teachers and the HoDs of each department, Students and administrators.

The purpose is to improve efficiency and flexibility of college record management and to provide a common and simple platform for everyone to access the student's information.College Automation System consists of different modules such as student, faculty, admin etc and interconnectivity among modules reduces the time to perform different operational task.

The College ERP system now computerized all the details that were maintained manually.Only a person is enough to maintain all the reports and records and security can also be given as per the user requirement.

Introduction to problem domain

As we know, a college consists of different departments, such as course departments, fees manage- ment, 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 respective system by having valid user id and password.

Aim of the problem

The objective of College Information Management System is to allow the ad- ministrator of any organi-ation 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 insures that the users spend less time learning the system and hence, increase their productivity. Efficient security features provide data privacy and hence, increase their productivity.

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, testing and deployment

SYSTEM ARCHITECTURE
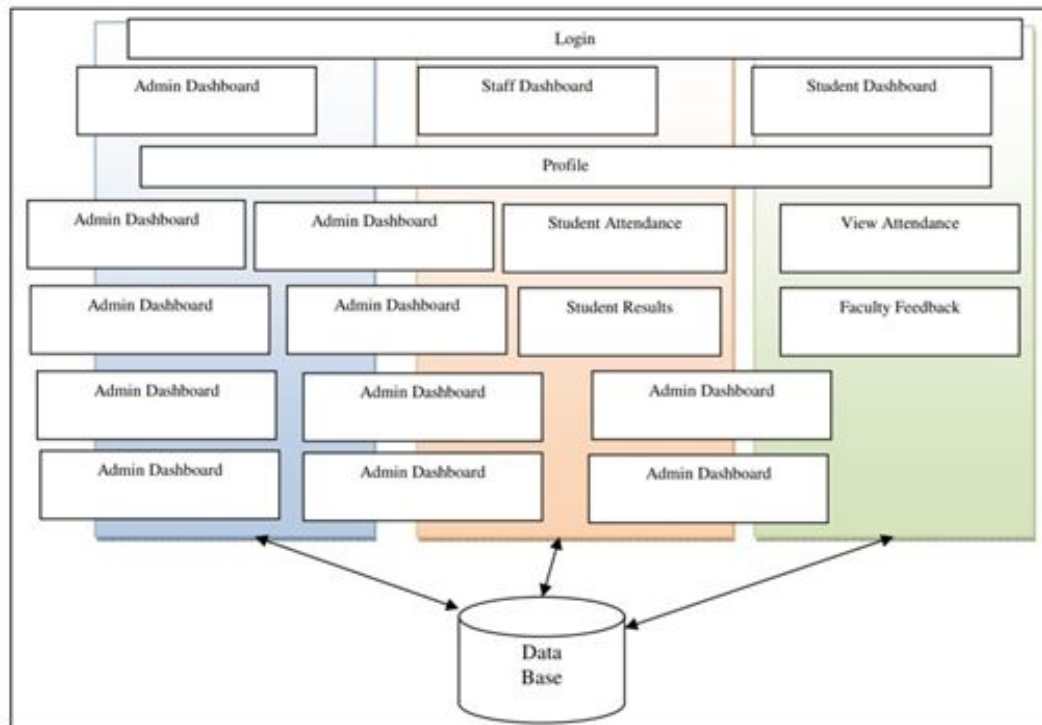
The ERP software requires the architectural design to represent the design of the software. Here we define a collection of hardware and software components and their interfaces to establish the framework for the development of this software.
There exists a number of components of the system which are integrated to form a system. It exhibits the data centric style of architecture.

The architecture comprises of various modules as given in the figure. There are 3 major categories in which the whole architecture is divided. These are administrators, staff and students. The architecture is designed in such a way that it is self explanatory. The admin roles are user management, staff management, student management, staff attendance. Staff and admin perform some common functions like news management, leave management, time table management, exam management.

Generalizing E-college architecture is 3 tiers. The 3 tiers comprises of presentation layer, application logic layer and data layer.

Any Information System needs to communicate with external entities, human users or other computers. Presentation layer allows these entities to interact with the system; it can also be implemented as a GUI interface and can be referred to as the client of the IS.

