

Playlist Creation by Employment of a Gaussian Mixture Model on Song Features

Problem

- The Spotify song radio algorithm tends to generate playlists not by a sorting of audio features
- This project seeks to generate playlists based off of audio features provided by Spotify's API

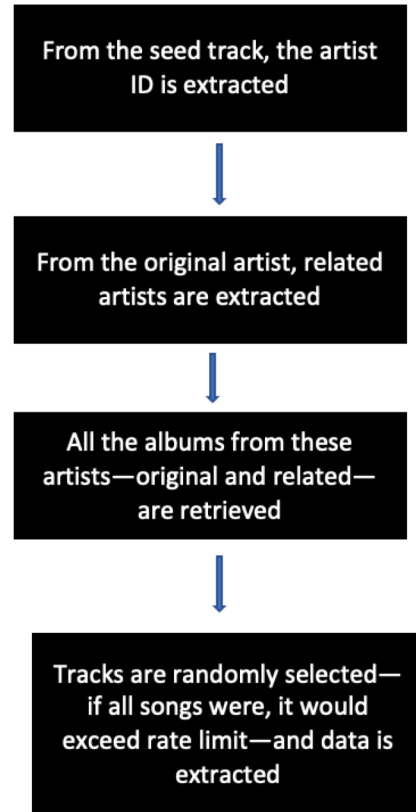
Solution steps

- Create software to pull songs and their respective features
- Analyze data to determine viable strategies for playlist creation
- Create software to employ viable strategy
- Create software to post playlist

Step 1

- Successfully created pipeline to pull songs and song features from a seed track
- Status: While functional a more robust way to determine the seed track's ID
- This was attempted at the onset but the “get player” endpoint on Spotify's API was broken

Step 1 pipeline

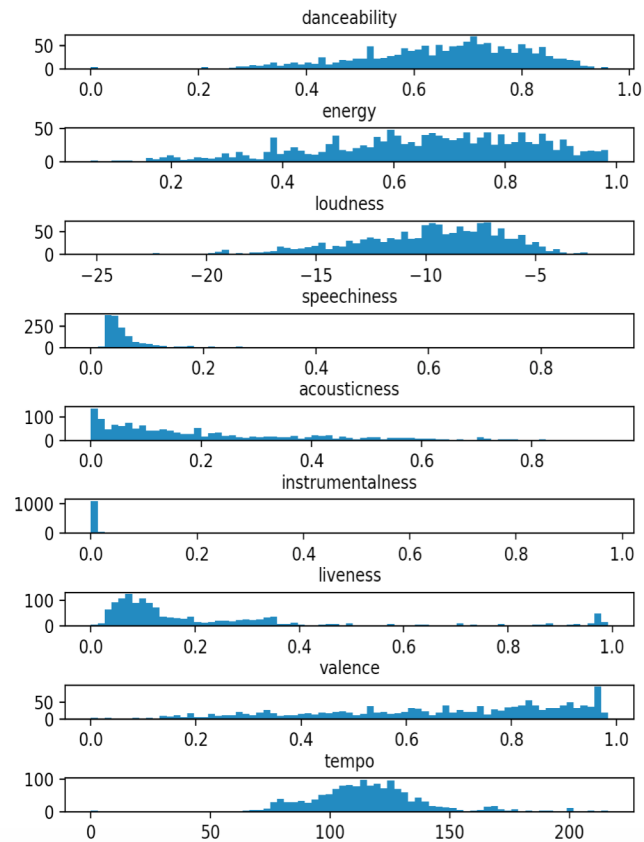


Step 2

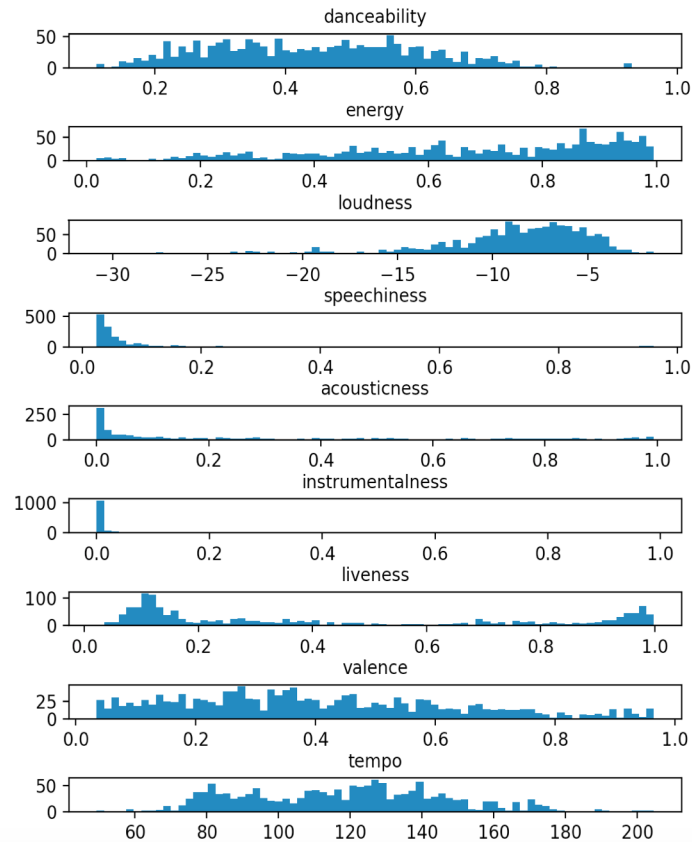
- After track can be extracted, there needs to be a preliminary analysis
- This was done by plotting histograms of the different traits
- I selected 6 songs that were sonically diverse

