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Database Theory

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Problem Statement

Our project seeks to create a simple, no bloatware, easy to use music listening and discovery service. The end goal is a product that allows users to listen, rate and collaborate with other users on what music they like. The scope of this project is to create a database, as reflected in our ERD, consisting of five major entities, users, user created playlists, artists, albums and songs. Each user will be related to other users via a friends list as well as any number of playlists the user wants to create for themselves. Playlists will be tied to songs and users, while songs are linked to both an album and an artist. Lastly, each artist will be tied to a list of albums and songs written. For our project, there will only be one type of user involved in the database, one that can listen to songs and create playlists.

To facilitate creating this database, we created a list of queries to help ourselves determine what the database would look like and how it would operate. These queries became the basis for how we saw not only the relationships between elements of the database, but also how the user would interact with the database and with other users. The list of queries is as follows

1. What has a user recently listened to?
2. Who are the user’s friends?
3. Add a friend for a user.
4. What is the user’s age?
5. Who is the artist for a song/album?
6. What other albums has the artist written?
7. What songs are in a playlist?
8. Create a new playlist for the user.
9. Add a song to the playlist.
10. Share a playlist with a friend.
11. How long does a song last?
12. What genre/s is a song?
13. How many albums has an artist released?
14. How many songs are on an album?
15. What is the user’s name?
16. Is there an artist the user might like based on their listening history?
17. How many songs are in a playlist
18. How would the user describe(name) their playlist or a song?
19. What year did an album release?
20. Show a user when a new album comes out that an artist they like put out.

We are hoping to create a user experience that consists of the following basic interaction loop with the user. As a first step when the user starts to interact with the database, they will have two options of how to proceed. First, the user can simply start listening to a currently existing playlist that is already in the database. Secondly, users can start the process of creating a new playlist or modifying a previously made playlist. If the user elects to listen to a currently existing playlist, which could either be a playlist created by themselves or another user, then they will be taken to the playlist, where they can access the songs to listen and view information about them. After finishing listening the user is returned to the first step of the process. If the user opts to create a new playlist or modify a currently extant playlist, they will then be able to access other parts of the database, specifically songs, artists and albums. The user can search through these three major entities to find new music to listen to. As a user finds songs they like, they can add them to their playlist. Once the user has completed their search, they can name their playlist, share it with friends, or just simply listen. After finishing the playlist creation process, the user will again be redirected to step one of the interaction process.