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I am a beginner in web development, eager to learn and explore new technologies. This project is an opportunity for me to apply my knowledge and improve my skills. This project has allowed me to explore Flask and its extensions to build a structured and functional quiz platform.

Description

This project is a Quiz Platform with two roles: Admin (Quiz Master) and User. The Admin manages subjects, chapters, quizzes, and questions, while the User can register, log in, attempt quizzes, and view scores.

Technologies Used

- **Flask** (Backend Framework)
- **SQLAlchemy** (ORM for database management)
- **Jinja2** (Template rendering)
- **Bootstrap** (Frontend styling)

Purpose of Technologies:

- Flask was chosen for its lightweight and modular nature.
- SQLAlchemy provides an easy-to-use ORM for database operations.
- Jinja2 allows dynamic rendering of templates.
- Bootstrap makes the UI responsive and visually appealing.

DB Schema Design

Tables:

- **User** (id, name, email, password)
- **Subject** (id, name, description)
- **Chapter** (id, name, description, subject_id)
- **Quiz** (id, chapter_id, no_of_questions)
- **Question** (id, quiz_id, question_text, options, correct_answer)
- **Score** (id, quiz_id, user_id, timestamp, total_score)

Constraints:

- **Primary Keys:** id in all tables.
- **Foreign Keys:** Relationships between user_id, quiz_id, subject_id, chapter_id etc.
- **Unique Constraints:** Email in User table.

Reasoning Behind Design:

The database follows **Normalization principles** to prevent redundancy and maintain consistency.

Architecture and Features

- **Structure:**
 - controllers/ (Flask routes and logic)
 - templates/ (HTML templates)
 - static/ (CSS, images files)
 - models.py (Database models)
 - app.py (Main Flask application)
- **Implemented Features:**
 - **Admin:** Manage subjects, chapters, quizzes, and questions.
 - **User:** Register, log in, attempt quizzes, view scores.
 - **Search Functionality:** Search users/subjects/quizzes
 - **Exclusion of Default Admin:** The first admin user is excluded from user lists.

Video

https://drive.google.com/file/d/1o0ON0DTlqQYTK7MvqhWsK4jXwEL9Etu7/view?usp=drive_link