## **Topic Idea 1: Song SentimentAnalysis Over Time**

### **Problem Statement**

### **Describe the problem you would like to tackle.**

This project will help music producers and artists know future trends in music moods/genres to boost revenues and streams. Over time, the mood/genre of music that people generally listen to changes. Until now, producers and artists have had to make educated guesses about music trends, which costs extra time and money.

### **What is the topic of your project?**

For this project, we will be performing historical sentiment analysis on the top songs over time. We can then use these historical trends to provide a predictive analysis of music mood trends in the future.

### **What do you want to learn about it?**

We want to learn what kind of music people have generally been listening to in the past (by region, genre, etc.) What are the general moods and themes of these songs? How have these moods and themes shifted over the years/seasons/significant events? Finally, we would like to learn what kind of music people will be listening to in the future. Learning how to parse this kind of data and use machine learning to predict trends is something we would like to learn from this project.

### **Significance of the Problem**

### **Why is it important to tackle this problem in your project?**

### Data is the most valuable asset today, so leveraging this data in new ways to predict music trends helps consumers and artists alike. Consumers will receive more satisfaction from the music they listen to as it will be based on current mood trends, leading to increased recognition and profits for artists.

### **In what ways could the insights from this project be useful?**

It would be interesting to see where music is headed in the future and how historical data shapes those predictions. Looking at these predictions by region, time, or event can also be useful for artists looking to produce for a specific group of people

### **Potential Datasets**

### Spotify tracks different data points that influence mood and genre: [https://developer.spotify.com/documentation/web-api/reference/tracks/get-audio-features](https://developer.spotify.com/documentation/web-api/reference/tracks/get-audio-features/)

### This data set contains 777 songs and their basic moods: <https://cs.nju.edu.cn/sufeng/data/musicmood.htm>

### To find information on the top songs, or songs by genre/region, we could use data from Spotify and Billboard.

**Topic Idea 2: Original Playlist Generator**

### **Problem Statement**

### **Describe the problem you would like to tackle.**

This project will help users find new music to listen to based off of songs they already like.

### **What is the topic of your project?**

### A user can enter a few of their favorite songs, and we would then run a sentiment analysis on the lyrics. Spotify’s API can provide information on a song’s tempo, valence, speechiness, liveness, instrumentalness, energy, danceability, acousticness and mood tags. Using that information, we would recommend a new song to the user from a database of recently released songs.

### **What do you want to learn about it**

### What factors are more important in determining if someone is likely to like a new song? What new songs are most likely to be recommended? How popular are the recommendations?

### **Significance of the Problem**

### **Why is it important to tackle this problem in your project?**

### Finding new music is hard, so this project can help users explore new songs that they’re likely to enjoy based on the music they already like.

### **In what ways could the insights from this project be useful**

### As people use this service, they could report back if they did/didn’t like the recommended song, which could help give insight into what traits are most important in predicting if a user will enjoy a new song. It would also be interesting to track the number of times a new song was recommended, which could be used to predict which songs are likely to become popular

### **Potential Datasets**

### Spotify API: <https://developer.spotify.com/documentation/web-api/reference/tracks/get-audio-features/>

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## **Topic Idea 3: NEU Matching App**

### **Problem Statement**

### **Describe the problem you would like to tackle.**

### Help people find friends and romantic partners within the Northeastern community

### **What is the topic of your project?**

### Matching people, finding compatible partners

### **What do you want to learn about it?**

### What sorts of factors lead to more compatible matches or not. Are there factors that are insignificant that may seem significant when finding a match?

### **Significance of the Problem**

### **Why is it important to tackle this problem in your project?**

### Covid has made it hard for people to socially interact, so leveraging the power computers could make it easier to connect people virtually.

### **In what ways could the insights from this project be useful?**

### It would be interesting to see what factors are most important in finding a compatible match. I know that a lot of research has been put into optimal matching algorithms, so it would be cool to see what we can discover.

### **Potential Datasets**

### We could extract data via forms that we send out to the Northeastern population (like some sort of survey or questionnaire). We could also run batches and use previous batches as training data to predict for future batches.

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