Project

Academic System

Project:	Academic System
Title:	Academic System
Version	0.2
Document status:	Draft
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Date created:	25.03.2025
Protection class:	"For internal use only"

Document history

Version	Date	Author	Comment / Change
0.1	12.03.2025	Team_ACAD	Draft
0.2	25.03.2025	Team_ACAD	Draft

Contents

1 Background/Project purpose or justification

BACKGROUND:

This is project is based on a mythical – Jaegar State University and like many educational institutions still rely on manual processes or disconnected systems—such as spreadsheets and standalone tools—to manage student information, including grades, attendance, and course schedules. This fragmented approach often leads to data inconsistencies, delays, and communication breakdowns. Educators and administrators spend significant time locating and updating records, which increases the risk of missed deadlines, unclear academic requirements, and delayed student feedback. These inefficiencies can negatively impact both teaching outcomes and student experiences.

By implementing a centralized academic database, institutions can integrate all student-related data into one unified system. This consolidation simplifies the process of accessing, updating, and managing academic records, while also ensuring that the information remains accurate, current, and easily accessible. A well-designed academic system enhances productivity, improves communication, and provides students with a clear, real-time view of their academic progress.

PURPOSE:

The purpose of this project is to design and implement a centralized academic database system that consolidates essential student information—such as grades, attendance, class schedules, and course enrolments—into a single, streamlined platform. This system will improve data management efficiency for educators and administrative staff by reducing manual processes and minimizing errors. It will also provide students with real-time access to their academic progress, helping them stay informed and engaged. By simplifying information access and enhancing the accuracy of academic records, the system will support timely feedback, better decision-making, and an overall improved academic experience for all users.

JUSTIFICATION:

A centralized academic database will enhance the efficiency of managing student information. Minimizing reliance on manual records will decrease the likelihood of errors and guarantee that the data remains current. The system can also assist in monitoring students' academic advancement, provide prompt grade updates, and integrate more effectively with other tools. This will enhance both the operation of the system and the experiences of students and educators.

2 Goals

2.1 Goals

Goal	Description
Easy Grading and Attendance Tracking	Allow teachers to easily track and update students' attendance and grades.
Generate Student progress reports	Help students to view their academic report which includes their current courses, grades, attendance, and deadlines for assignments in real-time
Improved security	Academic systems should be protected by Multi-factor Authorization which will make the logins secure for users.
Easy to use	The system would be well-designed and easy to navigate for users.
Feedback	Allow users to provide feedback within the interface
Automatic Notifications	Notify students and teachers about upcoming deadlines such as exams and assignments.

2.2 Milestones

Schedule	Description
March 5	Project Charter draft
March 28	E-R diagram draft
April 18	Video Project description
April 18	Final report delivery

3.1 Project product description

The Academic System is a centralized database platform designed to streamline the management of academic operations, including student records, course assignments, class schedules, and grading. By integrating core entities such as students, faculty, departments, courses, classes, and enrollments, the system offers a structured and efficient way to manage and access academic data across the institution.

The system will support key academic functions such as entering and updating student grades, tracking class attendance, assigning instructors to courses, and scheduling classes by semester. It also enables students to view their current academic progress—including grades, class schedules, and upcoming deadlines—in real time. Faculty members will be able to manage their teaching schedules, input grades, and access class rosters, while administrators will oversee user roles, departmental course offerings, and system security.

The platform will feature an intuitive, user-friendly interface accessible across desktop and mobile devices. Multi-factor authentication and role-based access control will ensure that all user data remains secure and accessible only to authorized users. Built-in feedback tools and automated notifications will enhance communication by reminding students and faculty about upcoming exams, assignment deadlines, and system updates.

Overall, the academic system will improve data accuracy, reduce administrative workload, and create a more transparent, organized, and user-focused environment for all academic stakeholders.

Data Description:

The academic system will store and manage structured data essential to the institution's academic operations. The primary entities and their associated data elements include:

- **Student Information**: Includes student ID, full name, email address, major, and enrolment history.
- **Faculty Information**: Faculty ID, name, email, and department affiliation.
- **Department Information**: Department ID and department name to organize academic units and staff.
- **Course Information**: Course ID, course title, department, and the faculty member assigned to teach the course.
- **Class Information**: Each course offering will have class-specific data such as class ID, course ID, semester, room number, and schedule time.
- **Enrolment and Grades**: Links between students and classes, including assigned grades and optional attendance records.
- **Assignment and Exam Data**: Due dates, types, and statuses of assessments tied to each class.
- **User Roles**: Role-based access for students, instructors, and administrators to ensure appropriate data permissions and system access.
- **Feedback Records**: User-submitted feedback with optional anonymity, timestamps, and message content for review and quality improvement.
- **Functionality Supported by the Data**
- **Grading and Attendance Management**: Instructors can input and update grades and attendance records for each class through dedicated interfaces.
- **Student Academic Dashboard**: Students will access real-time updates on grades, class schedules, attendance, and assignment deadlines.

