College Management System

REVIEW REPORT

Submitted by

**Sumona Sud (20BDS0156)**

Prepared For

**SOFTWARE ENGINEERING (CSE3001) – PROJECT COMPONENT**

Submitted To

**Dr. Anand Bihari**

**Assistant Professor (Sr)**

**School of Computer Science and Engineering**

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**Abstract**

In today’s laborious and fast paced world, the automation of menial tasks that require manual labor otherwise is extremely important. The automation of these tasks makes the process easier to handle, faster to use and less expensive to manage. It is therefore of a high importance that the same be done for schools and colleges as well. Schools and colleges at the basic level require good management that can help them run more efficiently and focus their efforts elsewhere.

Most educational institutions have many managerial tasks that could prove to be especially laborious when done manually. The college management system works towards automating these tasks and providing a user-friendly and efficient application to perform administrative functions of an institute.

The modern world's new reality is digital transformation. Aside from businesses such as manufacturing, corporations, banking, and commerce, the education domain faces new problems, and it is critical to satisfy the domain's changing needs. The college management system assists Educational Institutions, particularly colleges, in a variety of ways, including data storage, student profile maintenance, administrative and academic data analysis, improved communication, and student engagement.

I am taking up this project to attempt to build the same system to help with these tasks and make the work easier for the same institutions. The College Management System is the ultimate solution for digitizing and streamlining college and university processes. From the student enrolment system to admissions management and online class administration, to finance and human resource management, and every other aspect of college operations, its got you covered.

It also automates campus activities such as student attendance management, student record management, student profile management, student record keeping, student mark management, student fee management, and other minor and large processes.

All in all, it is a useful tool to have and can greatly help the betterment of colleges across India.

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# Introduction

Every educational institution has many different administrative tasks that require laborious work if done manually. The College Management System makes these tasks easier to complete. The system makes it easier to manage and maintain student and faculty details as well as make accessibility and authorization simpler. The project deals with all kinds of student details, academic related reports, college details, course details, curriculum, batch details and resource related details. It tracks all the details of a student from. It tracks all the details of a student from the day one to the end of his course which can be used for all reporting purpose, tracking of attendance, progress in the course, completed semesters years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result; and all these will be available for future references too.

* 1. Motivation  
     The motivation to create this project stems from the need to find an efficient and fast application that can facilitate the working of any educational system. It aims at digitizing and enabling easier management of tedious non-thinking tasks.

# Aims and scope of the proposed work

The College Management System aims at the automation of the following tasks.

1. Providing a customized homepage for three types of users: student, employee, parent.
2. The student should be able to view their courses, faculty, course work, attendance details, credit details, assignments to be submitted, exam details, own details, curriculum.
3. The faculty should be able to view their details, their course details, student details, submit attendance for their students, upload course work, check student assignment details.
4. A parent should be able to view the student’s attendance details as well as their marks.
5. All users should be able to see and update their own details.

# Literature Survey

In most existing models, such as in VTOP (for example), the UI/UX lacks in many places. It can often be very confusing to navigate through the website to see things relevant to you and your daily college life. In this college management system, the most visited parts of the website, such as the attendance and the timetable will be visible on the homepage itself. For parents, streamlining the process and keeping only the important parts on the forefront. Similarly, for faculty only the most important parts are kept on the forefront. Another part of the college management system is to remove the redundancies. A lot of the fields may be irrelevant to most college students. By removing this we can make the application more user friendly and scalable for the students. (Efficiency is more).

# Methods and Tools

This project involves the use of many different methods and tools to construct its architecture and its working:

1. To form a GUI Mapping of the project first, the initial designs were made in Figma.

2. To make the backend of the project, I used MySQL and PHP to integrate it with the frontend along with AJAX.

3. The frontend was made with HTML5 and CSS and the actions were coded in JavaScript along with jQuery.

# Proposed System Requirements Analysis and Design

## Introduction

The College Management System is a mini php project used to keep and maintain the complete record of students. I shall be keeping a record of the students, courses, attendance, etc. The application is based on intranet, and it aims to provide a level of functionality to all the managerial tasks conducted by universities. The system can be used as an information management system for a college.

For a given student/staff, the administrator creates a login ID and password (that can be updated later). Using this the student/ staff/parent can access the system and college database to upload, view and download information. Important announcements can also be made using this page.

The main purpose of this project is to develop a website that provides all the information that a student or employee would need to have access to over the course of an academic semester and across semesters.

## Requirement Analysis

Requirements analysis helps software engineers to better understand the problem they are going to solve. Requirement analysis will lead to an understanding of what the business impact of the software will be, what the customer wants and how the end users will interact with the software. All the stakeholders (internal and external) are involved in the process of requirement analysis. After identifying the functional and non-functional requirements of any system, we will gain an idea of what exactly is required from the software management system.

What does the customer want?

The customer wants an efficient and easy to use software to handle the managerial and administrative tasks of any educational institute. They want a good user interface.

