Music Streaming Wars:
Predicting the Next Popular Songs

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Why is it important to predict which songs are going to be popular in the future?

Objectives & Data Analysis

- **Objective:** Provide 3 insights into what makes a song popular or not
- **Goal:** Increase the competitive advantage of Spotify
- Sample size of 232,725 tracks
- Data from 2019

Popular = ?

- Popularity scores = # of recent plays
- Popularity scores of songs on Spotify's Top 100 tracks playlist
- Cutoff for popularity score was established at 58
- Popular = Top 100 worthy

Methods

We developed 3 machine learning models

Random Forest

- 97% correct predictions on unpopular songs
- 60% correct predictions on popular songs

Logistic Regression

- 92% correct predictions on unpopular songs
- **66% correct predictions on popular songs**

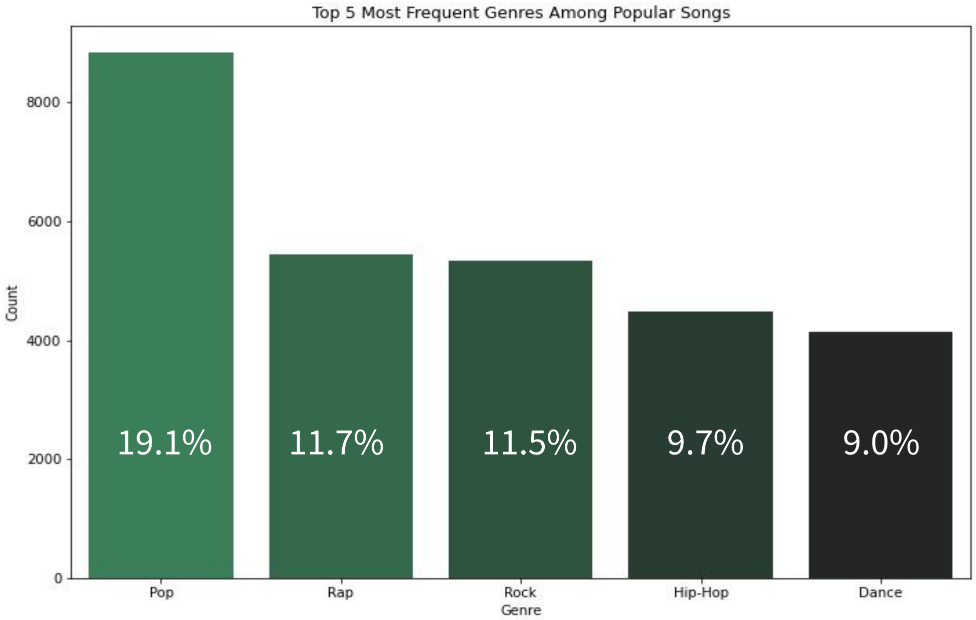
eXtra Gradient Boosting

- 96% correct predictions on unpopular songs
- 65% correct predictions on popular songs

What were some of the most important attributes of a song according to our models?