Application layer do more than information delivery, they perform data processing (Business Logic and calculation) behind the results being delivered. This tier is often referred as
1.Services
2.Business rules
3.Business logic
4.Servers
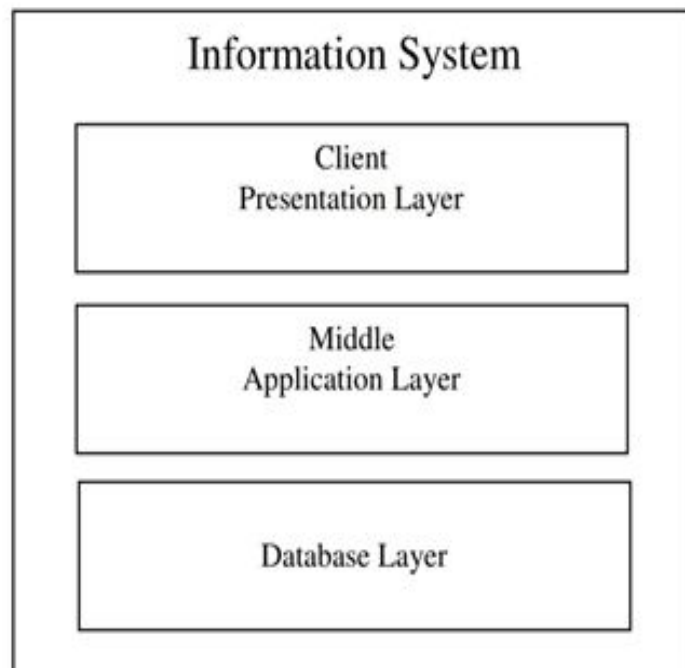
THE PROJECT

1. Operating Environment

- Database: MySQL database

- Front end: HTML/CSS/Bootstrap

- Back end: Django

2. INTERFACE

Firstly, there will be a login page unique for students and teachers with 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.

Any browser can be used to access the web app.We have chosen to use Django for the back-end of the website as Django is a simple python framework and we are using SQLite database, which comes as default with Django.

3. 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.

<u>Security requirements</u>

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.

<u>Software Quality Attributes</u>

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 in- formation 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.

4. MODULES

The college ERP system has three main user classes. These include the students, teachers and administrators.

Viewpoints

<u>Teachers viewpoint</u>

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 automatically saved when modified.

<u>Students viewpoint</u>

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.

<u>Administrator's viewpoint</u>

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.

STUDENT

<u>Login</u>

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

<u>Homepage</u>

After successful login, the student is presented a homepage with their main sections, attendance, marks and timetable.

<u>Attendance</u>

For each course, the course id and name are displayed 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.

<u>Marks</u>

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.

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.

TEACHER

Login

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

Homepage

After successful login, the teacher is presented a homepage with their main sections, attendance, marks, timetable and reports.

Attendance

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

1. Enter Attendance

On this page, the classes scheduled or conducted is listed in the form of a list. If the attendance of any day is not marked it will be red, otherwise green if marked. 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.

2. 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.

3. 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.

4. 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.

Marks

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

1. Enter Marks

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.

2. 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.

