IFT 530: Initial Proposal

Music Library Database Management System

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Table of Contents

Synopsis

The objective of Music Library Database Management System is to design and develop a music library platform that provides all listeners, regardless of ability level, with a wide range of comprehensive features. There is lots of potential to meet all types of diverse user wants because the music industry dominates the entertainment industry and has a global user base. Users of our site have access to features including recommendations for suitable music depending on their location, preferred language, favorite genres, and current mood. Moreover, users can locate songs based on the very minimum of information they can recall, like: For instance: publishing date, artist, or text fragment.Many entities, including tracks, albums, artists, bands, users, device players, playlists, and more are stored in the database.

We think there is always potential for new features to be offered to the platform given the thriving music industry and the evergreen and rising consumer base. By just humming the music or singing the words, users may now employ new machine learning capabilities to find certain songs. We create a flexible, adjustable music library database management system that finally includes a broad range of potent capabilities.

Area And Topic Of Interest

The music industry is the one in which we are employed. Since its founding 200 years ago, the music industry has experienced exponential growth. There are many different players in the music industry, from the real musicians who play the tracks to the massive production corporations that support and enable them, the technical personnel that assist them, and the fans who enjoy them. That is In the past ten years, the music business has seen significant upheaval. Record sales decreased as music listening habits drastically changed. Today's musicians mainly rely on social media and streaming services to market their music, and many are succeeding in this brand-new landscape.

You may listen to any of your chosen content anytime you want thanks to digital music streaming services, which provide you immediate access to their vast online music collection. Using it is easy. There are millions of music accessible from numerous genres and artists. There are many different types of music, such as pop, jazz, hip-hop, rock, and classical. There is music on computers, smartphones, tablets, TVs, automobiles, watches, and more.

Importance / Interest to us in this Area

By definition, music is a type of sound art that effectively conveys ideas and emotions through rhythm, melody, harmony, and color. As music is an enduring beauty, I think everyone can enjoy it. Because we have always loved music, it comes naturally to us. We adore how diverse music can be, just like humans. Like to music, not everyone has the same personalities, tastes, or preferences. Some people like rock; others don't. A person's musical preferences can frequently be used to describe them.

Music is created and sold for profit by businesses and individuals. Band members perform live shows and go on tour to get extra cash. Recorded music is produced and promoted by record labels, publishers, producers, engineers, and other businesses. Music is joining the digital realm, improving its viability and accessibility.

Digital music, which combines technology and our love of the music business, is where our interests truly converge. Before deciding that Music Library Management System would be our passion project, all we needed to do was have a brief conversation and iron out the details.

Entities and Attributes

Structuring the data requirements begins by identifying the relevant data and the entities contained within. The project's data is made up of artists, bands, songs, and their labels. An initial set of database entities has been outlined below as a foundation for later modeling.

ENTITY NAME	ATTRIBUTES
Track	Track Id
	Title
	Duration
	Genre
	Language
Album	Album Id
	Title
	Production Company
	Region
	Number of Songs
Artist	Artist Id
	Name
	Band
User	User Id
	Username
	Password
	Location
	Preferred Language
	Preferred Genre
Playlist	Name
	Number of Songs
	Created On
Device Player	Device Id
	Type
	isShuffle
	Volume

