Project Report

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Background: A Data Science student from Jodhpur, Rajasthan. Completed a B.E. degree in Electrical and Electronics Engineering and pursuing a B.S. in Data Science and Application from IIT Madras.

Project Description

The "MAD2 Music Streaming App" is a sophisticated music streaming platform designed to manage an extensive range of musical content, including songs, albums, and playlists. It features a tailored interface for various user roles, such as administrators, creators, and general users, with functionalities like song uploads, playlist creation, content management, and user-specific features like a rating system and search capabilities.

Technologies Used

- Vue.js: A progressive JavaScript framework used for building user interfaces and single-page applications.
- Flask: A Python web framework for developing the backend.
- SQLAlchemy: Python ORM library for database interactions.
- SQLite: A file-based database management system for data storage.
- Celery with Redis: An asynchronous task queue/job queue based on distributed message passing, used for handling background processes.
- IDE: Visual Studio Code.

Database Schema Design

The database includes:

- User: Stores user information with roles and status.
- Song: Holds song details, including genre, creator, and ratings.
- Genre: Lists different music genres.
- Playlist: Manages user-created playlists.
- Rating: Stores user ratings for songs.
- Playlist_Songs: An association table for the many-to-many relationship between playlists and songs.

Architecture and Features

Following the Model-View-Controller (MVC) architecture:

- Model: Manages data and business logic.
- View: Presents data through dynamic HTML templates.
- Controller: Handles user inputs and interfaces between models and views.

Features

- User Authentication and Roles: Secure login system with different user roles.
- Music Management: Features for searching, playlist management, and song uploads.
- Rating System: Allows users to rate songs.
- Admin-Specific Functions: User and content management capabilities for admins.
- Responsive UI: Adapts to different device screens.
- Lyrics Display: Shows song lyrics and allows rating.

Conclusion

This project report outlines the development of the MAD2 Music Streaming App, emphasizing its technical aspects, database design, architecture, and key features, including the integration of Vue.js, Flask, Redis, and Celery.

Presentation Video Link

https://drive.google.com/file/d/1nXSpFZ0gJf7XmFcr3xlbDPQLZqoOMbF_/view?usp=sharing