Project Report

About me

Name: Kunal Singh

Roll No: 22f3001744

Email ID: 22f3001744@ds.study.iitm.ac.in

I'm Kunal Singh, a 19-year-old from Indore pursuing a BS in Data Science and Programming at IIT Madras. I'm passionate about technology and have developed websites, web apps, and contributed to automation projects over the past few years. Currently, I serve as a Brain Research Consultant at Worldquant Company, applying my skills to develop quality alphas & strategy.

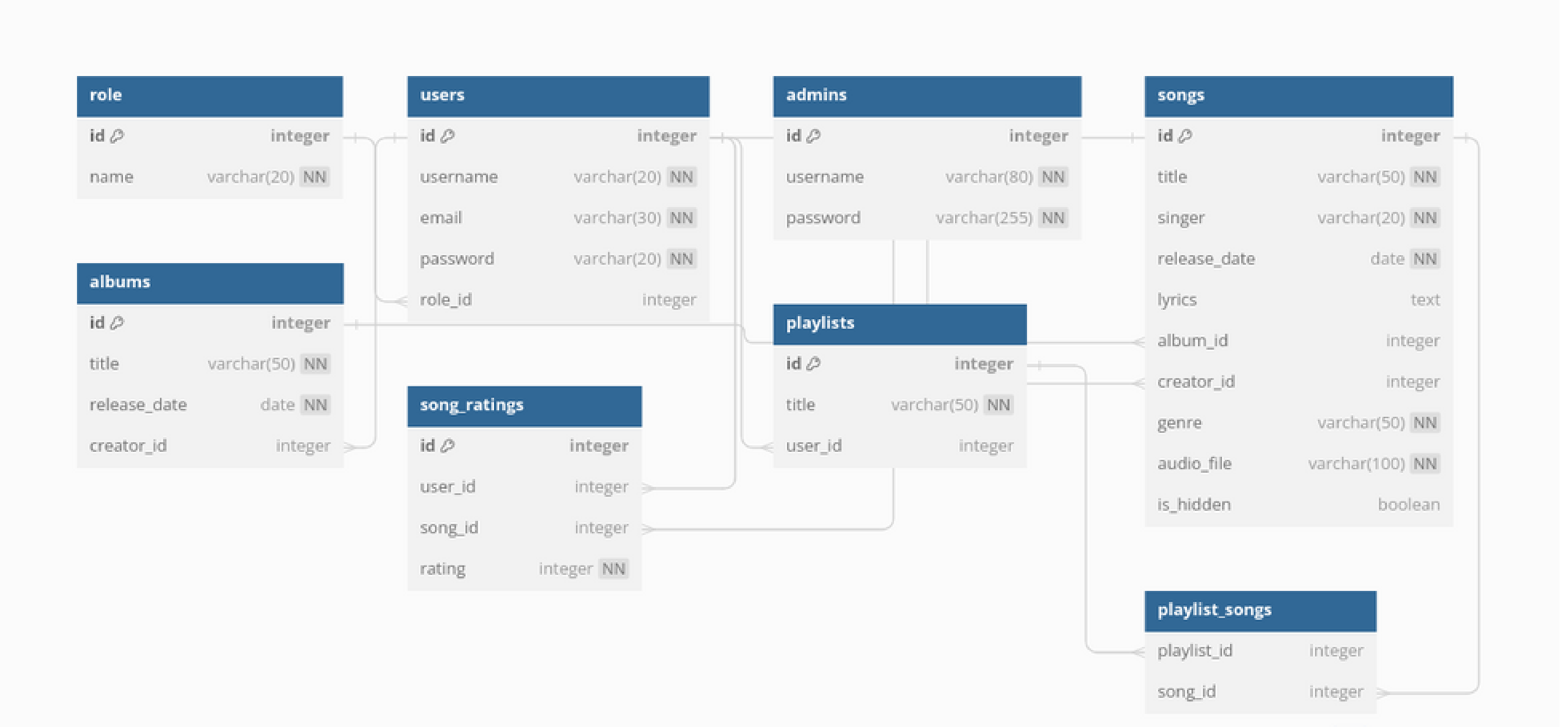
Problem Statement

The project aims to develop a multi-user music streaming app facilitating song streaming, lyrics reading, and playlist creation. Users, creators, and admins interact to manage songs, albums, and playlists while implementing display based on ratings and recent additions.

Technologies Used

- **Python Flask:** Main framework facilitating web application development.
- **HTML:** Formed the backbone for structuring and presenting content on web pages.
- **Jinja:** Integrated with Flask templates, facilitating dynamic content rendering and logic implementation within HTML pages
- **Flask-SQLAlchemy:** Integrates Flask with SQLAlchemy, simplifying database operations.
- **Flask-WTF:** Enables secure and convenient handling of web forms in Flask.
- **Flask-Login:** Provides user session management and authentication for Flask applications.
- **email-validator:** Ensures valid email inputs in the application.
- **Flask-Migrate:** Streamlines database schema changes in Flask applications.
- **Flask-Uploads:** Facilitates file uploads and management within Flask applications.
- **Flask-Script:** Offers a command-line interface for Flask applications' management.

DB SCHEMA DESIGN



role		
id	integer	
name	varchar(20)	NN

users		
id	integer	
username	varchar(20)	NN
email	varchar(30)	NN
password	varchar(20)	NN
role_id	integer	

admins		
id	integer	
username	varchar(80)	NN
password	varchar(255)	NN

songs		
id	integer	
title	varchar(50)	NN
singer	varchar(20)	NN
release_date	date	NN
lyrics	text	
album_id	integer	
creator_id	integer	
genre	varchar(50)	NN
audio_file	varchar(100)	NN
is_hidden	boolean	

albums		
id	integer	
title	varchar(50)	NN
release_date	date	NN
creator_id	integer	

playlists		
id	integer	
title	varchar(50)	NN
user_id	integer	

song_ratings		
id	integer	
user_id	integer	
song_id	integer	
rating	integer	NN

playlist_songs	
playlist_id	integer
song_id	integer

The database schema comprises users, admins, songs, albums, playlists, and song ratings interconnected through relationships. Users and Creators are distinguishable by roles, while songs and albums possess attributes like titles, release dates, and associations with users as creators. Playlists link songs through a many-to-many relationship, and song ratings maintain feedback tied to specific users and songs.

ARCHITECTURE AND FEATURES

The project directory "22f3001744" contains essential components:

1. Folders:
   - "templates" housing 27 HTML files for site presentation.
   - "static" encompassing "app.js" for JavaScript functionalities, "styles.css" for design, "songs" for uploaded audio files, and "images" for site visuals.
2. Files:
   - "app.py" managing application logic.
   - "config.py" containing configuration settings.
   - "forms.py" for handling web forms.
   - "models.py" defining database models.
   - "views.py" managing site views.
   - "musicdb.sqlite3" serving as the SQLite database.
   - "README.md" possibly documenting project details.
   - "requirements.txt" listing dependencies for the project.

DEMO VIDEO

For More Details Click Here → Link