

# Academic Management System

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## 1 Objectives

1. **Student Profile** – The Database application will store all the information about all the students currently studying in the institute such as their roll number, address, name, etc. The read and write to this part of the data will be handled by the admin for security reasons.
2. **Committees/Clubs** – Application will store all committee/clubs activities information. Different committee member have access to different resource. All Non-curriculum activities handled by convener of club and committees.
3. **Time-Table** –In this section of application we store different types of session information like lab session, lecture session and also store any event information. In this section we will also manage each class has only one teacher during learning hours of a particular period.
4. **Courses** – Courses database application will provide us available course in that Institute. It contains course name, instructor name, require material, in which semester they study. In particular semester there are some mandatory courses which student have to take. Student cannot take course from upcoming semester.
5. **Library**- This application store data of all books and their author name so any user can searching book by name of book and authors. Applications provide custom searching functionalities.

6. **Study Material** – This will contain all the current courses which are being taught this semester and each course can have several materials which will be uploaded by the instructor or the teaching assistant. The students which are registered for that particular course can access it. In addition, this section can also be used by the instructor to circulate other information such as the textbooks for the course. The instructor can record video lectures or record live class and then use this section to post the link for the lecture.
7. **Attendance** Attendance will be taken daily of all student/instructor. Application will add attendance to student/instructor information and count total attendance of current year.
8. **Examination** – Application will provide exam information like time, courses, date, online platform, submission like pdf etc. The course instructor can provide all information about exam. The data of each exam will be handled by teacher assistant and course instructor which they are teaching. The students can give exam by following instructions.
9. **Result** –The database application will provide total three types of grading systems. (1) Cumulative performance index (CPI) (2) Semester performance index (SPI) (3) Grade. The database allows students to see their grades and credits of all semester and the subjects that they took. The data in results can only be modified or inserted by the instructor and the admin. Application will display well structure grades for each semester and each student. It also stores marks of assignments and Quizes. This will allow for the user to generate report on the distribution of grades and other statistical data.
10. **Help Portal** – In this section application will provide information about contact info of all instructor and students to help make collaboration. It also contains most frequently ask questions and answers. And it also provides information about user guides. s

## 2 Functionalities

1. **Sign Up /Sign In** :Student/Professor/Admin/Worker can register to application to use functionality.All user has unique username and password to sign up. It provide functionality to change password. If user forgot password then user can update password.
2. **Registrations** :Student can register to provided courses in particular semester. there are some core course and it is compulsory for student to register.Student can change course till some time of period after register a course.
3. **Result** : Student can see there result in application of each semester. Instructor can change/insert grade in student's result.
4. **Examination** : Admin can upload timetable of examinations so all students can check timetable of examinations easily.

5. **Timetable** :Admin will provide lecture ,exam and lab timetable to student so there are check it and if there are find any difficulty then there are also mail to admin and he do some changes and again send to student.
6. **Attendance** : Students can check their attendance of each core courses. Attendance of each students automatic mark in their profile.
7. **Profile** :Students, Admin and Professors they all have their own profile with all kinds information like Contact Number, Email ID , addresses of home and they all can edit their information easily.
8. **Committees/Clubs** : An institute can have different clubs /committee. Student can apply for to join committee. Admin can add or remove a particular committee.
9. **Library** : Students can check anytime which books are available now and they can access available book. Students can check last date for return book.
10. **Study Material** : Professors can upload all kinds of material in pdf or word format. Students can download anytime it easily from application.
11. **Help** : If any students need help of academic program or any other help from any professors so all kind of help provided by admin or professors.

## 3 Project Deliverables

### 3.1 Milestones

1. Create a working login system in which different types of users can login as well as sign up.
2. Create class system where teachers can create a class and enroll students in it, so they can access information posted by the teacher.
  - (a) The teacher can create a class and the students can join the class using the class id.
  - (b) The teacher can post material like PPTs or PDFs which can be accessed by the students.
3. Create the library management system.
  - (a) The librarian can post new books available on the system and these books can be seen by the students.
  - (b) The Students should be to filter the books available and check if it is available.
4. Creating the result management system.

## 3.2 List of final deliveries

The following are the list of final deliverables

1. Login, Sign Up
2. Posting Material
3. Student Profile
4. Result Generation
5. Class Registration
6. Library Management

### 3.2.1 Complete documentation

1. **Login, Sign up :** Students or Teachers can login to their profile from this page and access the application, new students or teachers can register from the sign up page.
2. **Creating Class :** A teacher can create a class by clicking on the create class button and then it has to add all the necessary information in order to create the new class.
3. **Enrolling for a Class :** From the Enroll button on the dashboard, students can enroll for classes that are created by teachers.
4. **Adding Books :** The Librarian can add new books by clicking the add new book then add the necessary details for the book to add it to list.
5. **Student Profile :** In student can look at all the information such as their attendance, result of different subjects as well as the time table.

### 3.2.2 User guide

- **Dashboard :** This is the first screen that a person sees when he logs in to the system. Here for student there is a list of all the classes that the student has enrolled in and it also includes information like what new is posted, is there an assignment missing. For the teacher the dashboard shows the classes he has created.
- **Class :** Inside the class it shows the material that is posted by the teacher in the form of a timeline and the student can download the material from here.

## 4 Estimated total time

|                    |          |
|--------------------|----------|
| Login, Sign Up     | 10 hours |
| Posting Material   | 10 hours |
| Student Profile    | 25 hours |
| Result Generation  | 12 hours |
| Class Registration | 12 hours |
| Library Management | 15 hours |

## 5 Requirements

### 5.1 Hardware

#### System Requirements

|     |                    |
|-----|--------------------|
| CPU | Intel i5 or higher |
| RAM | 16 GB              |
| HDD | 1 TB               |

#### User Requirements

|     |                         |
|-----|-------------------------|
| CPU | Intel Pentium or higher |
| RAM | 1GB                     |

### 5.2 Software Requirements

#### System Requirements

|          |            |
|----------|------------|
| OS       | Ubuntu     |
| Software | Nodejs     |
| Database | PostgreSQL |

#### User Requirements

|          |                              |
|----------|------------------------------|
| OS       | Windows 7 or higher          |
| Software | Chrome or any modern browser |

## 6 Technology / Architecture (attach a separate document, if necessary)

- HTML, CSS, JavaScript - For frontend Web Development
- Visual Studio Code - A modern code editor.
- React - A library for creating interactive UIs.
- Nodejs - A runtime environment for javascript.

- PostgreSQL - An SQL database.
- PgAdmin - Program for managing the SQL database.
- Express - A Node based library for creating web apps easliy.
- Sequelize - An ORM for PostgreSQL.
- Git/Github - Version control and management.

## **7 Standard to be followed throughout the project**

Here for the project we will be using the Agile Methodology in order to develop and maintain the academic management system. Agile allows for a much more flexible system in which we can accommodate change much more easily. It also allows for us to optimize our work flow as we will be working in much more flexible teams which work on story points rather than time used.

In Agile Methodologies we will use Scrum, this will allow for us to divide the work into various epics which can later be divided into user stories. These user stories are later divided into tasks. Scrum also allows us to create a project without much of an interference in how people work instead we will give them enough freedom to explore the problem. Scrum also allows us to see the progress using burn down charts which will allow us to track the progress.