- **Secure Role-Based Access**: Multi-factor authentication (MFA) and role-based permissions ensure that users can only view or modify data relevant to their role.
- **Class Scheduling**: Courses are organized into classes per semester, allowing instructors to manage their teaching schedules and students to enrol accordingly.
- **Automated Notifications**: System-generated alerts remind users about exams, assignments, registration deadlines, and class changes.
- **Feedback Collection**: Built-in mechanisms allow users to submit suggestions or report issues, supporting ongoing system improvement.
- **Responsive User Interface**: The system will be accessible from both desktop and mobile devices, providing a consistent and user-friendly experience.

2.3 Delivery units/services

Delivery unit	Description/Comment
Project Charter	The final version of the charter approved
Project Report	A concise document that compiles your whole experience with the project
Design document	E-R Diagram describing the conceptual level of the database
DDL documents	All SQL statements used to create the database (Internal level)
Sample Queries	DML commands showing sample Queries used in regular use of the database
Supplements	Additional documents provide background in the chosen topic. (Optional)

4.2 Project success criteria

Project success criteria
The project report addresses the reasoning used to generate the design of the database. Data needed and information generated.
Internal and conceptual level definitions are free of errors and complete.
The queries created retrieve useful information for the business.
The project presentation conveys a concise summary of the project experience.
The team shows an understanding of the business, conceptual design, and MySQL.

3 High-level risks

Risk	Possible impacts on the project
Insufficient Technical Knowledge	Team members may lack the necessary experience with SQL, ER diagrams, or database design tools, which could delay implementation or lead to design errors.
Time Constraints	With multiple deadlines across courses, limited time availability may affect the team's ability to complete each project milestone on schedule.
Team Member Availability	With multiple deadlines across courses, limited time availability may affect the team's ability to complete each project milestone on schedule.
Incomplete or Changing Requirements	Unclear or evolving project requirements could lead to rework, wasted effort, and missed deadlines.
Tool or Software Issues	Errors or compatibility problems with development tools (e.g., MySQL, ER diagram software) could interrupt progress or lead to data loss.
Poor Communication and Coordination	Lack of regular team updates or unclear task ownership could result in duplicated efforts or gaps in deliverables.
Scope Creep	Including features beyond the original plan may increase complexity, consume additional time, and risk missing core project objectives.
Inadequate Testing Time	Not allocating enough time for testing could lead to undetected design flaws that delay the final submission.

4 Key stakeholders

Name	Role
Cesar Lopez Castellanos	Instructor
Sukhdeep Singh	Test Engineer
Jashanpreet Kaur	Database Developer
Gurnoor Kaur	Project Manager
Kartik	Software Programmer

5 Project startup

The project is deemed started with the following signatures:

	Instructor	Communications Officer	Project manager
Signature		Sukhdeep Singh	Gurnoor Kaur
Name	Caesar Lopez Castellanos	Sukhdeep Singh	Gurnoor Kaur
Date		March 13, 2025	March 13, 2025

6 Project end

Planned project end:

2025-04-07

6.1 Signatures for release

The project manager is released with the signatures provided here following the project closing phase:

	Instructor	**Communications Officer**	**Project manager**
Signature		Sukhdeep Singh	Gurnoor Kaur
Name	Caesar Lopez Castellanos	Sukhdeep Singh	Gurnoor Kaur
Date		March 13, 2025	March 13, 2025

Annex

A. Glossary and abbreviations

Term	Explanation
Interface	A contract for how different systems or components interact and exchange data.
Authentication	The process of verifying the identity of a user or system to ensure access is granted only to authorized individuals.
MFA	Multi-factor authentication- is a security method that requires two or more verification factors to authenticate a user, enhancing protection against unauthorized access.
DML	Database Management System - A software application that enables the creation, management, and manipulation of databases, allowing for efficient data storage, retrieval, and security.