Popular Audio Features Analysis

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Objective

Use classification machine learning models to understand what types of audio features and genres impacts popularity based on the dataset

Agenda

- Business Problem
- Data
- Model & Evaluation
- Conclusion
- Next Steps

Business Problem

- Which audio features makes an impact on a song's popularity
- What genre should a record label and artists focus on?
- Does music theory features contribute to a song's popularity?

Data

Audio Features

- Acousticness
- Danceability
- Song duration (ms)
- Instrumentalness
- Liveness
- Loudness (dB)
- Spechiness
- Valance
- Tempo

Music Theory Features

- Key Signature

Music Genres

- Electronic
- Anime
- Jazz
- Alternative
- Country
- Rap
- Hip-Hop
- Blues
- Rock
- Classical

Our Target Feature: Popularity => 50 and Popularity < 50

Based on:

- Total number of plays the track has and how recent those plays are
- Values between 0 and 100, with 100 being the most popular

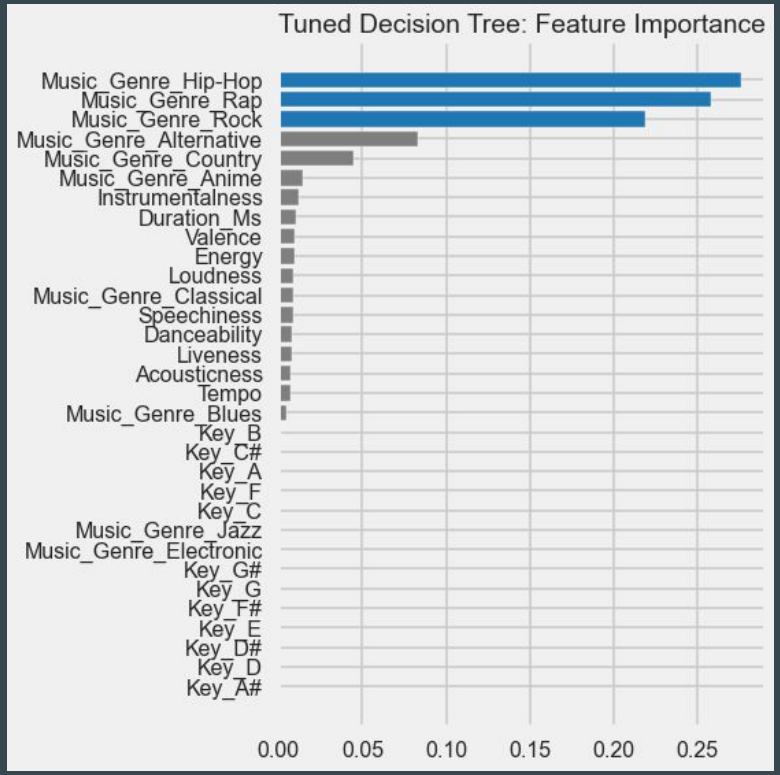
Model - Decision Tree

Feature Importance

- Genres : Hip-Hop, Rap, & Rock
- Audio features: Instrumentalness, duration, Valence, Energy, Loudness

No Impact:

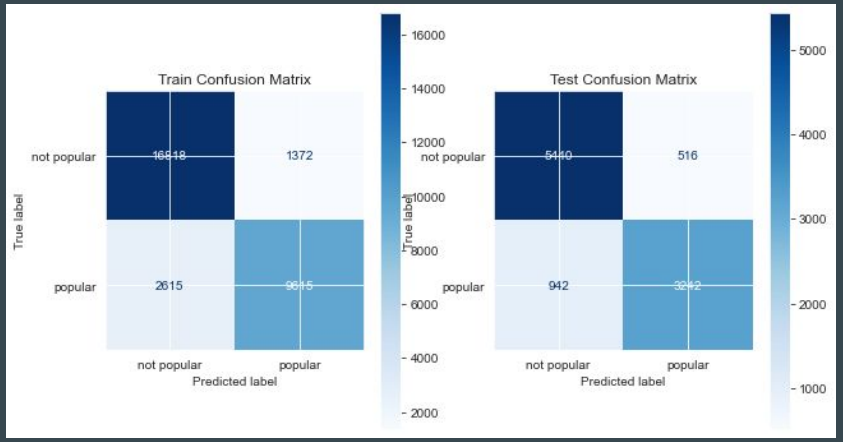
- Genres : EDM, Jazz
- Key Signatures



Conclusion

Decision Tree

- Looks at the data and classifies the data to 1 or more features
- Accuracy Score: 0.86
- Area Under Curve: 84%



		Predicted	
		Negative **(N)** -	Positive **(P)** +
Actual	Negative -	True Negative **(TN)**	**False Positive (FP) Type I Error**
	Positive +	**False Negative (FN) Type II Error**	True Positive **(TP)**

Next Steps

- Genre Classifier
- Take out features for model improvement
- Pull from Spotify's API data to add or fill in missing audio features

Thank You!

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