Application Development 2 Project Documentation

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Description

Harmonix, is a web-based music streaming application designed to provide users with a seamless experience for discovering, streaming, and sharing music. It aims to offer an intuitive and user-friendly interface that allows users to explore a vast library of songs, albums, and artists, create and manage playlists, and interact with other users. Additionally, it provides administrators with tools to manage music content, user accounts, and system settings efficiently.

Technologies used

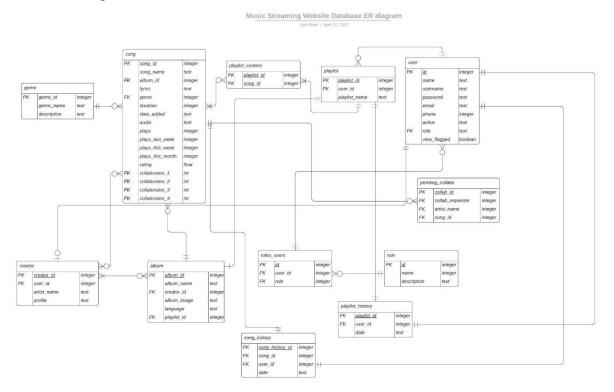
Programming languages: HTML, CSS, JavaScript, and Python (leveraging Flask framework)

Flask extensions: Flask-CORS for cross-origin resource sharing, Flask-RESTful for API development, Flask-SQLAlchemy for seamless integration of the database with Flask, and Flask-Mail for email functionality.

Additional Python libraries: NumPy, Pandas, Matplotlib, and Seaborn are utilized for data manipulation, analysis, and visualization. Additionally, Celery is utilized for handling asynchronous tasks such as background processing, integrated with Redis for task management and coordination.

Front-end framework: Vue.js is employed for building the dynamic user interface, providing a seamless and responsive user experience.

DB Schema Design



Architecture

The file structure of the project and the contents of each folder inside the main folder is as given below:

application → main application files

db_directory → sqlite3 database file

static → images, audio, bootstrap files, CSS & JavaScript components

templates → html files

The folder also contains the main app file and a requirements.txt file which includes all the libraries necessary to run the project.

Features

For users:

- User registration and login functionality to enable personalized experiences for users.
- User dashboard providing access to curated playlists, favourite tracks, and recently played songs.
- Search functionality enabling users to discover music by song titles, artists, albums, or genres and further filtering them by ratings, genres, etc.
- Playlist creation and management, allowing users to create, edit, and delete playlists tailored to their preferences.
- Song playback controls including play, pause, volume adjustment and song autoplay for an immersive listening experience.
- Artist profiles showcasing biographies and discographies for users to explore.
- Album browsing functionality allowing users to discover albums by their favourite artists or explore new releases.
- Daily reminders to log in to the app

For Creators:

- Artist registration and login functionality for managing artist profiles and music submissions.
- Artist dashboard providing access to performance metrics.
- Creator profile management allowing artists to update their personal information, and profile picture.
- Music submission feature enabling artists to upload and publish their songs and albums.
- Song and album management allowing artists to edit track details, album artwork, and release dates.
- Ability to collaborate with a number of different artists in each song published
- Monthly reports to creators highlighting their progress in the month

For Administrators:

- Admin dashboard providing access to platform-wide analytics, user data, and content management tools.
- Content moderation tools enabling review, flagging and removal of content based on the website's code of conduct.
- Reporting and analytics tools providing insights into platform usage and user engagement metrics.

Video

The demo for the application is at the following location:

https://drive.google.com/file/d/1NkC8-RVrPZLQeMcDVP3tIW8tFi3Al18b/view?usp=sharing