3. 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

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.
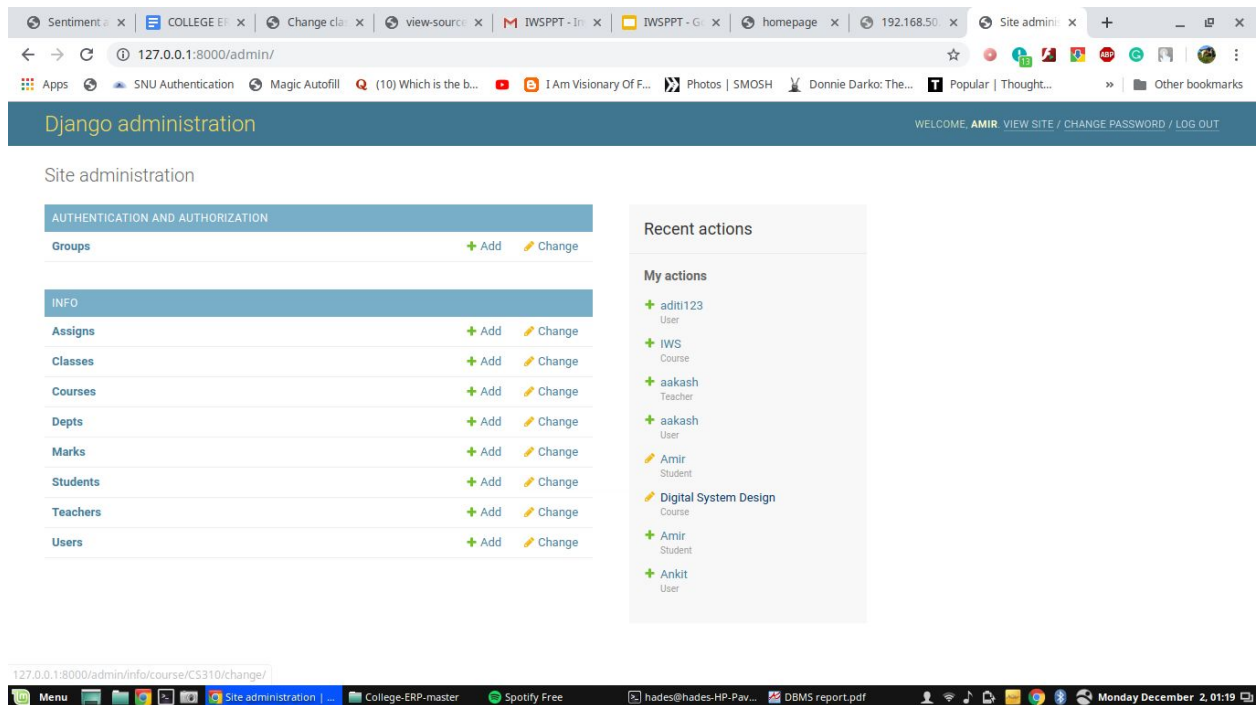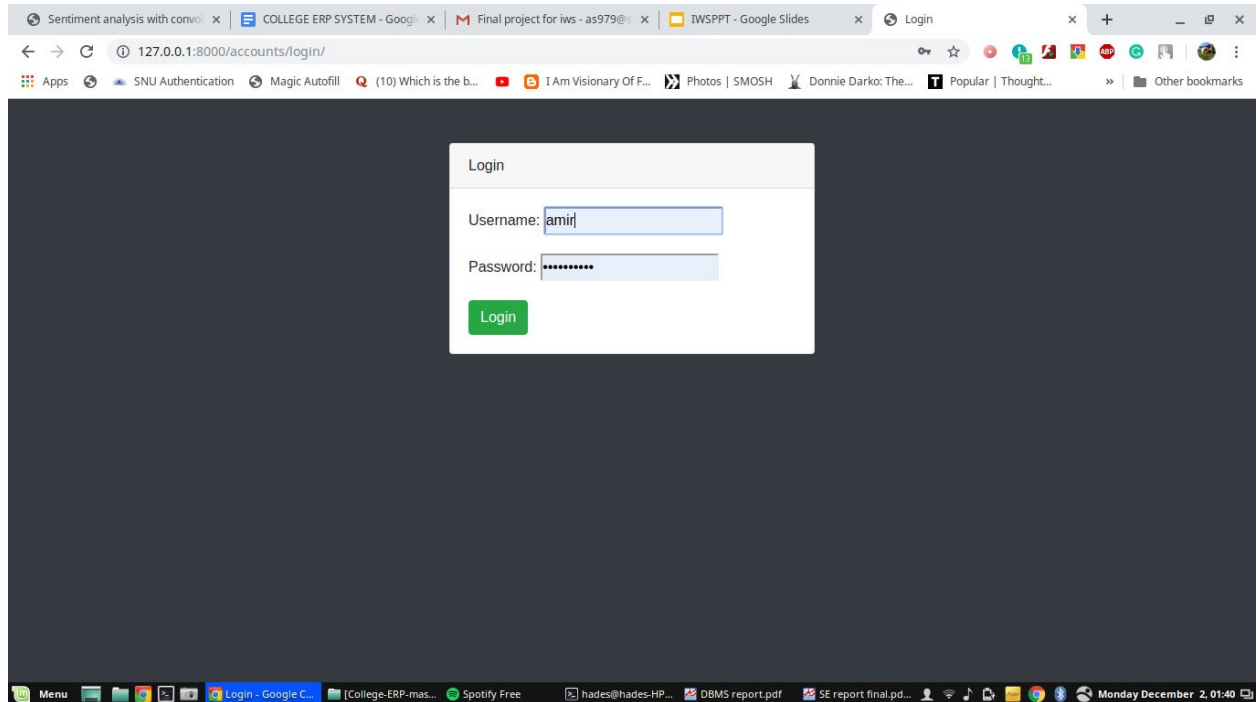
Reports

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.

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. 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.

SCREENSHOTS:

CollegeERP ☰

Trisila Logout

Home

Attendance

Marks

Time Table

Reports

⊞ Attendance

Name	Status	
Internal test 1	Marked	Edit Marks
Internal test 2	Marked	Edit Marks
Internal test 3	Marked	Edit Marks
Event 1	Marked	Edit Marks
Event 2	Marked	Edit Marks
Semester End Exam	Not Marked	Enter Marks

CollegeERP ☰

Trisila Logout

Home

Attendance

Marks

Time Table

Reports

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						CS5A SE					
Tuesday										CS5B DBMS	
Wednesday					CS5B DBMS		CS5A SE				
Thursday							CS5B DBMS			CS5A SE	
Friday			CS5B DBMS				CS5A SE				
Saturday											

RESULTS

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.

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.

CONCLUSION AND FUTURE SCOPE

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.Thus the system developed will be helpful to the administrator by easing his/her task.

 This is a paperless work and can be monitored and controlled remotely. It reduces the man power required and provides accurate information always. All years together gathered information can be saved and can be accessed at any time and 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.This project is successfully implemented with all the features and modules of the college management system as per requirements.

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