|	Registered On

Questions

1. What is the length of the track?

2. How many albums were made available in 2021?

3. What genre belongs to this song?

4. Include each song's artist name, band name, and album name.

5. Locate every track name that begins with the letter "A"

6. How frequently was this song played on the type of mobile device?

7. Determine the song's title that appeared the most frequently.

8. What is this song's album region?

9. Locate the track with the least duration

10. List every musician that has ever recorded a song in this genre.

ORM Diagram
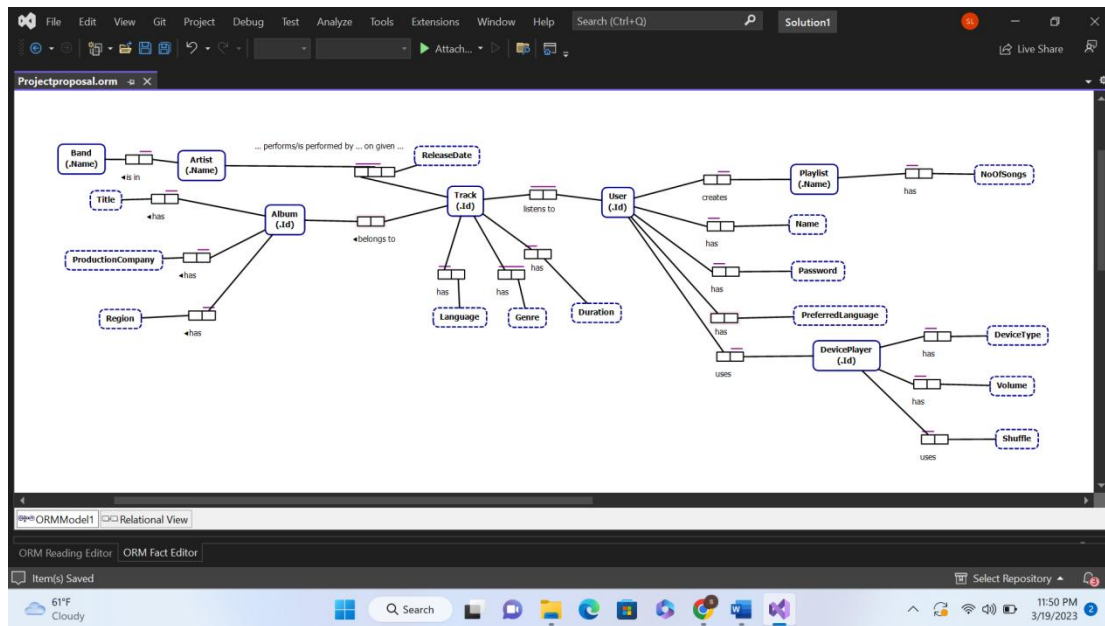
Relational View
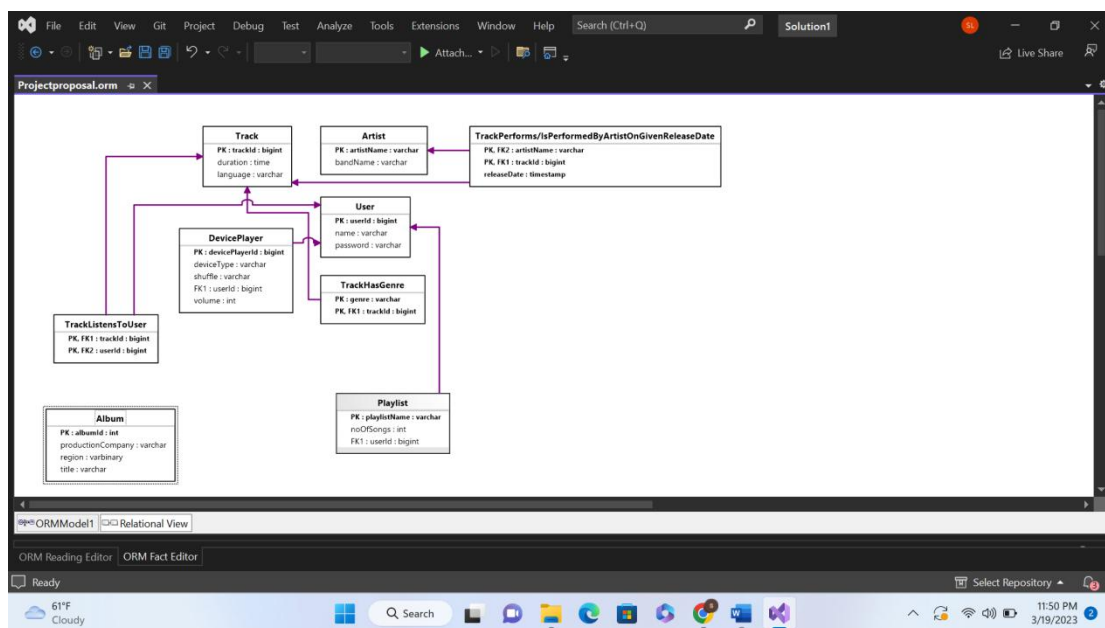
Stored Procedure

This procedure takes in an Artist's name as an input and gives his most famous song.

