

Quiz Master Project Report

Author

Name: Anaypal Singh

Roll Number: DS23f3000736

Email: 23f3000736@ds.study.iitm.ac.in

I am a student of IITM pursuing a degree in Data Science. Currently I am in second term of my diploma level.

Description

The Quiz Master application is a comprehensive web-based platform that enables administrators to create and manage quizzes, while allowing users to attempt these quizzes and receive immediate score on their performance. The system maintains records of user attempts and provides quiz reports to track progress over time.

Technologies Used

1. Flask: for request handling, rendering templates, defining views/routes to the application
2. Flask SQLAlchemy: defining models, doing query operations on the database, committing changes to the database.
3. Jinja: for templating, provides more flexibility to the html document.
4. Sqlite: for database tables.

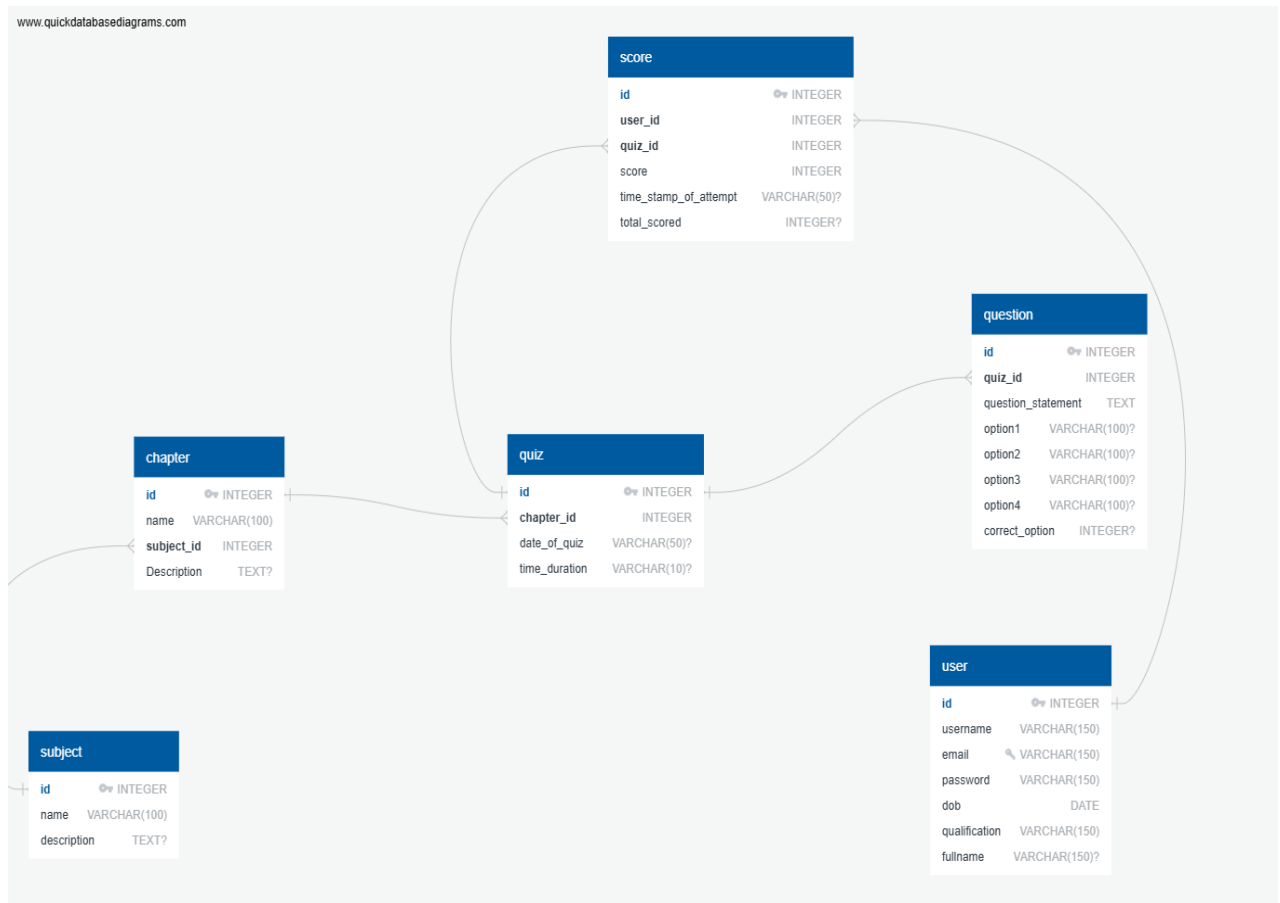
DB Schema Design

The database schema follows a relational model with five main tables:

- 1.user: Stores user information including authentication details
- 2.subject: Contains different subject areas available for quizzes
- 3.chapter: Organizes content within subjects into logical chapters
- 4.quiz: Stores quiz metadata including which chapter it belongs to
- 5.question: Contains individual questions with multiple choice options

6.score: Tracks user quiz attempts and results

The schema is designed with appropriate foreign key relationships to maintain data integrity while allowing efficient queries for quiz generation and report creation.



Architecture and Features

Architecture

The application follows a standard Flask application structure:

- 1.model.py: Contains database schema definitions and ORM models
- 2.app.py: Implements all route handlers and view functions
- 3.templates/: Directory containing HTML templates used by Jinja2
- 4.instance/: Contains the SQLite database file

This structure follows the MVC (Model-View-Controller) pattern where database models are separated from the application logic and presentation layer.

Admin Features:

- 1.Subject Management: Administrators can create, edit, and delete subject areas
- 2.Chapter Management: Within each subject, chapters can be created, edited, and removed
- 3.Quiz Creation: Admins can design quizzes associated with specific chapters
- 4.Question Bank: A comprehensive system to create and manage multiple-choice questions
- 5.Content Moderation: Full control over all system content with edit/delete capabilities

User Features:

- 1.User Registration: New users can create accounts to access the system
- 2.Authentication: Secure login mechanism for returning users
- 3.Quiz Attempts: Users can select and attempt quizzes from various subjects
- 4.Immediate score : Upon completion, users receive their scores and correct answers
- 5.Attempt History: Users can view their past quiz attempts and performance statistics

The application implements proper access control to ensure that administrative functions are only available to authorized users, while maintaining an intuitive experience for regular users attempting quizzes.

Video Demonstration

https://drive.google.com/file/d/1twQEznpKOWJDqazX8c77_YFtlj9dMxj/view?usp=drive_link