

**Deon Levon Dmello**

**Roll Number: 21f3002473**

**Mail: 21f3002473@ds.study.iitm.ac.in**

# QuizMaster – Project Report

## Overview

**QuizNexus** is a web-based quiz management platform tailored for educational use. It supports creating, managing, and taking quizzes with real-time analytics and strict role-based access control for both administrators and students.

## Technology Used

### Frontend (Vue.js 3)

- Vue 3 (Composition API), Vuex 4, Vue Router 4
- Bootstrap 5 for responsive UI
- Chart.js for data visualization
- Axios for API communication

### Backend (Flask)

- Flask + Flask-RESTful API
- Flask-JWT-Extended for authentication
- SQLAlchemy ORM + SQLite
- Redis for caching, Celery for background tasks
- Werkzeug for secure password hashing
- MailHog for SMTP email testing

## API Highlights

- **Auth:** /api/login, /api/register, /api/logout, /api/check\_token\_valid
- **Admin:** /api/subjects, /api/quizzes, /api/questions, /api/admin/users
- **User:** /api/dashboard, /api/fetchQuestions, /api/takeResponse, /api(scoreboard

## Architecture

### Frontend

- Built with Vue.js
- Handles UI, routing, state, and role-based rendering
- Communicates with backend via secure REST APIs

### Backend

- Built with Flask
- Manages authentication, business logic, and APIs
- Handles background tasks with Celery
- Uses Redis for performance and caching

**Deon Levon Dmello**

**Roll Number: 21f3002473**

**Mail: 21f3002473@ds.study.iitm.ac.in**

## Database

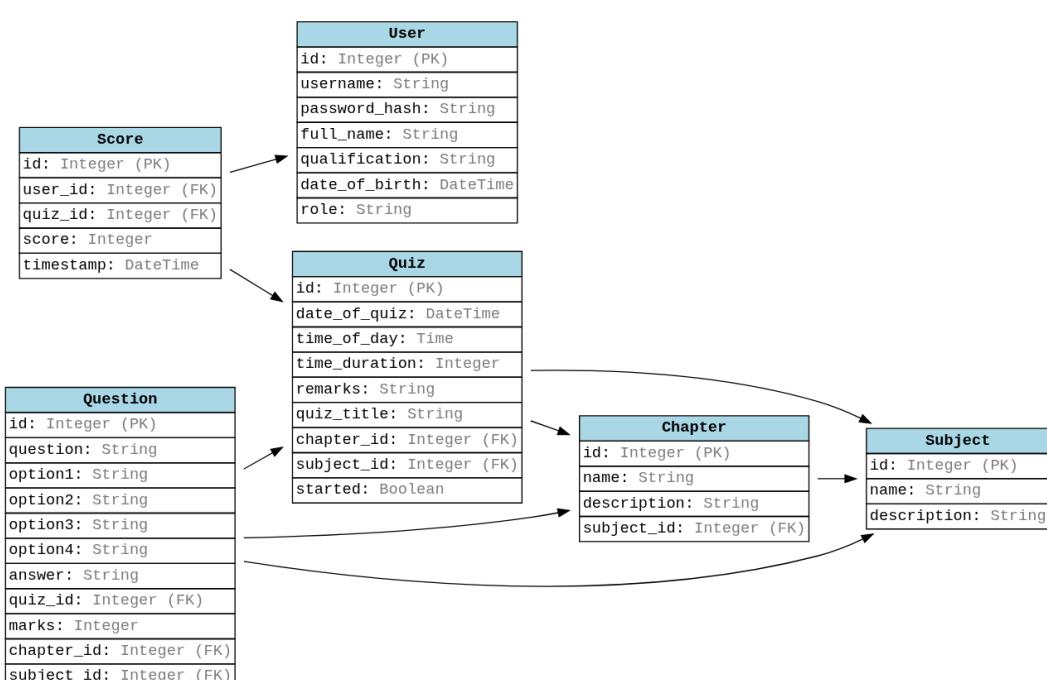
- SQLAlchemy ORM with SQLite
- Stores users, quizzes, questions, responses, and scores
- Supports hierarchical structure for subjects and chapters

## Development

```
git clone https://github.com/21f3002473/QuizNexus.git && cd QuizNexus  
cd backend && python3 -m venv .venv && source .venv/bin/activate  
pip install -r requirements.txt && python app.py  
cd ../frontend && npm install && npm run serve  
sudo apt install redis && redis-server  
cd backend && celery -A app.celery worker worker --beat  
--loglevel=info
```

Mailhog

## DB SCHEMA DESIGN



**Video Link:**

**Deon Levon Dmello**

**Roll Number: 21f3002473**

**Mail: 21f3002473@ds.study.iitm.ac.in**