GO

CREATE PROC spGetMostFamousSongOfArtist

       @artistName Varchar(30)

AS

SELECT t.TrackTitle, a.ArtistName, MAX(noOfPlays) FROM

Track t JOIN Artist a ON t.ArtistId = a.ArtistId

WHERE a.ArtistName = @artistName

Trigger

This is an update trigger on the Album table whenever a new song is released.

GO

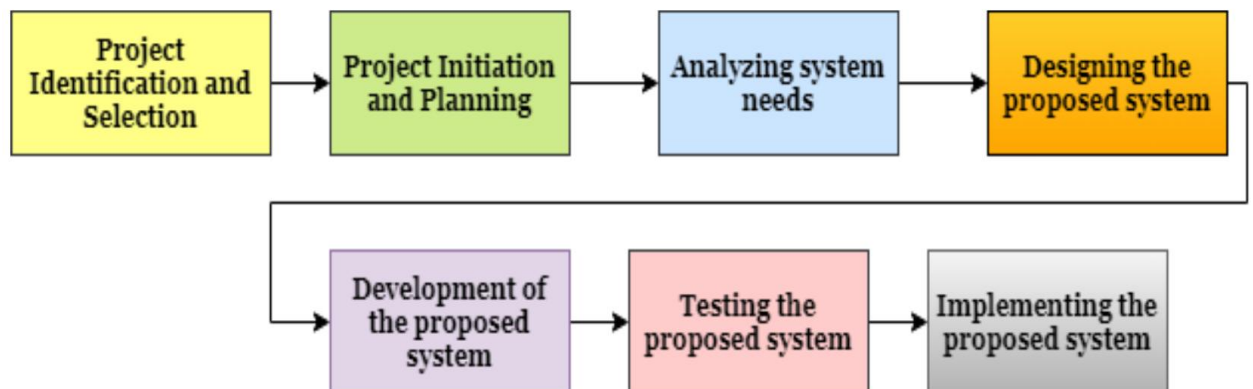CREATE TRIGGER TR_Album_afterNewSong

AFTER Insert ON Track

FOR EACH ROW

BEGIN

UPDATE Album set Album.NoOfSongs = Album.NoOfSongs + 1

WHERE Album.Album_id = Track.Album_id;

END;

Job Flow

1) **Project identification and selection :**

The goal of this project is to develop a music library management system with an emphasis on managing tracks, albums, artists, users, and the ecosystem as a whole. On the Internet, you may find everything and everything about music. moving from neighborhood specialists to greater scale after starting with open permitted tracks.

2)**Project initiation and planning :**

We started by determining the project's scope and goal and collecting user requirements for the system. The results of this strategy are as follows: variables to take into account include scope and constraints, objectives, costs and advantages, suggested system features, and user interface choice.

3)**Analyzing system needs :**

Before drawing a data flow diagram for the existing framework, we looked into it and found problems. For the suggested data set mapping, we also created an information stream graph (DFD) and an item connection chart.

4)   Designing the proposed system :

After the research phase, we created the DFD and user interface, a data dictionary,

and a relational database model from the ORM diagram.

5)   Developing of proposed system :

At this step, we will convert the suggested system's architecture into software.

Computer programming will be needed to handle MySQL management and

translate design requirements into software.

6)testing the proposed system :

During this stage, we make sure that the code will work as intended in our

environment. We will address issues as we go in order to develop code that runs as

quickly as possible.

7)Implementing the proposed system :

So that people may start using its capabilities and look for music whenever they

want, we want to make this system accessible online.

Summary :

The system architecture makes sure that all of the questions in the questionnaire

portion are accurately answered by using views, functions, stored procedures, and

triggers. Understanding the data allowed us to give the users the pertinent information.

It offers information about the numerous artists and the creations they have made.

Users can also focus their list of favorite songs or information by using queries. The

system might be used by users as a one-stop shop for all things musical.

Conclusion :

Our Music Library Management System does a good job of addressing the gaps we wish to fill and the constraints of the current systems. We discussed the importance of developing the system to be compatible with and easily expandable to new features in this environment that is always evolving, as well as the requirement for a music library platform that is mature and fully functional. It can be difficult to stay organized while building a database management system for the massive music industry because there is so much data available.

In order to identify the necessary entities, properties, and relationships between entities to construct an effective object role model during the design phase, before putting the database into use, we looked at a number of features and the operations of the leading music platforms at the time. After analyzing all of the requirements, we constructed our ORM diagram and turned the ORM into a relational model.

References

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