

INFO 6210 – Database Design Document – Group B

- Database Topic: Music-Streaming Application Database

- Database Description:

The database we design for the project is for music-streaming applications (e.g. iTunes, Spotify, Apple Music). Users of the application will be able to perform music-related searches, listen to songs online live, and add them to their personal playlists and favorite lists. The database maintains information related to songs and user preferences.

- Database Objectives:

- Persist information related to songs, such as Artists, Albums, Genres, Songs, and Lyrics.
- Manage user information and preferences, such as Playlists, Favorites, and Purchases.

- Business Rules:

- Purchases are the songs purchased by each user account. Once a song is purchased, it will be available for the same user account forever across all devices after logging in, i.e. users do not need to purchase the exact same song twice.
- Playlists are lists of songs. All playlists are private, i.e. there is no publicly shared playlists across different users.
- Favorites is a list which contains all songs that users have marked “heart” with. There is only one such list for each user account (i.e. one-to-one relationship).
- Songs can be purchased, added to playlists, and added to favorite lists.

- Design Decisions: 14 Entities

- Artist
 - Contains information about a singer/band
 - Many-to-Many: Albums, Genre
- Album
 - Contains information about an album
 - Many-to-Many: Artists, Genre, Songs
- Artist_Album
 - Associative entity for Artist and Album
- Genre
 - Contains information about a music genre
 - Many-to-Many: Album, Artist
 - One-to-Many: Songs
- Album_Genre

- Associative entity for Genre and Album
- Artist_Genre
 - Associative entity for Genre and Artist
- Songs
 - Contains information about songs
 - Many-to-Many: Albums, Playlist
 - One-to-One: Genre, Lyrics
 - Many-to-One: Purchases, Favorite
- Songs_Album
 - Associative entity for Songs and Album
- Songs_Playlist
 - Associative entity for Songs and Playlist
- Lyrics
 - Contains lyrics information of a song
 - One-to-One: Songs
- Users
 - Contains user information
 - One-to-Many: Playlists, Purchases
 - One-to-One: Favorite
- Playlists
 - A specific list of songs created by users
 - Many-to-One: Users
 - Many-to-Many: Favorite, Songs
- Favorites
 - A list of songs that users have marked “favorite” with
 - One-to-One: Users
 - One-to-Many: Songs
- Purchases
 - Contains user’s purchased songs
 - Many-to-One: Users
 - One-to-Many: Songs