

MAD1 - PROJECT REPORT

Author:

Name: Pragya Tripathi

Roll No: 23f1001699

Student Email: 23f1001699@ds.study.iitm.ac.in

I am Pragya Tripathi, a second-year student in the IITM BS Degree Program, and I'm also pursuing a B.Tech.

This report presents my work on *The Quiz Master - V1*, a multi-user interactive application designed to help users improve their exam preparation through targeted quizzes and performance tracking.

Description:

The Quiz Master - V1 project is an interactive multi-user application designed as an exam preparation site, helping users practice quizzes across various subjects and topics. The platform supports two roles: user and admin. Admins can manage subjects, chapters, quizzes, and users, while users can take quizzes, track their scores, and monitor their progress.

Technology used:

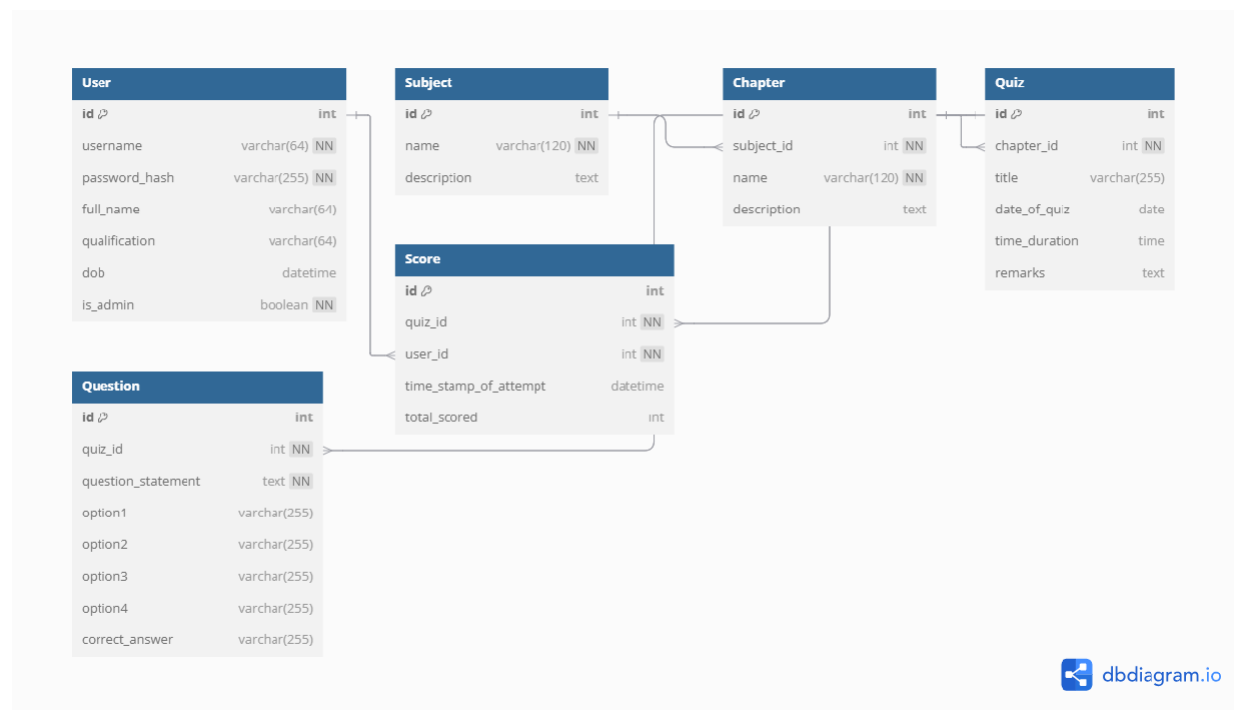
Frontend – HTML and CSS have been used for styling and responsiveness of app.

Template Engine - Jinja2 has been used for HTML template generation.

Backend - The application uses Flask, SQL Alchemy to implement core functionalities, in addition, with matplotlib for generating graphs.

Data Storage - The application uses SQLite for data storage. **IDE** - The application has been developed in Visual Studio Code using Virtual Environment.

DB Schema Design:



1.) User Table

Schema: id (Primary key), username, password_hash, full_name, qualification, dob, is_admin.

Relationships: One-to-Many with Score table.

2.) Subject Table

Schema: id (Primary key), name, description.

Relationships: One-to-Many with Chapter table.

3.) Chapter Table

Schema: id (Primary key), subject_id, name, description.

Relationships: Many-to-One with Subject table, One-to-Many with Quiz table.

4.) Question Table

Schema: id (Primary key), quiz_id, question_statement, option1, option2, option3, option4, correct_answer.

Relationships: Many-to-One with Quiz table.

5.) Quiz Table

Schema: id (Primary key), chapter_id, title, date_of_quiz, time_duration, remarks.

Foreign keys: chapter_id (References Chapter table)

Relationships: Many-to-One with Chapter table, One-to-Many with Question and Score tables.

6.) Score Table

Schema: id (Primary key), quiz_id, user_id, time_stamp_of_attempt, total_scored.

Foreign keys: quiz_id (References Quiz table), user_id (References User table)

Relationships: Many-to-One with Quiz and User tables.

Architecture and Features

The root folder named “Quiz Master - V1_23f1001699” contains multiple folders and files. The **templates** folder in the root contains all the HTML templates. A **controllers** folder contains the routes.py file, while a **models** folder stores the models.py file. The **config.py** and **requirements.txt** files remain in the root directory alongside **app.py**, which serves as the main entry point for running the application. An **instance** folder contains the db.sqlite3 database file for the application. Finally there’s a pdf file of the **project report**.

I have implemented all the core functionalities outlined in the project, applying CRUD operations where applicable. The admin can create, edit, and delete subjects, chapters, and quizzes. Users can attempt quizzes, receive instant scores, and re-attempt if needed. Their progress is tracked through summary charts. Admins can search for users, subjects, and quizzes, accessing condensed views with relevant data and visual insights. Additionally, a collective summary chart provides an overview of platform-wide quiz performance.

Demonstration Video Link:

<https://drive.google.com/drive/folders/15tvQk9hzfrUJukVgJWicyoT453pSMNFX1?usp=sharing>