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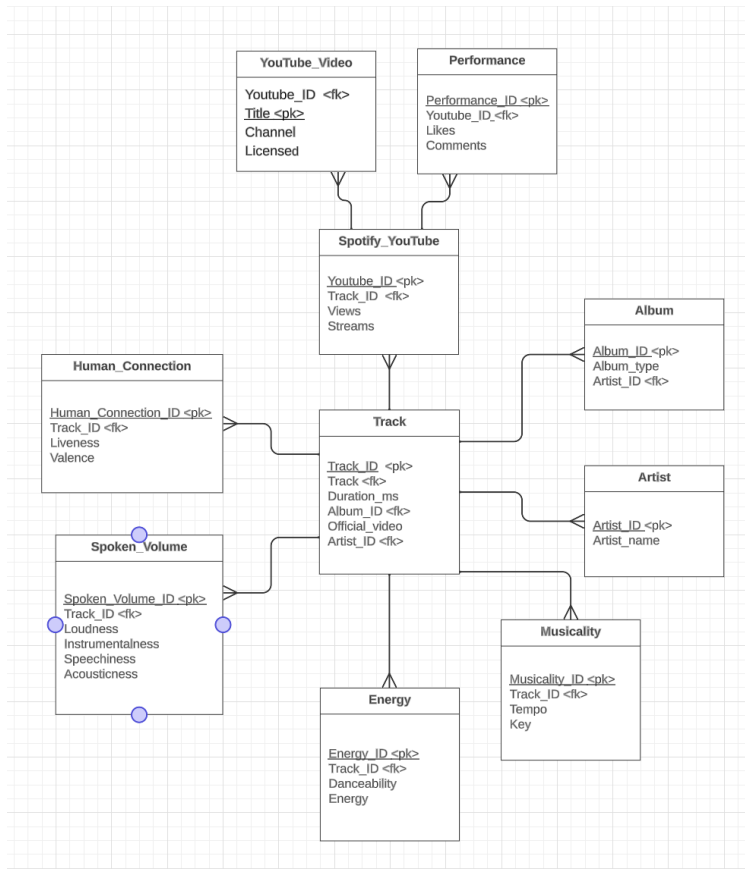
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Audio Visual Harmony Hub: SyncSounds

In the contemporary music landscape, the coexistence of Spotify and YouTube as two distinct platforms poses a challenge for music enthusiasts. The disconnect between Spotify's audio-centric experience and YouTube's visual offerings creates a gap in the seamless enjoyment of music. Users often struggle to align their auditory preferences with visual experiences, leading to a fragmented and less immersive music exploration journey. The challenge lies in integrating the wealth of data available on both platforms into a cohesive system. From artist and album information to track-specific details encompassing tempo, key, energy, loudness, danceability, and human connection elements, users lack a centralized platform that harmonizes this information for a more enriching musical experience. To address this issue, SyncSounds aims to develop a comprehensive database hub that seamlessly links Spotify tracks and albums to their official YouTube videos. This unified platform not only bridges the auditory-visual gap but also incorporates essential metadata to provide users with a more nuanced understanding of the music they explore. The solution encompasses data integration, metadata enhancement, a user-friendly interface, and performance analytics to create a holistic platform for music discovery and enjoyment.

Preliminary ER Model:

YouTube_Video

Youtube_ID <fk>
Title <pk>
Channel
Licensed

Performance

Performance_ID <pk>
Youtube_ID <fk>
Likes
Comments

Spotify_YouTube

Youtube_ID <pk>
Track_ID <fk>
Views
Streams

Album

Album_ID <pk>
Album_type
Artist_ID <fk>

Human_Connection

Human_Connection_ID <pk>
Track_ID <fk>
Liveness
Valence

Track

Track_ID <pk>
Track <fk>
Duration_ms
Album_ID <fk>
Official_video
Artist_ID <fk>

Artist

Artist_ID <pk>
Artist_name

Spoken_Volume

Spoken_Volume_ID <pk>
Track_ID <fk>
Loudness
Instrumentalness
Speechiness
Acousticness

Musicality

Musicality_ID <pk>
Track_ID <fk>
Tempo
Key

Energy

Energy_ID <pk>
Track_ID <fk>
Danceability
Energy

Our innovative solution encompasses a user-friendly interface that revolves around several key web pages, each tailored to enhance the user experience. Here's a breakdown of the components:

- Insert New Track Page: Users can seamlessly add new tracks by entering essential details such as track name, duration, album name, musicality, liveness, energy, and more. This page serves as the entry point for expanding the music database.

- Random Song + Video Information Page: This page provides organized statistics about a random song and the linked YouTube video which enables users to easily view this information upon every refresh. This allows users to keep discovering new music and expanding their music taste.

- Album Leaderboard: A dynamic leaderboard showcasing albums with the most tracks. This visually engaging page allows users to track and appreciate the most prolific contributors to the music library.

- Top 10 Tracks with Highest Musicality: This page features a curated list of the top 10 tracks with the highest musicality scores. Users can explore and appreciate music that excels in this particular aspect. Additionally, the mean musicality value provides an overall snapshot of musicality trends within the platform.

- Top 10 Tracks with Highest Energy: Users can dive into a collection of the top 10 tracks renowned for their energy levels. The mean energy value on this page offers valuable insights into the collective energy spectrum of the platform.

- Top 10 Tracks with Highest Human: Focusing on tracks with the highest human qualities, this page showcases a selection of songs that excel in capturing the human essence. The mean human value serves as a benchmark for gauging the overall human-centric musical landscape.

- Top 10 Tracks with Highest Spoken: Catering to those who appreciate spoken-word elements in music, this page highlights the top 10 tracks with the highest spoken attributes. The mean spoken value offers a comprehensive view of spoken elements across the platform.

Apart from these, our design will also include a static page for users to be able to look up the Youtube video that matches a track by searching the track itself. To do this, we will be using Java for the back-end development. We will use a Spring Boot framework for rapid development and efficient handling of RESTful APIs. We will use a MYSQL database for storing track and user data. For managing project dependencies, building, and packaging, we will be using Maven. To

containerize the Java application for consistency across different environments, we will be using

Docker. We will also use Mobaxterm and Terminal to manage and interact with these systems.