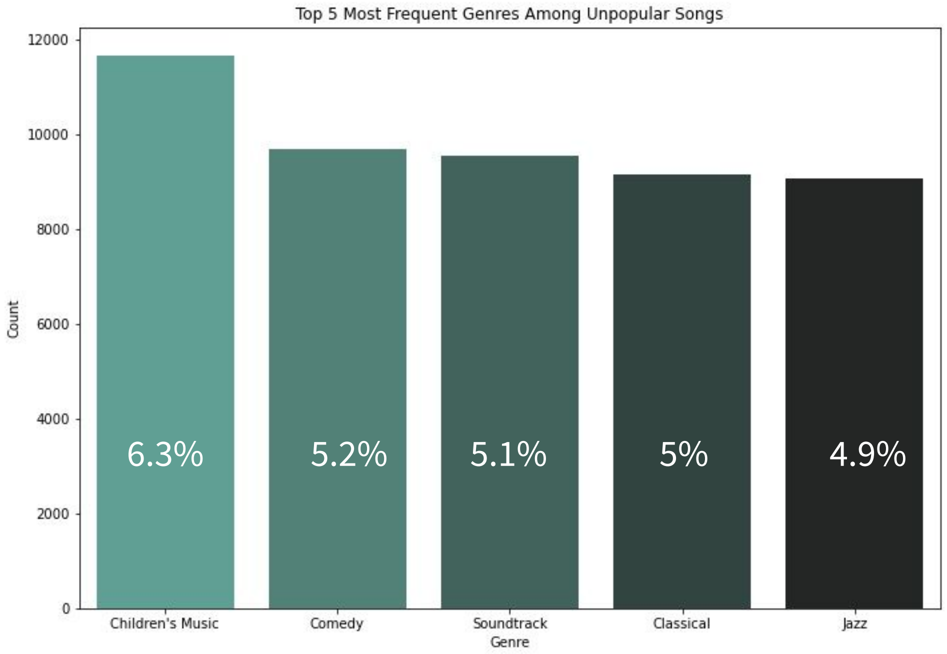
Genre

Top 5 Genres within Popular Songs



These account for 61% of all popular songs

Top 5 Genres within Unpopular Songs

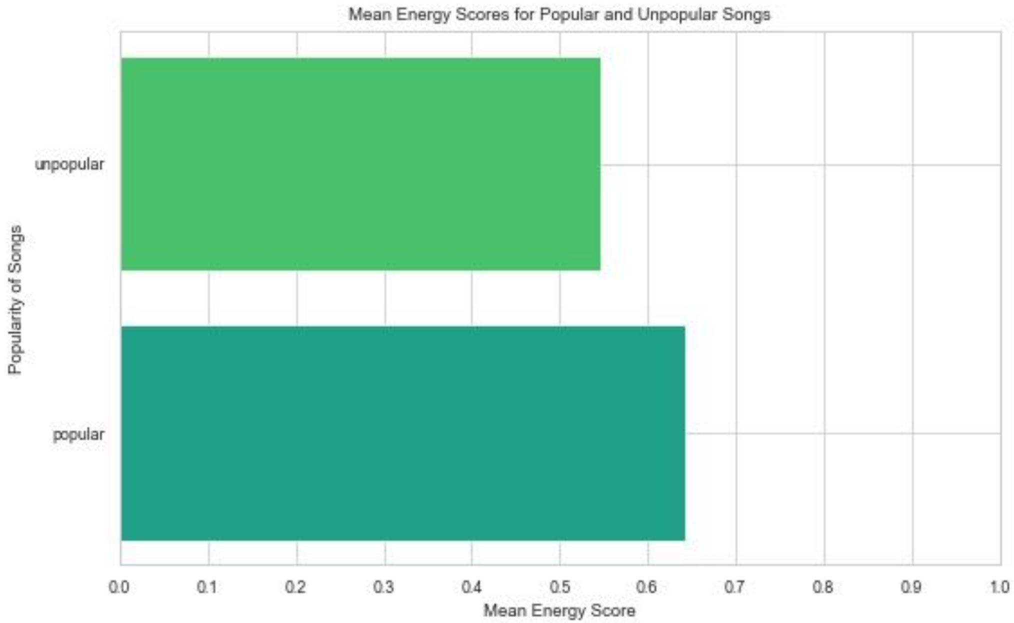


These account for 26.5% of all unpopular songs

Energy

A perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy.

