COMSATS University Islamabad, Wah Campus

Project Report

Subject: Database Systems

Topic: Exam Management System

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Submitted To:

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Date:

December 26, 2024

1. Introduction:

This project is a terminal-based Exam Management System designed to efficiently manage students, teachers, courses, exams, and results. It aims to simplify the process of handling academic operations in a structured and automated manner. By introducing functions like student enrollment, course management, exam scheduling, and result processing, this system is an effective tool for educational institutions.

2. System Features

The **Exam Management System** is designed to offer a range of features to cater to the needs of administrators, faculty members, and students. Below are the key features of the system:

2.1 Student Management

The system allows the management of student records. Administrators can:

- View the list of students.
- Add new student records.
- Remove students from the system when necessary.

2.2 Course Management

The system also enables the management of courses offered by the institution. Features include:

- Viewing all available courses.
- Adding new courses.
- Deleting courses that are no longer in the curriculum.

2.3 Exam Management

The Exam Management module allows for efficient scheduling and tracking of exams. The system allows administrators to:

- View all scheduled exams.
- Add new exams to the schedule.
- Remove or modify existing exams.

2.4 Results Management

With the results management feature, the system provides an interface to:

- View results for each student.
- Add new exam results.
- Modify or delete existing results to ensure accurate academic records.

2.5 Invigilator Management:

With the invigilator management feature, the system provides an interface to:

- Show invigilators
- Add invigilators
- Remove invigilators

- Modify invigilators

2.6 Database Integration

The entire system is integrated with a MySQL database, ensuring data persistence and consistency across all modules. All records such as students, courses, exams, and results are stored in relational tables that can be accessed, modified, and deleted as needed.

3. Database Design:

The database consists of several interconnected tables designed to store and manage information efficiently. These tables include:

- **Student Table**: This table stores details about students, such as their ID, name, email, class, and department.
- **Course Table**: This table contains information about courses, including course ID, name, and description.
- **Exam Table**: This table records details of scheduled exams, such as exam ID, subject, date, and time.
- **Result Table**: This table manages exam results, linking students to their scores.
- **Invigilator Table**: This table maintains data about invigilators assigned to supervise exams.
- **Question Bank Table**: This table consists of details like questions to be included and their difficulty level.

4. ER Diagram:

students
- StudentID INT
- Name VARCHAR(100)
- Email VARCHAR(100)
- Class VARCHAR(50)
- RollNumber VARCHAR(2...
- Indexes

results
- ResultID INT
- StudentID INT
- ExamID INT
- MarksObtained I...
- Grade CHAR(1)
- Indexes

exams
- ExamID INT
- CourseID INT
- ExamDate DATE
- StartTime TIME
- EndTime TIME
- Venue VARCHAR(10...
- Indexes

invigilators
- InvigilatorID INT
- Name VARCHAR(10...
- AssignedExamID INT
- Indexes

questionbank
- QuestionID INT
- CourseID INT
- QuestionText TEXT
- DifficultyLevel ENUM(...
- Indexes

courses
- CourseID INT
- CourseName VARCHAR(10...
- Instructor VARCHAR(100)
- Indexes