

Innovations and Extra Functionality

Project Title: Data-Centric Web Applications Project

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This document outlines the additional features and innovations implemented in the project that go beyond the core requirements, providing enhanced functionality and user experience.

1. Dashboard Page

A dynamic Dashboard has been created to provide a centralized view of key stats:

- Total Students Enrolled.
- Total Grades Recorded.
- Total Lecturers Available.

The data is fetched dynamically from MySQL (for Students and Grades) and MongoDB (for Lecturers).

Each card uses distinct Bootstrap styling (primary, success, danger) for clarity and visual appeal.

Purpose: This provides a summary at a glance and improves navigation for users.

2. Search and Filter Functionality

- Implemented search functionality on the Students Page.
- Users can search for students by name using a responsive search bar.
- Results are dynamically filtered from the MySQL database using SQL `LIKE` queries.
- A "Reset" button allows users to clear the search and view all records.
- Purpose: This enhances usability and allows users to locate specific records efficiently.

3. Export CSV Feature

Added Export to CSV functionality for:

- Students
- Grades
- Lecturers

Each export feature dynamically generates a CSV file containing relevant data:

- Students (ID, Name, Age)
- Grades (Student ID, Module ID, Grade)
- Lecturers (ID, Name, Department ID)

CSV files are generated on demand and downloaded by the user.

Purpose: This feature adds real-world utility, enabling users to export data for reporting or analysis.

4. Improved UI with Bootstrap Styling

The entire application has been styled using Bootstrap to improve the user interface:

- Tables are clean, responsive, and readable.
- Buttons are consistent with modern design principles (colors, size, and spacing).
- Forms include validation for cleaner data input.

Key pages include:

- Home Page: Navigation buttons for all sections.
- Students Page: Table, Search/Filter bar, and action buttons.
- Grades Page: Table with sorted data.
- Lecturers Page: Table with delete functionality.
- Dashboard: Centralized metrics with Export options.

Purpose: The clean and modern interface ensures a professional look and feel.