Visualized Song Data

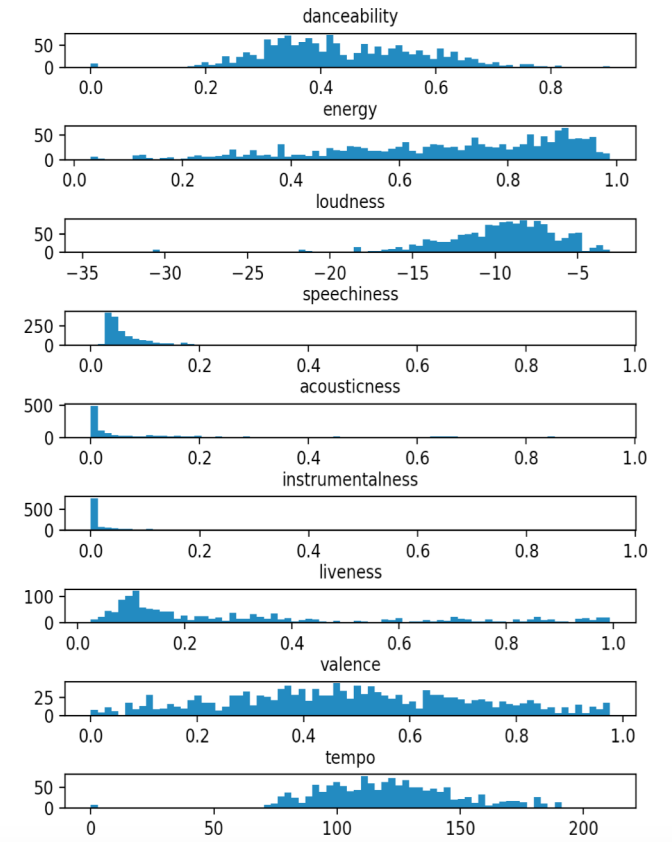
Data for September



Data for Bohemian Rhapsody

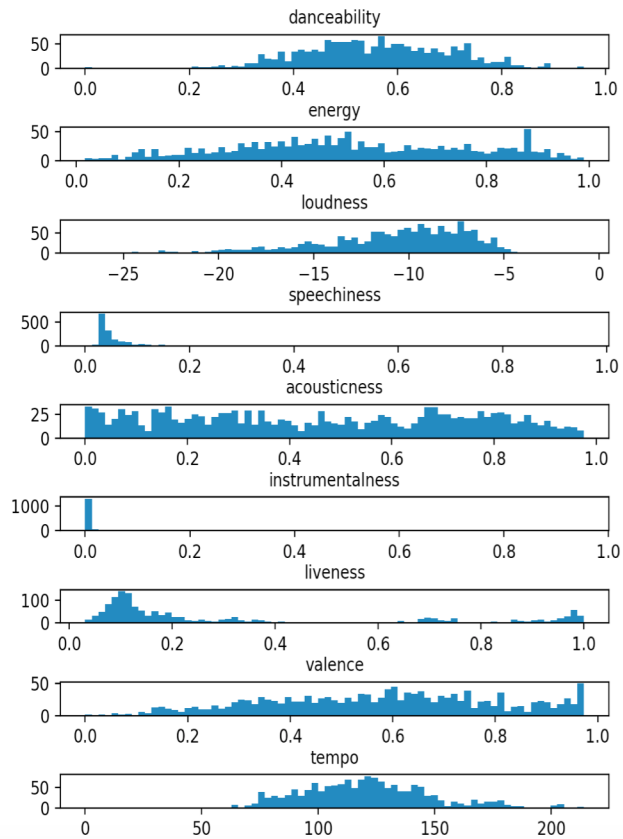


Data for Over the Hills and Far Away

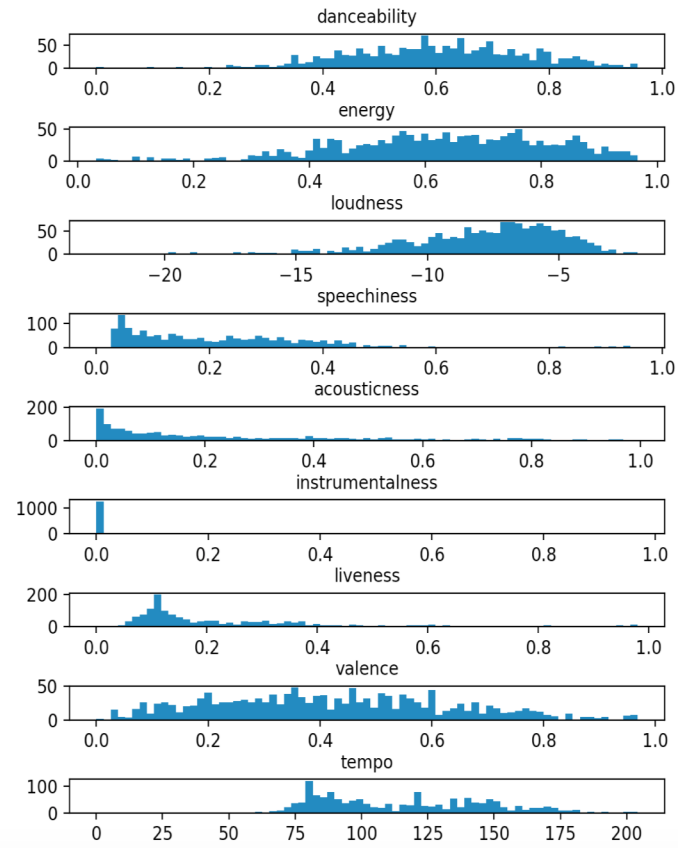


Visualized Song data continued

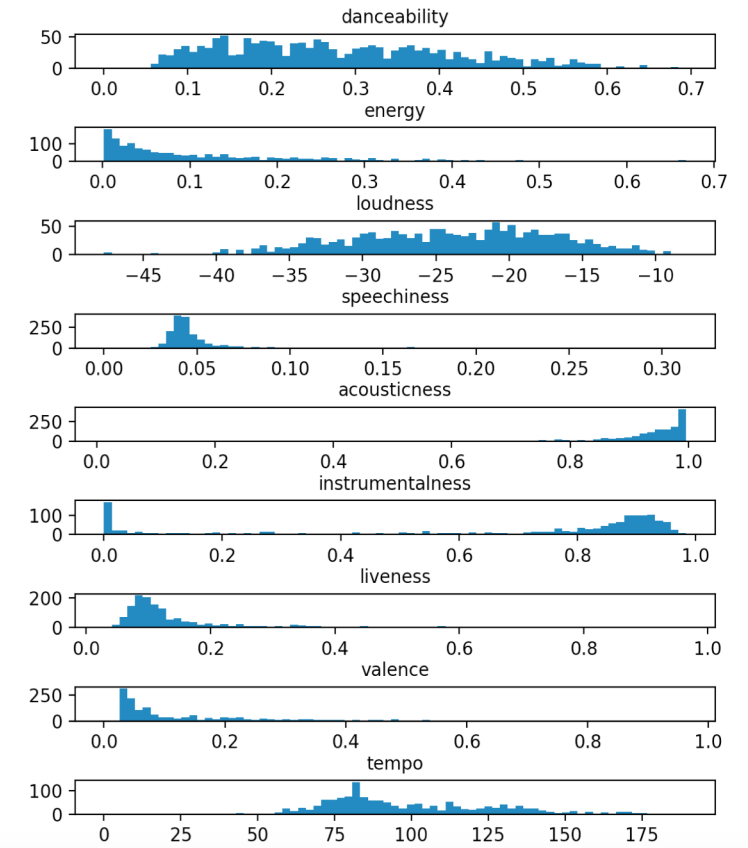
Data for Astral Weeks



Data for Blue World



Data for Mahler V Movement I



Step 2: Plotting results

- It does appear that the traits are distributed amongst several distributions
- It also paid off to use diverse songs as certain traits appeared consistent for certain seed songs while others did not
- Based upon the apparent presence of multiple distributions, a GMM based strategy seems viable

Next steps

- Move on with steps 3 and 4 to apply GMM algorithm and create playlist
- GitHub link: [https://github.com/mab93392/Smart Playlist](https://github.com/mab93392/Smart_Playlist)