Final Project Proposal
QuantiFi Radio featuring DJ A-Eye:
Music is for Everyone
Creating a customized music experience based on specific tempo

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Discussion:

Music has the unique and intrinsic ability to make us feel good. A good song can bring about past memories, it's a means of expression, and it connects our history in a way words alone aren't always able to express.

So what makes music so interesting to humans?

Endless research has proven that when we listen to music, dopamines are released in our brain which then turn into happy emotions. There are also correlations between music and stress relief which improves blood flow. For others, it's not the same, a song can bring about sadness and endless negative emotions. However, no matter the emotion, music goes with everything and anything in our lives regardless of the positive or negative feeling. For example, a fast paced song encourages a good workout, a love song reminds us of past memories, or a slow song relaxes us right before sleep. However, the most common thing songs have is that they all follow repetitive patterns, patterns our brains respond to in various ways, without these patterns, it's not considered a song or melody, it's just noise.

Statement of Purpose:

The purpose of this project is to get our user to start off with a song they want to hear. We then take all the quantifiable characteristics found in that particular song and return a list of songs that work best as the "next" song in the queue. In addition, we will also display a summary of each song's tempo, danceability, energy, key, mode, and loudness to name a few. The goal is to ultimately enhance the user's custom experience, creating a smoother transition between their current favorite and their next favorite song.

Items for Research:

- CSV files which contains song titles and their structural elements for categorization
- Spotify application to make calls
- Different algorithm techniques to understand which one will work best for our application
- What musical aspects create an easier transition between songs for the user's experience (key, beats per minute, etc)

Raw Data Sources:

1) Billboard Weekly Hot 100 (1958 - 2019)
    a) Source: https://data.world/kcmillersean/billboard-hot-100-1958-2017
    b) Type: CSV

2) Hot 100 Audio Features (1958 - 2019)
    a) Source: https://data.world/kcmillersean/billboard-hot-100-1958-2017
    b) Type: XLSX

3) Spotify API
    a) Source: https://developer.spotify.com/
    b) Type: API

Assumptions:

- When the user enters their musical selection, they are querying music they prefer listening to.
- By breaking down and leveraging a song's quantifiable elements, we are able to find similar songs a user will enjoy.
    - i.e. assuming that people will enjoy listening to songs that possess similar quantitative elements to songs they already prefer
- Similar musical elements will create a smoother, more seamless transition, i.e. listening experience

Notes:

- We are unable to make recommendations for songs for which we do not have Spotify data.
    - Because song titles are aspects used in creating SongIDs, character translations may affect query results, with some titles being censored for explicit lyrics (i.e. Apes***) and other issues like where H*A*M in csv vs H•A•M in Spotify.