Spotify Recommendation System and Streamlit Web App

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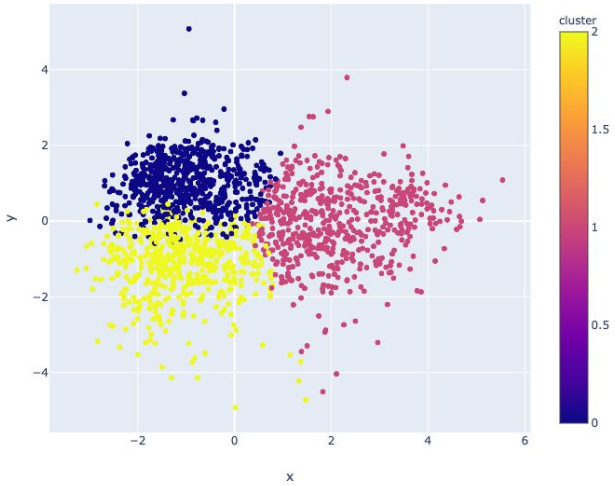
Obtaining Playlist Information

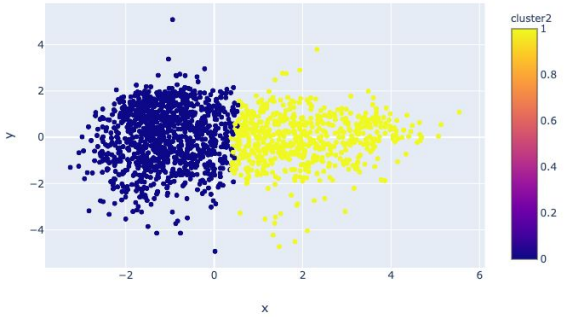
- Accessing Spotify API through Spotipy
- Username and playlist URI
- Extract track metadata and audio features
- Save as CSV file (1700+ tracks)

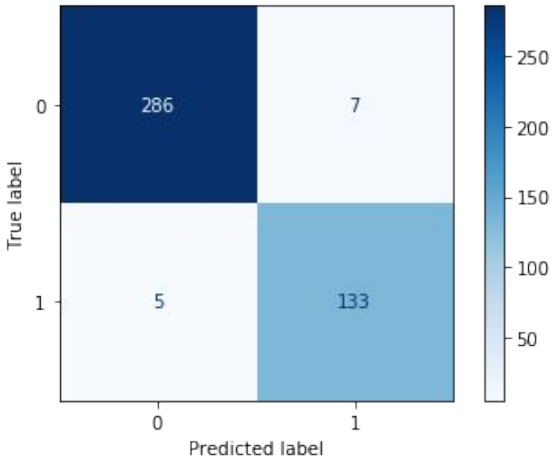
Visualizing Song Data As Clusters



- Audio features (ex/ Danceability, Energy, Acousticness)
- Reduced dimensionality and visualized on 2-d space
- Using KMeans to find optimal number of clusters

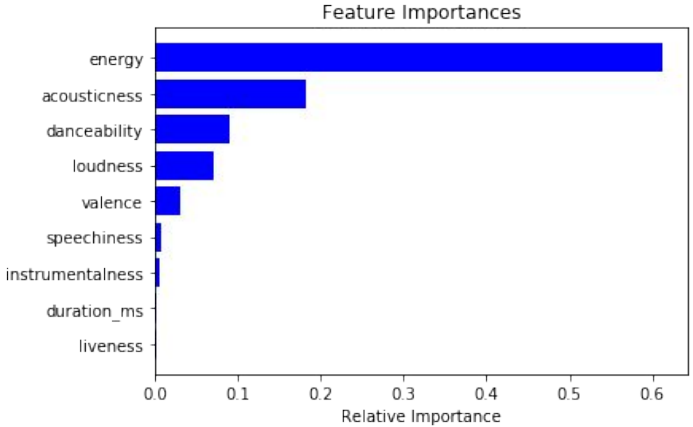
Predicting Using a Two-Cluster Model

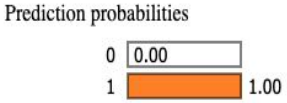


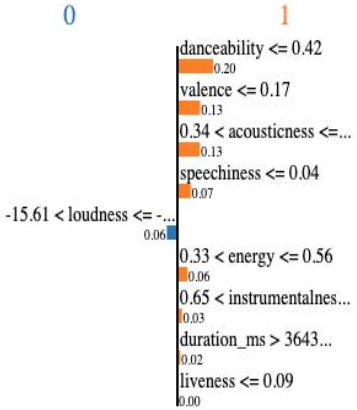


- Gradient Boosting Model
- 96.8% accuracy on test set

Visualizing Features







Feature	Value
danceability	0.37
valence	0.15
acousticness	0.78
speechiness	0.03
loudness	-12.23
energy	0.43
instrumentalness	0.85
duration_ms	443749.00
liveness	0.08

Building a Content-Based Recommendation System

- Use Spotipy to get song info from Spotify or dataset
- Scaling data, calculating mean vector of audio features
- Use cosine distance to return closest songs

Designing Streamlit App

- Embed playlist from Four Tet
- Sidebar to adjust audio features
- Text input for songs
- Embedded audio

Let's go to the app

Recommendations and Future Work

- In Spotify, using recommenders with smaller, more genre-focused playlists
- New audience for Spotify creators - non-algorithmic song selections
- Use in conjunction with Spotify's collaborative filtering model
- Flow between Spotipy and Streamlit - UI/UX focus

Thank you

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