Movie Ticket Booking

Author:

- **Name:** Anurag Kumar
- **Roll No:** 22dp1000105
- **Email:** 22dp1000105@ds.study.iitm.ac.in
- I am an engineer in material science and metallurgical engineering from UIET Kanpur passed in 2017.

Abstract:

This project involves the development of a Movie Ticket Booking System using the Flask framework along with various extensions including Flask-SQLAlchemy, Flask-RESTful, Flask-Celery, Redis, JWT extension, and FlaskMail. The system allows users to browse and book movie tickets, while also providing an admin panel for managing movies, theaters, and bookings.

Introduction:

The Movie Ticket Booking System provides a user-friendly platform for users to explore available movies, showtimes, and theaters, and book tickets for their desired shows. It includes both user and admin functionalities for a comprehensive movie ticket booking experience.

Technologies Used:

- **Flask:** A lightweight Python web framework for building web applications.
- **Flask-SQLAlchemy:** An extension for integrating SQLAlchemy with Flask applications for database management.
- **Flask-RESTful:** An extension for building RESTful APIs using Flask.
- **Flask-Celery:** An extension for integrating Celery, a distributed task queue, with Flask.
- **Redis:** An in-memory data store used for caching and background tasks.
- **JWT Extension:** An extension for implementing JSON Web Tokens for user authentication and authorization.
- **Flask-Mail:** An extension for sending emails from Flask applications.
- **Vue.js:** Vue.js is a progressive JavaScript framework used for building user interfaces. It is used as the frontend framework for the Movie Ticket Booking System.

Features:

- User Registration and Authentication: Users can register, log in, and authenticate using JWT tokens.
- Movie and Show Management: Admins can add, update, and delete movies and their showtimes.
- Theater Management: Admins can manage theaters and their locations.
- Booking Process: Users can select movies, showtimes, and seats, and proceed to booking.
- Background Tasks: Flask-Celery is used to handle tasks such as sending booking confirmation emails and updating seat availability.
- Caching: Redis is used for caching frequently accessed data, enhancing performance.

System Architecture:

The system follows a client-server architecture. The Flask framework serves as the backend server, handling user requests and performing CRUD operations on the database. The frontend is developed using HTML, CSS, and JavaScript.

Movie Ticket Booking

Implementation:

- **Database Design**: Utilized Flask-SQLAlchemy to define database models for movies, showtimes, theaters, and bookings.
- **RESTful APIs**: Implemented APIs for user registration, login, movie and show management, theater management, and booking.
- **JWT Authentication**: Integrated the JWT extension for user authentication and authorization.
- **Background Tasks**: Utilized Flask-Celery for handling tasks like sending booking confirmation emails asynchronously.
- **Caching**: Implemented caching using Redis for storing movie data, showtimes, and seat availability.

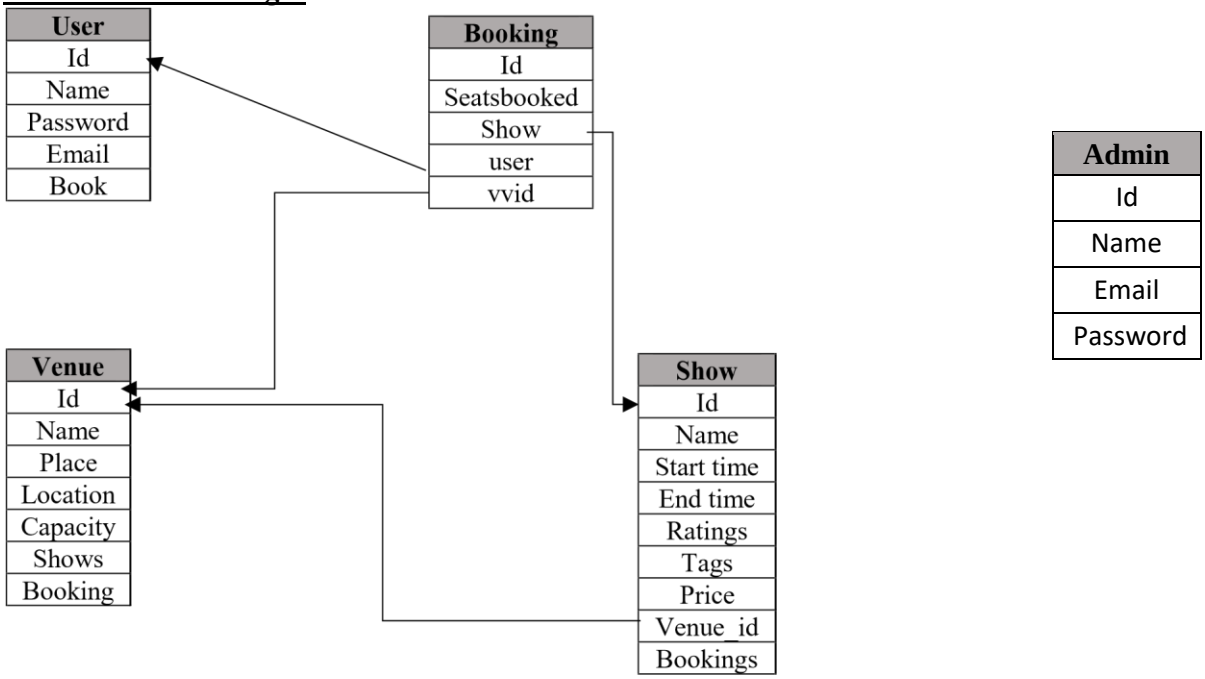
Future Enhancements:

Payment Integration: Implement payment gateways for seamless ticket booking and payment processing.

Conclusion:

The Movie Ticket Booking System showcases the potential of Flask and its extensions in building a comprehensive web application. It demonstrates user authentication, database management, RESTful API development, background task processing, and caching using various Flask extensions.

DB Schema and Design:



Project Video Link:

https://drive.google.com/file/d/1pSpydu8xvrF6LkYiWgIDRk7ohgzPwhE1/view?usp=sharing