CONSOLE BASED EXAM CELL MARK MANAGEMENT SYSTEM

Software Requirement Specification (SRS) Document

1. Introduction

The Exam Cell Mark Management System is a simple console application to handle exam tasks like managing courses, entering marks, and generating reports. It allows administrators, teachers, and students to access their specific features securely, making the process easy and accurate.

1.1 Purpose
- Application for managing exam-related tasks.
- Features include course management, marks entry, and report generation.
- Aims to make the mark management process simple, accurate, and efficient.

1.2 Scope
- Key features: course management, mark entry, and report generation.
- Secure, role-based access for admins, teachers, and students.
- Ensures simplicity, accuracy, and efficiency in managing marks.

2. Functional Requirements

2.1 User Roles and Authentication

1. User Authentication: The system will authenticate users and verify credentials upon login.

2. User Roles: Role-based access will be implemented for administrators, professors, and students.

2.2 Course Management

1. Administrators can add, modify, and delete courses.

2. Course details will include course code, course name, and credits.

2.3 Mark Entry

1. Professors can input marks for students in their assigned courses.

2. Marks will be validated to ensure they fall within a valid range.

2.4 Mark Viewing

1. Students can view their marks by course or semester.

ER Diagram

2. Options will be provided to view overall marks.

2.5 Report Generation

1. Class-wise performance reports

2. Subject-wise performance reports

3. Overall performance reports, including class topper and subject topper.

3. Non-Functional Requirements

1. Security: All user passwords will be stored in a hashed format.

2. Performance: The system will be optimized to handle large data sets without delay.

3. Usability: Console-based interface for easy input and navigation.

4. Reliability: Regular backups of the database will be implemented.

USE CASE DIAGRAM
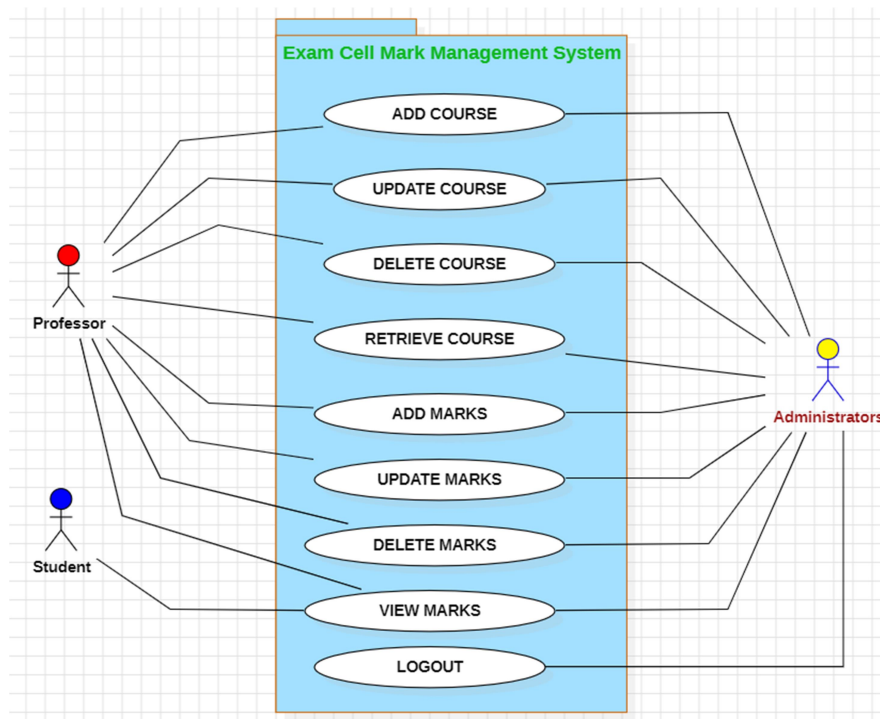
ER Diagram

4. Schema Design

4.1 Users Table
Columns:
- user_id (INT)
- username (VARCHAR(50))
- password (VARCHAR(255))
- role (VARCHAR(20)): User role (admin, professor, student)

4.2 Courses Table
Columns:
- course_id (INT): Primary key
- course_code (VARCHAR(20))
- course_name (VARCHAR(100))
- credits (INT): Course credits

