The Development of Musical Genres

Kenneth Kim
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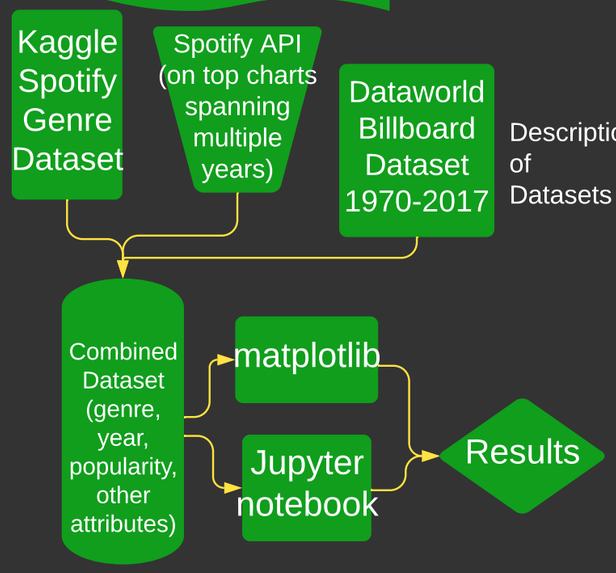
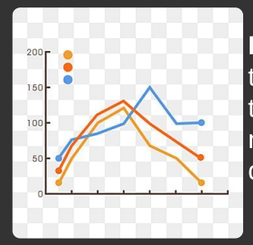
DH100

Workflow

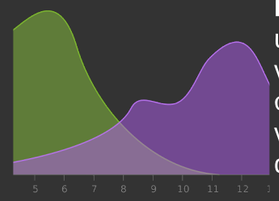


Kaggle Dataset: A massive collection of ~80k tracks obtained using the Spotify API, which allows for the user to obtain information about a track's attributes, provided by the Spotify API. These include popularity, genre, acousticness (measure of the utilization of live instruments), valence (how "happy" a track sounds), energy, danceability, etc.
Dataworld Dataset: Contains the top 100 Billboard songs through the years 1970 to 2017.

Data Analysis Methods



Line graph: charts the trends in the characteristics of popular tracks over the years, measuring valence levels, danceability, and acousticness



Density Plot: will be used to display the variances in a genre's characteristics, such as valence, energy, and danceability.

Python's library matplotlib will be used to plot the data

Pandas will be used to combine the datasets obtained from Kaggle, and personal scraping from the Spotify API, as well as to organize the data

Research Questions

-Which genre displays the most variability in energy, acousticness, or bpm?
-Which genre has seen a growth in popularity?
-Which genre is seen the most in the top charts over the years?
-What kind of traits are seen in popular music and what genres do they match?

