**COMPUTER SCIENCE DEPARTMENT**

# Total Marks: 7.5

**Obtained Marks:**

LAB: Database System

**Project Proposal: University Management System**

**Submitted To: Mam Kashia Riaz**

**Date of Submission: 25-October-2024**

**Project Members**

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| --- | --- | --- |
| **S.NO** | **Student Name** | **Reg.no** |
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**Project title: University Management System with a Next.js-Based Web Application**

**Introduction**

The University Management System is a modern web-based application designed to make managing university operations easier and more efficient. This system focuses on simplifying tasks like handling student records, managing courses, and organizing faculty and departmental information. It is built using a SQL database for storing data in an organized and secure manner, along with a Next.js frontend to provide a fast, responsive, and visually appealing user interface.

The system is tailored to meet the needs of administrators, students, and faculty by offering dedicated portals for each group. Administrators can manage student enrollments, schedules, and reports, while students can easily view their grades, enroll in courses, and access important resources. Faculty members can use their portal to manage class schedules, upload grades, and communicate with students.

By combining user-friendly design with powerful technologies, this University Management System ensures smooth communication, secure data handling, and a seamless experience for all users. It is designed to be scalable and adaptable, making it a valuable tool for any educational institution aiming to improve its efficiency and embrace digital transformation.

**Functionalities**

* **Data Loading and Display**
  + Fetch data from a SQL database or a mock API and display it in an organized format (e.g., tables, cards, or grids).
  + Paginate or scroll large datasets for better usability.
  + Dynamically update the UI when new data is added or modified.
* **Error Messages**
  + Display error alerts for scenarios like failed data retrieval, invalid search queries, or empty datasets.
  + Ensure clear, user-friendly messages to guide users in resolving errors.
* **Search Functionality**
  + Allow users to search through the displayed data using filters such as student name, department, or course.
  + Show real-time search results with instant updates as users type.
* **Aggregate Functions**
  + Display **total counts** (e.g., total number of students or courses) directly on the UI.
  + Calculate and show **average values** (e.g., average grades, class sizes, or attendance percentages) in a clear, concise manner.
* **Responsive Design**
  + Use **CSS frameworks** like Tailwind CSS or Material-UI to make the interface mobile-friendly and adaptable to all screen sizes.
  + Implement a **flexible layout** (using CSS Grid or Flexbox) to ensure content is visually appealing on desktops, tablets, and smartphones.

The **University Management System with Next.js Web Application** delivers a responsive and user-friendly interface for efficiently displaying and managing university data. With features like data visualization, search, error handling, and aggregate functions, it ensures simplicity, usability, and scalability for modern educational needs.