

REPORT

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- My name is Mayukh Mandal and I am a Diploma student of the IITM BS in Data Science. I am really interested and passionate about Artificial Intelligence and Data Science.

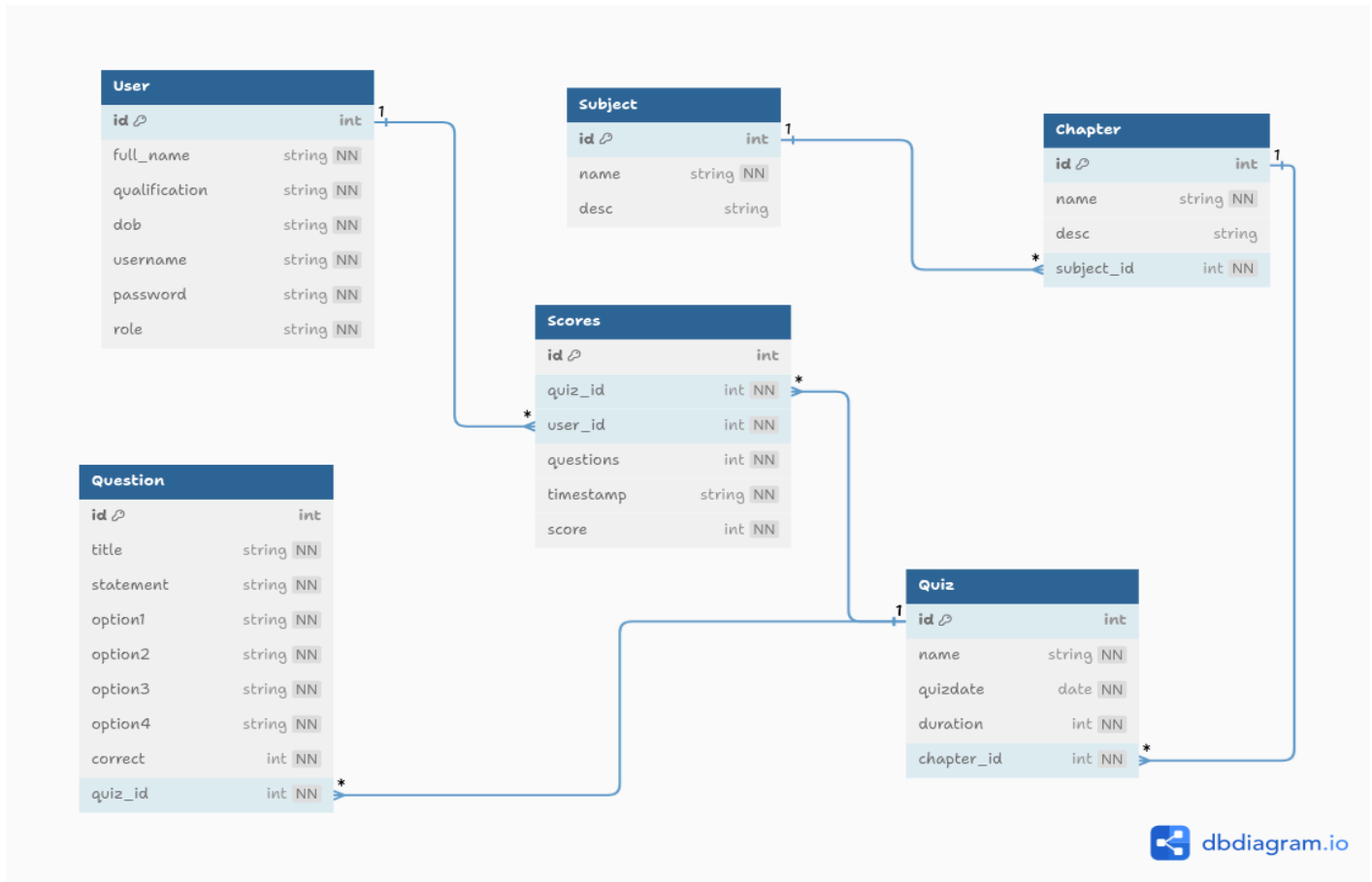
Description

- This is a Quiz Master project in which we were intended to create a web app for the users(especially students and aspirants) preparing for any sort of exam, who can attempt the quizzes for practice in their respective fields and level up their quiz game.

Technologies used

- Python - Core Language for backend and frontend development both
- Flask - Web Framework for building backend of the framework
- Flask-SQLAlchemy - ORM for Database
- SQLite - Database to store different models
- Bootstrap 5.0.2 - For frontend aesthetics and UI
- Matplotlib - For generating summary charts
- HTML and Jinja - For skeleton of the website and Jinja for rendering dynamic pages

DB Schema Design



- Each entity is stored in separate tables to avoid redundancy.
- Foreign Keys are used to maintain relationships between tables and also to have referential integrity.
- Primary Keys are used to uniquely identify the records of different tables.

Architecture and Features

The project is organised into sub-folders which are:

1. Static : This includes the CSS files and the images used in the project.
2. Instance : In this folder, is the database of the project which is defined in the models of the project.
3. Templates : This folder contains the largest number of files which are all HTML files used to serve different types requests for different types of purposes in the project.

4. Application : This folder contains the crucial python files which are necessary for the backend of the application.

The project mainly has 4 python files:


1. app.py : This is the main file which is in the root directory and initialises the Flask app with all the components.
2. controllers.py : This file manages all the routes, functions and business logic of the project.
3. models.py : This file defines the database schemas of the project using Flask-SQLAlchemy ORM.
4. database.py : This initialises the database with the required models.

The project includes several features and functionalities:

1. User Authentication – Secure login and session management for users and admin.
2. Quiz Management – Admin can create, edit, and delete subjects, chapters, quizzes, and questions.
3. User Dashboard – Displays available quizzes, quiz attempts, and performance summaries with charts.
4. Admin Dashboard – Provides quiz statistics, user management, and subject-wise insights.
5. Scoring & Summary – Users receive real-time feedback and scores are stored in the database.
6. Data Visualization – Bar charts and tables for user and admin summaries using Matplotlib.

Video

https://drive.google.com/file/d/14jhe-9yA6rOsbdC7_Rg6dCo1ello6pRk/view?usp=sharing

 Quiz_Master_23f2001984.mp4