4.3 Students Table
Columns:
- student_id (INT): primary key
- name (VARCHAR(50))
- roll_no (VARCHAR(20))
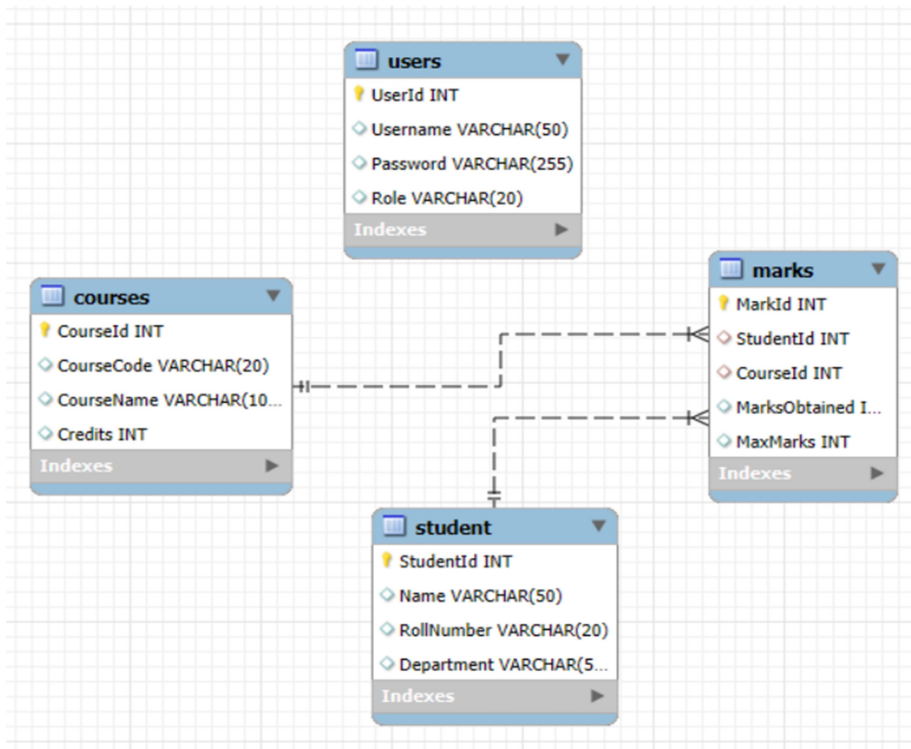- department (VARCHAR(50))

4.4 Marks Table
Columns:
- mark_id (INT): Unique identifier for the mark
- student_id (INT): Foreign key referencing the student
- course_id (INT): Foreign key referencing the course
- marks_obtained (INT)
- max_marks (INT)

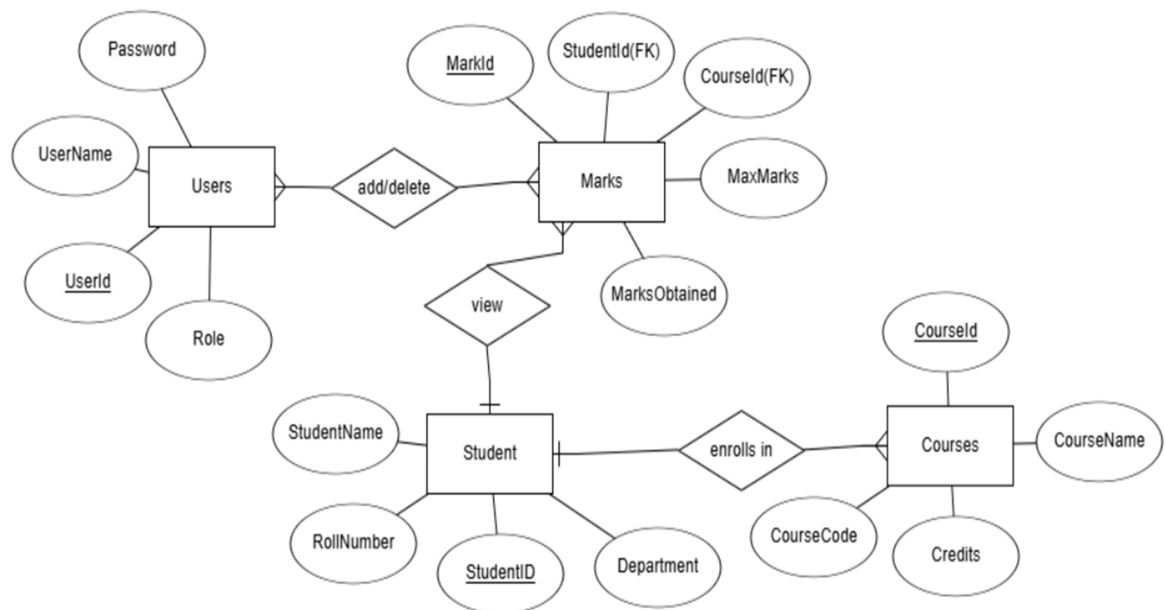## 5. Error Handling and Validation

1. Database errors and user input errors will be managed using proper exception handling mechanisms.

2. User inputs will be validated to ensure only correct data is entered (e.g., integer values for marks).

ER Diagram

Schema Diagram

ENTITY RELATIONSHIP DIAGRAM

ER Diagram

USERS

user_id	INT
username	VARCHAR(50)
password	VARCHAR(255)
role	VARCHAR(20)

"manages"

"manages"

STUDENTS

student_id	INT
name	VARCHAR(50)
roll_no	VARCHAR(20)

COURSES

course_id	INT
course_code	VARCHAR(20)
course_name	VARCHAR(100)
credits	INT

"receives"

"assigns"

"inputs"

MARKS

mark_id	INT
student_id	INT
course_id	INT
marks_obtained	INT
max_marks	INT