

# IT 214 DBMS

## Lab 6

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**12 Oct, 2021**

# 1. Final Problem Description

The Online Music Management System will provide a large collection of songs to every user who is connected with our service over the internet. Users can search music and/or select from a given list of songs and that song will play in the appropriate app or system (web / android / desktop). As far as the IT214 subject is concerned, this project will be database oriented. Our goal is to make efficient database design, so that maximum users can connect with our service using minimum resources.

The system consist of three parts;

1. **User interface:** installed on device or accessed via browser
2. **Server:** connect application and database, handle user request, stream song, register user, etc.
3. **Database:** Store the songs and user information, provide some basic functions to modify and search into the database. It uses a PostgreSQL database.

## Basic Workflows of Client Application

- **Register/SignUp:** Every user needs to register in application when he/she operates for the first time. Without registering users can listen to only 20 songs.
- **SignIn:** Every time when a user opens an application, he/she must have to sign in using their credentials.
- **Suggestion/Song List:** After signing in, users get the list of some song according to their preference and history.
- **Search Bar:** Search the song in our database using various filters like artist name, rating, views, type, date, movies, etc.
- **Music Player:** Play, pause, prev, next, queued, etc. functionalities are handled by the music player.
- **User Profile:** show the information about user, account type (premium/common), update profile, etc.
- **Upload Song:** Users can upload songs on the server.
- **Money:** Give the money to artists according to views and rating.

## Basic Workflows of Server

- **Authentication Handling:** all authentication related functionality like register user, check whether the user's credential is right or not, etc. are done by this part.
- **Search request:** Send the result of the search query to the application in JSON format.
- **Song request:** Start the streaming of songs on a particular user's device, download, upload can be done via this service.
- **Update:** Update song rating, views, etc. and user data also.
- **Money:** All money transactions controlled by this part.

## Basic Workflow of Database

- **User:** Add, delete, update user and also update account to premium account.
- **Song:** Add, delete, update song.
- **Money:** Money transaction.

## Popular Issues

- **UI/UX:** Modern apps must have to provide a customization of theme and layout because bright light can harm eyes at night and UI with dark color can not be visible in day. So instance switching of themes was needed. Different layouts give the diversity of system usage.
- **Suggestion:** Users don't want the same type of suggestion all the time. They want to customize the suggestion based on their own requirements. No any existing system have this kind of feature to customize the suggestion for each user according to user requirements

- **Filter:** Only Suggestions are not enough, people must need some filter to get a particular song list. All music platforms are providing different filters, but it's not sufficient. Users want to filter the songs according to the group of attributes. So I need some sort of feature to apply more than one filter on any list of songs, even in a playlist, albums ,search result, etc.
- **Offline Availability:** Copyright concern prohibits the user to download songs. Many places like gym, car on highway, train, flight etc. have low connectivity due to closed infrastructure or mobility of devices. In such cases users want the offline availability of songs. There is some smart system required so that users can download songs without violating copyrights.
- **Other:** Playlists are too important to feature in any music system. System must take care of this feature. Users should be able to share songs with some privileges. Users also want to gather online and organize a virtual party ( party means one can play a song and other listen to it ), podcast, etc. So the system adds these features so that users get a better experience.

Online Music Management System(OMMS) will help to categorize using song name, artist, albums, rating, type, time, type, number of listener, etc. Admin will be able to add songs. Users will be able to create their favourite playlists, Download and Share songs. This system also has features for singers and authors of albums. If some other singer wants to use a song or it's lyrics in his song, He will have to take permission from the owner of that song. This system will alert the owner of a song or album when someone publishes a song or album containing the song of the owner. Based on that if he has not taken permission from the owner he will be charged a penalty. We are providing **Repeat Current song, Repeat playlist, Shuffle playlist** like features for users. Users can make their own playlist by adding their favourite songs. The system also has a **play in background** feature so a user doesn't have to keep the application open while listening to music. To use this play in background feature the user has to buy premium.To set any song for caller tune(song for incoming call) the user has to buy premium.

There are several other applications in the market which are similar to our OMMS software.these applications/softwares provide several functionalities like search music,add different songs in the favourite song list,set caller tune,lyrics,etc.

Search Music: By this function you can search the music song whichever you want.

Favourite song list:some applications provide a Favourite song library/folder and in this library you can add the song so it notes the song to your favourite song.

Caller tune:this function provides the ability to set the song for incoming calls.

Lyrics:some other applications provide lyrics of songs.

To achieve this workflow in our system, We will need to design a database which includes several entities having relations internally. For users, we will need tables storing information about the user, about the premium accounts, about user credentials, past transaction of users etc. For the song, we will need tables storing various information about the song like song type (pop, rock, rap, bhajan etc.), song language, album name, singer, whether the song is for premium users or not, artist name, premium price, views, likes, dislikes, rating etc. for the singers and artists we will need tables storing their song names, their albums, their details, production company name etc. For the production company we will need tables storing information about songs or albums they have released, artist or singer names of that song/album, price of that song/album etc. For the admin of the system we will need several functions for adding songs in system, deleting songs in system, updating details of songs etc. We will need transaction management in our system.