Assessing Feasibility:

1. **Financial feasibility:** Financial feasibility refers to financial support required. It refers to finance incurred during the development of the project.
2. **Technical feasibility:** Technical feasibility refers to technical knowhow and auxiliary devices required.
3. **Behavioral feasibility:** Refers to reaction of the people towards the project
4. **Operational feasibility:** Operational feasibility means is it possible to practically implement the project. While installing this software, the hardware and software requirements should be specified.

**Technical Feasibility:** The application involves a know how of basic web programming (CSS, HTML, JS, PHP).

**Economic Feasibility:** To implement the system we require more than one computer. Since the system will be implemented in existing environment there will be no need to buy the computers. The system is economically feasible to implement.

**Operational Feasibility:** Our system will be easy to install and use. Hence our system is operationally feasible.

**Cost-Benefit Analysis:** The cost incurred by our system includes only the software cost and cost of the computer needed to run the project The benefits incurred by our system will include.

Once we analyze the functional and non-functional requirements of the system, we shall be able to better understand the specifications required.

## Stakeholder Identification

Project stakeholders are any groups of people that have an influence or can be influenced by the project. After completion, whether the project failed or succeeded depends on how much the stakeholders are satisfied. They are the most critical people who play an important role in your project’s success. As a project manager, it is important to communicate with them effectively, get their feedback and ensure they are happy with the outcome of the project.

The internal stakeholders for the college management system are:

* Project team
* Project manager

The external stakeholders for the college management system are:

* End users
* Educational Institutions

## Functional Requirements

## Functionality of the College Management System:

* Login (Students and Employees)
* Logout
* Change Password
* Dashboard
  + Students: view attendance, timetable, personal details
  + Employees: personal details, course details etc.
* Student Management Module (only employees with admin level authorization can do the following):
  + Adding new student details
  + Edit existing student details
  + Viewing student details
  + Listing of all students
* Course Module:
  + Admin can add new /edit existing course details
  + Employees can view all the details of the course
  + Employees can upload course work for each course.
  + Students can see course details and download coursework.
* Attendance Module:
  + Employee can edit/delete the student’s attendance for their course for each lecture.
  + Students can view their attendance for each course
  + Employees can view the attendance percentage for each student.

## Non Functional Requirements

For the college management system, the following are the non-functional requirements of the system:

* In case the student/ employee does not exist, an error message should be displayed
* There should be an alert given when a new announcement is made
* If there is no response from the server for any task, an error message should be displayed.
* All details should only be specific to the student. They cannot view the same from the POV of another student or a faculty.

## System Requirements

The following is the technology required for the project:

* HTML
* CSS
* JavaScript
* PHP
* MySQL
* Apache

## H/W Requirements(details about Application-Specific Hardware)

We would require hardware that can run web-based programs, which implies that there are no hardware systems requirements.

## S/W Requirements(details about Application-Specific Software)

We would require a system that has Windows, MAC or Linux OS. Along with that we would need a web browser to run the web app. Alongside, since the project involves the use of php and mysql, we would require an app where we can perform sql queries and store a database. To run the PHP code we would require a web server such as Apache as well as its counterpart XAMPP to host the php code on a web browser.

## Work breakdown structure

|  |  |  |
| --- | --- | --- |
| **Team Member Registration Number** | **Name** | **Work Assigned** |
| 20BDS0156 | Sumona Sud | Functionality 4.4 |

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# Software Requirements Specification Document (SRS)

## Introduction

This SRS document is to specify the requirements of the College Management System. It aims to show to all the readers its intended purposes, target audiences, use and advantages, scope of the project, users needs and functional and non-functional requirements of the project.

## 5.1.1 Purpose

The purpose of the project is to digitize and automate the managerial and administrative functions of any educational institute. This ensures easier, faster and more efficient management of any and all admin tasks of a system. It negates human error and breeds a more disciplined system without the fallacies of humans.

## 5.1.2 Targted Audience

The targeted audience for the SRS document is the team of developers working on the project, the project managers and the testers. For future use, it could also be intended for the management team for sales and marketing.

## 5.1.3 Intended Use

The viewers of this SRS document must use it for the development of the project and to point out mistakes and fallacies of the same. They must use it to keep in mind the goals of the project and the end result to be obtained. The document can be used for reference in future cases of requirements specification. The project manager must keep an eye on the developers to make sure they keep up to date on the project and not stray far away from the desired product. The client must make use of the document to ensure that all their specifications and needs are mentioned to ensure no delays at a later stage, when adding changes may be tougher.

## 5.1.4 Scope

This project shall benefit schools and colleges greatly. It’ll help students track their journey through college and make it simpler for them to access important details such as information regarding their faculty, courses and their timetable. The benefits of this project include efficient management of administrative tasks of a college as well as faster response time and automation of the same tasks.

## 5.1.4 Definitions And Acronyms

There can be many risks when approaching this project. Due to the large number of people that would be using the app, it is highly possible that the backend would crash, and the site would stop working. Maintaining such a large database can also prove to be difficult for the management team of the college. Integrating large parts in this database can also be difficult for the team. We need a moderately high-level of skill in the team of developers. In these cases, the developer must be held in charge of the issues and must fix them.