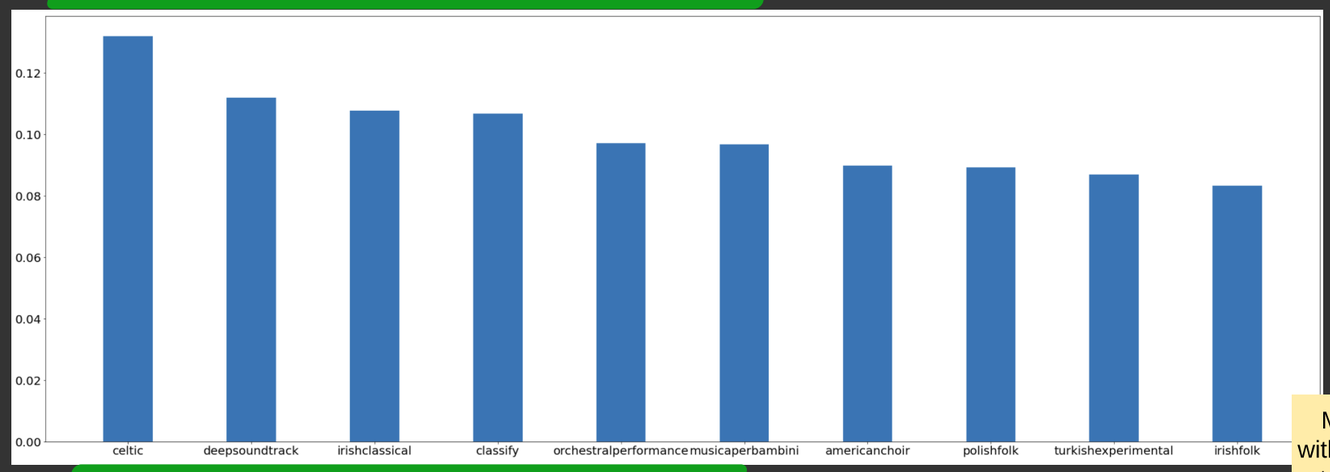
Interpretation of Data

I expect some trends in music to be fairly straightforward, with the more traditional genres such as classical and older rock to have more acousticness. The variance in energy and danceability levels in the electronic genres will probably be lower compared to other genres as EDM makes up such a large portion of electronic music. One genre I expect to see a large variance in valence levels is jazz, due to the wide range of experimentation and expressive instrumentation in the genre.

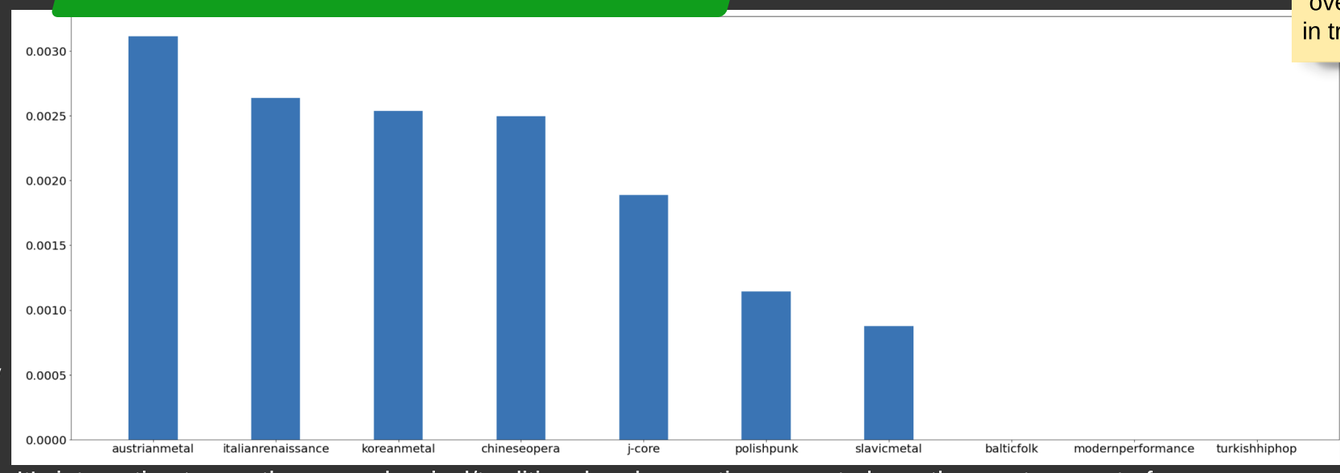
Key Attributes

Acousticness (0-1): the level acoustic instrumentation
Danceability (0-1): analyzes the bpm and rhthymic stability
Energy (0-1): measured based on loudness and intensity
Instrumentalness (0-1): the presence of vocals
Valence (0-1): how "happy" or positive a track sounds

Top 10 Genres with Energy Variance



Top 10 Genres with Least Energy Variance



Might replace with bar graphs of top 10 genres with most/least overall variance in track attrivutes

It's interesting to see the more classical/traditional and acoustic genres to have the most amount of energy variance. Classical music and folk tunes have varying amounts of instrumentation used within them, explaining the large amount of variance seen here. Videogame music stands out among this top 10, but can be easily explained with videogame music's wide-ranging intensities, ranging from atmospheric tracks to intense fight themes. Meanwhile on the other end, metal is a genre that shows up multiple times as having some of the least amount of energy variance. Metal is characterized with its aggressive sound and loud instruments, so it would make sense for it to have small energy variance due to its consistent loud nature. Similarly, j-core, or japanese hardcore, is a subgenre of EDM also known for its intensity, with its banging kick drum and fast BPM. Chinese opera is also present on this end for the opposite reasons, being characterized with its consistent soft sounds and minimal instrumentation.

Works Cited

https://www.kaggle.com/yamaerenay/spotify-dataset-19212020-160k-tracks?select=data_by_year_o.csv

https://data.world/typhon/billboard-hot-100-songs-from-1970-2017/workspace/file?filename=songs_1970_2018_uniq.csv