University of Maryland, Baltimore County
IS 603 - Music Recommendation System using Spotify Dataset

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In recent years, personal recommendations seem to attract audience lucratively more than abstract recommendations. This analysis is based on personal experiences of wanting to have more curated recommendation for songs as they have become part and parcel of our daily lives.

Business Understanding: Music recommendation system to enhance user experience based on their previous liked songs.

Data Understanding: Billboard's Top Songs dataset(Kaggle).
EDA: Analyzed song popularity trends, genre distribution, and feature-popularity relationships

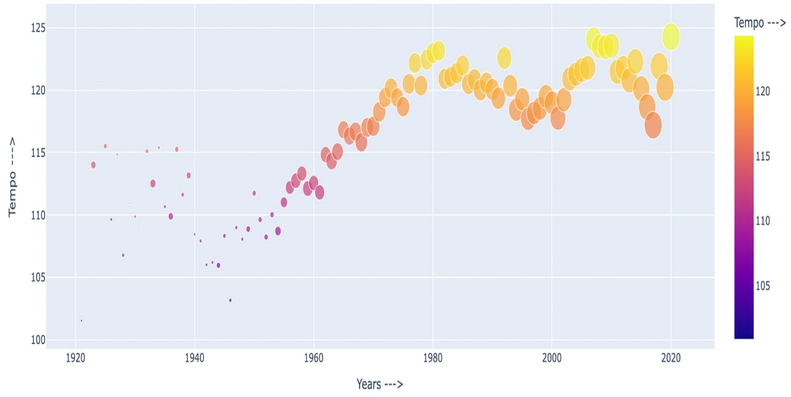
Data Preparation: Handling Noise & Missing values, Standardized numerical features for missing values with mode values.
Feature Engineering - Extracted relevant features based on Info Gain

Modeling: Ensemble model based recommendation using K-Means clustering (Genre Classification) and PCA + Logistic Regression (Recommendation).

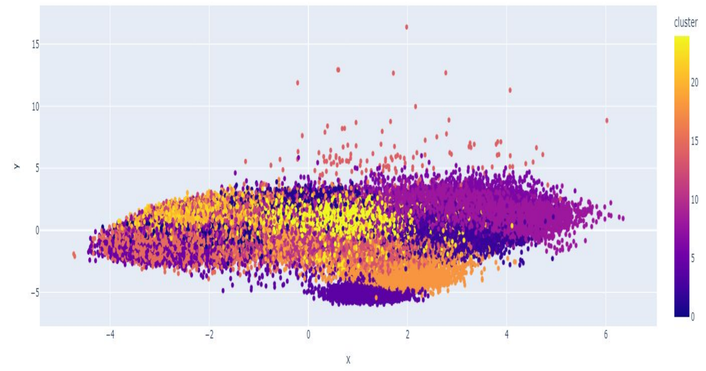
Evaluation: Model Performance evaluated using metrics such as F1. Precision, Accuracy, Recall and ROC Curve.

Trend of Various Sound Features over decade

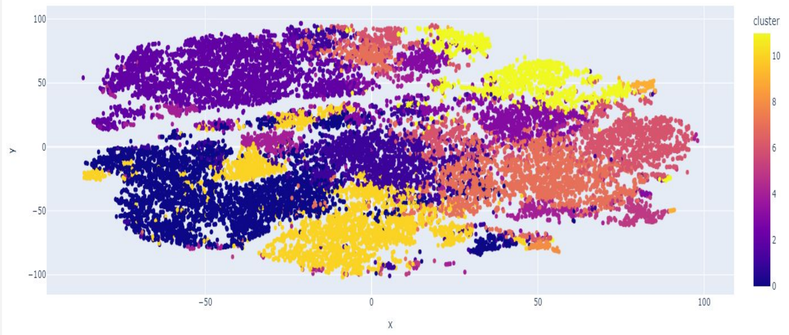
Changes of Tempo Over the Years



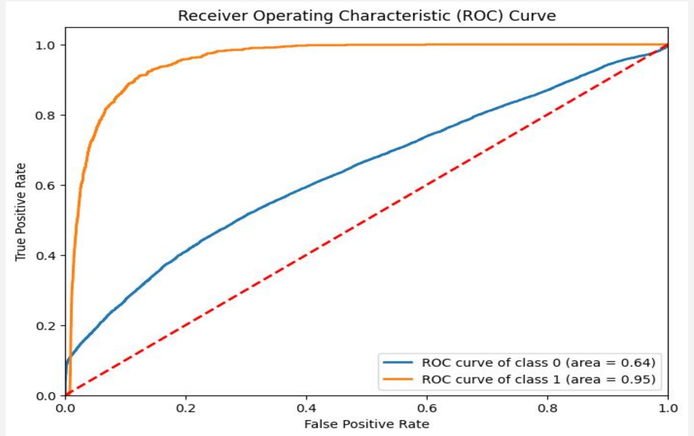
Cluster of Songs



Cluster of Genres



Receiver Operating Characteristic (ROC) Curve



Future Work: This analysis could be extended to popular platforms such as TikTok, Instagram etc to recommend similar songs to the audience in their feed. Also, combining with the sentiment analysis, songs that user listens to can be categorized into various emotional categories curating a personalized experience with a fully functional song recommendation system which can act as 'Smart Song Assistant'.

Evaluation Metrics