## 5.2 Build Criteria

## 5.2.1 Users’ Need

Understanding the user’s needs in this scenario can be a little difficult as the administrative staff of the college would like a simple, fast and efficient database management system, essentially. On the other hand, the students, who are the main users of the application would want system that is functional, easy to use and vibrant to look at. A system that is simple may not be easy to use to make a system user-friendly we make it more complex. We aim somewhere in the middle to please both the end users of the system.

## 5.2.2 Assumptions and Dependencies

As the system is now, we are assuming that the userbase would be small. It is also highly dependent on the maintenance and management of the system. For smooth functioning, the database must go through significant changes and updates to make sure that it functions in the same way we want it too even if the data becomes more complex to handle. Another fallacy with the project could be that it entirely depends on MySQL as the relational query database along with PHP, both of which could be replaced by something more functional such as Node.js and NoSQL. As the database grows, there would be no choice but to transfer it to these technologies as they are better equipped to handle big data.

## 5.3 Specific Requirements

We have already discussed the functional requirements, hardware, software and non-functional requirements in section 4 of this document.

# Design of the Project

## 6. Basic Mapping of The Project

Diagram

Description automatically generated

The ellipses are the views we can see while the ones in the squares are the tables in the database in the backend.

The views are formed with queries of multiple tables together.

## 6.1 Acitivity Diagram

Diagram

Description automatically generated

## 6.2 Data Flow Diagram(DFD )

A picture containing text, whiteboard

Description automatically generated

## 6.3 View of all the Components

**A picture containing chart

Description automatically generated**

**Let us take a closer look at the design of the web page.**

**Main Login:**

Graphical user interface, website

Description automatically generated

**Student Login:**Graphical user interface, website

Description automatically generated

**Student Dashboard:**Graphical user interface

Description automatically generated

**Student Profile:** A picture containing chart

Description automatically generated

**Attendance:** Table

Description automatically generated

**Timetable:** Chart, table

Description automatically generated

**Faculty:** Table

Description automatically generated

**Courses:** Calendar

Description automatically generated

**CourseWork:** A picture containing table

Description automatically generated

**Assignments:** **Table

Description automatically generated**

# Test Cases

Let us try a few boundary test cases:

For a student with EmpID: 16BDS0156 (doesn’t exist), the program outputs:

Chart, treemap chart

Description automatically generated

For the right login id but wrong password:  
Graphical user interface, chart

Description automatically generated

For the right login with the right password:

We move to the users dashboard:

Background pattern

Description automatically generated with medium confidence Calendar

Description automatically generated

**Test Cases Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl. No.** | **Test Data** | | **Expected Result** | **Actual Result** | **States**  **(P/F)** |
| **Username** | **Password** |
| 1. | 20BDS0156 | temppass001 | Login Success | Login Success | P |
| 2. | 20BDS0156 | temppass002 | Login Success | Password is incorrect | F |
| 3. | 20BDS0156 | Password 1 | Login Success | Password is incorrect | F |
| 4. | 20BDS0156 | Password\_correct | Login Success | Password is incorrect | F |
| 5. | 20BBS0133 | temppass002 | Login Success | Login Success | P |
| 6. | 22BBS0144 | Temppass002 | Login Success | Username Does not Exist | F |
| 7. | 22BCE0155 | Tempsdfjsdf | Login Success | Username does not exist | F |
| 8. | 25BKT9009 | Thisispass | Login Success | Username does not exist | F |
| 9. | 14BBS0156 | Temppass02 | Login Success | Username does not exist | F |
| 10. | 18BME0133 | Temppass003 | Login Success | Login Success | P |
| 11. | 18BME0133 | Tempppsas | Login Success | Password is incorrect | F |

**Equivalence Class Partitioning**

# Social Importance

This project will affect the social ecosystem of educational institutions a lot. With these kind of management tools given to schools for the less fortunate and making this a widespread application that any educational institute can adopt, free of cost will greatly help the quality of the institutions and thereby improve the quality for the students. Better access to technology will lead them in the right direction of growth and innovation where they may soon be able to contribute to the environment as well. A college management system empowers colleges and educators to manage regular tasks such as campaign, student enrollment, admissions, students, faculty, attendance, fees, assignments, exams, mark sheets, and whatnot. Higher education is no longer confined to the four walls of a classroom.

Higher education does not imply that college students are being educated. It is a complete procedure that includes giving proper support to college students in identifying courses that match their needs. It also includes assisting students with time management, cost management, and ensuring that their college degree is completed successfully.

You will be required to assist teachers in forming close relationships with students in order to handle any concerns that students may have with their education. As a result, college management software should be a comprehensive tool that assists students, teachers, and the institute's management personnel in completing their education.

Hence, the college management system has a high social importance.

# REVIEW EVALUATION

|  |  |  |
| --- | --- | --- |
| COMPONENT | MARKS | MEMBER 1 |
| **Methods and Tools** | **10** |  |
| **Test**  **cases** | 5 |  |
| **Implementation** | 20 |  |
| **Queries**  **Report** | 10 |  |
| **Social**  **importance** | 5 |  |
| **Total** | 50 |  |