

PROJECT REPORT
Modern Application Development I
Quiz Master

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Project Statement:

Quiz Master is a multi-user exam preparation platform designed to help students practice quizzes based on different subjects and chapters. It includes role-based access for users and administrators, quiz management, scoring, and analytical insights through summary charts.

Technologies Used:

- Python
- Flask
- Flask SQLAlchemy
- Jinja2 Templates
- Bootstrap for HTML and CSS Styling
- SQLite for Data Storage
- Chart.js for Data Visualization

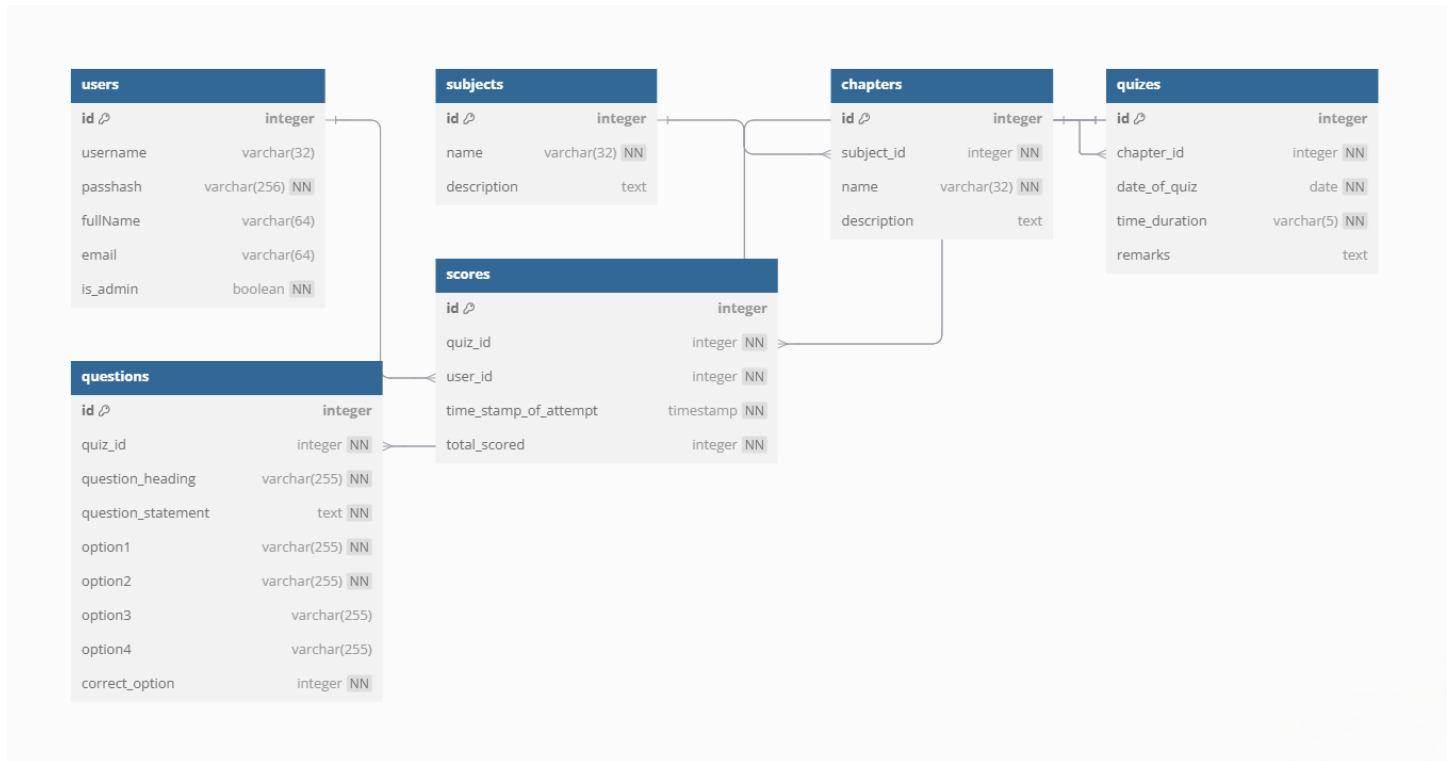
Database Schema:

The database comprises the following entities:

1. **User:**
 - a. Stores user details and authentication information
 - b. Key Fields: id, username, passhash, fullName, email, is_admin
 - c. Relationships: scores (One-to-Many)
2. **Subject**
 - a. Represents different subjects
 - b. Key fields: id, name, description
 - c. Relationships: chapters (One-to-Many)
3. **Chapter**
 - a. Represents chapters within a subject
 - b. Key fields: id, subject_id, name, description
 - c. Relationships: quizzes (One-to-Many)
4. **Quiz**
 - a. A quiz under a specific chapter
 - b. Key fields: id, chapter_id, date_of_quiz, time_duration, remarks
 - c. Relationships: questions, scores (One-to-Many)
5. **Question**
 - a. Represents a question in a quiz
 - b. Key fields: id, quiz_id, question_heading, question_statement, option1, option2, option3, option4, correct_option
6. **Score**
 - a. Stores user quiz attempts and scores
 - b. Key fields: id, quiz_id, user_id, time_stamp_of_attempt, total_scored

ER Diagram:

The Entity Relationship Diagram below shows the DataBase schema and relationship:



Architecture Design:

The project follows the **Model-View-Controller (MVC)** architecture:

1. **Controllers:** Contains route handlers for Home, Admin and User functionalities.
2. **Templates:** Contains Jinja2 HTML templates structured into subfolders.
3. **Models:** Defines database models as per the schema.
4. **Instance:** SQLite database file.
5. **Application:** Configuration files.

Main Features and Functionality:

Admin Controls:

- Manage subjects, chapters, quizzes, and users.
- View detailed analytics through summary charts.
- Monitor quiz participation and user performance.

Users:

- Register and log in to take quizzes.
- View past quiz scores and performance.
- Profile section to update personal details and change passwords.
- Summary charts displaying quiz performance and statistics.

Video Link:

<https://drive.google.com/file/d/1vXZiH1fODesgPR4y0Gm07OMiqXR-wKxV/view?usp=sharing>