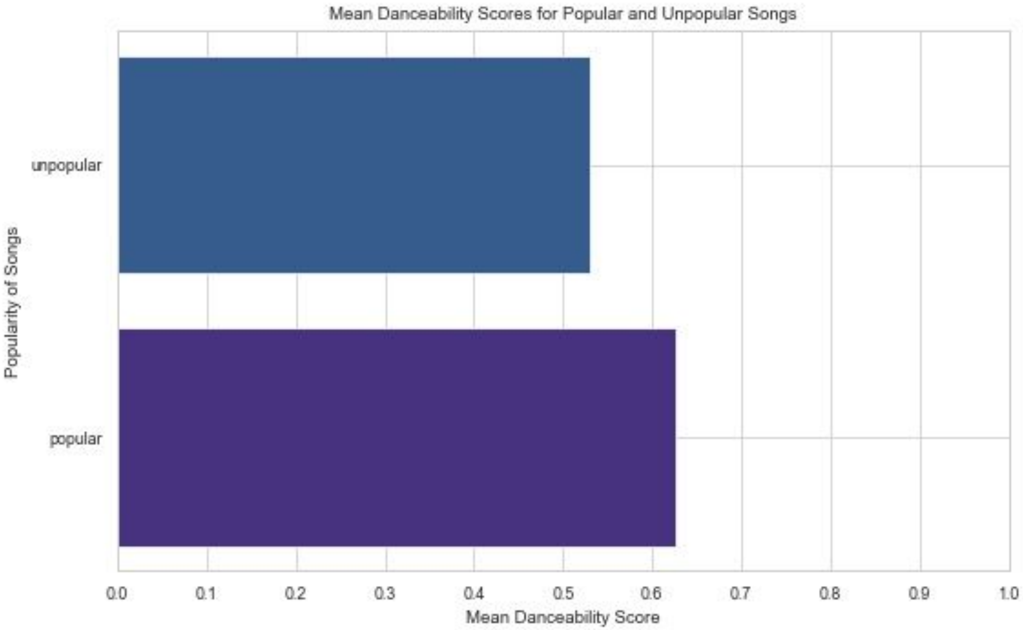
Energy Scores of Songs by Popularity

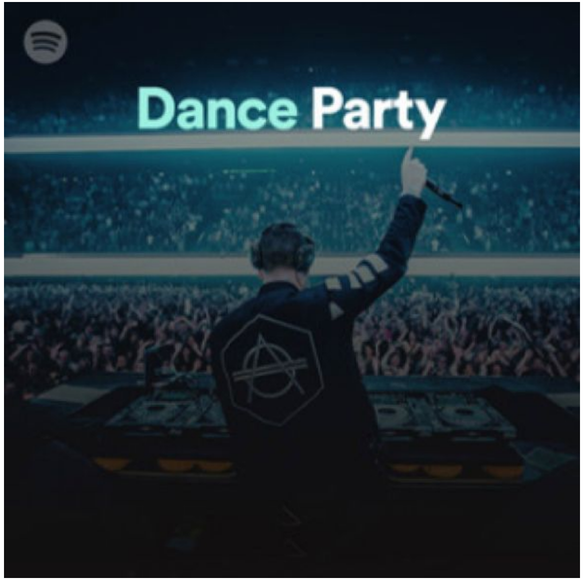


Danceability

How suitable a track is for dancing based on a combination of musical elements including tempo, rhythm stability, beat strength, and overall regularity.

Danceability Scores of Songs by Popularity

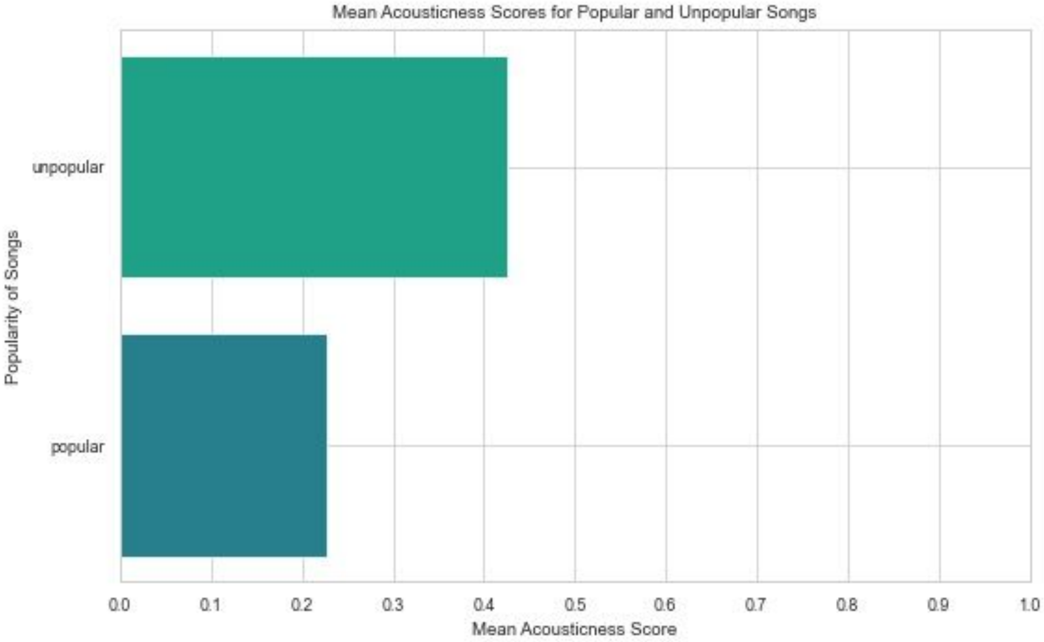




Acousticness

A measure of how much a song is electrically enhanced or modified.

Acousticness Scores of Songs by Popularity



Conclusions

- Popular songs tend to have Pop, Rap, Rock, Hip-Hop and Dance as their genres.
- More niche genres such as Children's Music, Comedy, Soundtracks, Classical and Jazz were more frequent among unpopular songs.
- Generally, popular songs are higher energy, danceable, and less acoustic.

Recommendations

By predicting which songs are going to be popular next, Spotify can:

- Reach out to up-and-coming artists and sign exclusivity deals ahead of competition.
- Work with the artists of the future popular songs on additional exclusive content such as song commentary or behind the scenes recordings.
- Curate even better playlists for their current subscribers and market the platform to new subscribers using these playlists.

Thank you!

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Images from:

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