CS480 – Course project

Summer 2021

Database: song_chart

Description:

I am interested in designing a database system for keeping track of all songs that come out from artists, and the top charts of the most popular songs in each week. I was motivated because I love listening to music and want to keep track of all the songs and their properties and see if there are any patterns to the top songs. A collection of songs are collected, each of which has a unique song ID and a song name, genre of the song, number of streams, genre, artistID, album ID of the associated song, and the BPM of the song. The artists who made the song are also collected, each of which have a unique artist ID, name, nationality, how many albums released, number of songs released and awards. The albums of each artist are also collected with a unique albumId, and the name of the album is collected with the name of the artist, length of album, album rating, artistID and total streams from it. Each top chart consists of an associated date of the chart, the song name, the song id, artist name, artist ID, the BPM of the song, the genre of the song, and the weeks the song has charted.

Part 2 – CRUD (Create, read, update, and delete)

Deadline: July 17, 2021

List of strong entities:

1. artist
2. album
3. song

List of weak entities:

4. artist_name
5. song_name
6. album_name
7. week_chart

We will implement the following functionality using Java and SQL with necessary GUI interfaces.

1. Insert/delete/update/read an **artist** (all attributes except the artist id). The artist id should be generated by the system automatically using MySQL autoincrement.
2. Insert/delete/update/read an **album** (all attributes except the album id). The album id should be generated by the system automatically using MySQL autoincrement.
3. Insert/delete/update/read a **song** (all attributes except the song id). The song id should be generated by the system automatically using MySQL autoincrement.

Part 3 – Queries

Deadline: July 31, 2021

Based on the Demo, we will implement the following functionality using Java and SQL with necessary GUI interfaces.

Trivial Queries:

1. List all artists
2. List all songs
3. List all albums

Non-trivial Queries:

1. List all the songs by a particular artist with a specified streams and specied genre
2. List all the songs in which the streams are less than the average streams for all songs
3. Find all the songs with a lower BPM than the average of all the songs
4. find all the albums with a higher rating than the average of all the albums and specific album length
5. find all the albums with a less streams than a specific number and with a rating greater than a specific number
6. inner join song and album and find songs with rating greater than specific number and less than a specific BPM
7. inner join song and album and find songs with rating equal to a specific number and equal to a specific BPM grouped by genre
8. inner join song and album and find songs with rating between two specific number and between a specific BPM
9. inner join song and album and find songs with specific genre and between specific lengths and order by BPM
10. inner join song and album and find songs with specific genres with a rating greater than specific number and greater than a specific lengths and order by BPM