

ROCK / HIP-HOP CLASSIFICATION



ONLINE-DS-PT-051319

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Top music of 2019



Spotify is a digital music, podcast, and video streaming service that gives you access to millions of songs and other content from artists all over the world.

- Choose what you want to listen to with *Browse* and *Search*.
- Build *collections of music*.
- Create your own *Radio stations*.
- See what *friends, artists & celebrities* listen to.
- Get recommendations from *personalized features*, such as *Discover Weekly*, *Release Radar* & *Daily Mix*.
- The more you listen the better recommendations.

HISTORICAL MUSIC

CUSTOMER TARGETING

CUSTOMER SATISFACTORY



PROJECT INTRODUCTION

- These recommendations are so on point! How does this playlist know me so well?
- Streaming services with huge catalogs have become the primary means through which most people listen to their favorite music.
 - Users might be a bit overwhelmed when trying to look for newer music that suits their tastes.
 - Streaming services have looked into means of categorizing music to allow for personalized recommendations.
- We'll be examining data compiled by a research group known as The Echo Nest which is now part of Spotify. Using the scikit-learn package to predict whether you can correctly classify a song's genre based on technical features. Our goal is to look through this dataset and classify songs as being either 'Hip-Hop' or 'Rock' - all without listening to a single one ourselves.



PROJECT PROGRESS

- Using a dataset comprised of songs of two music genres (Hip-Hop and Rock), we will train a classifier to distinguish between the two genres based only on track information derived from Echonest.
- Using the scikit-learn package to predict whether you can correctly classify a song's genre based on technical features. We will go over implementations of common machine learning algorithms such as the Principle Component Analysis, Logistic Regression, Decision Trees, Random Forest, Cross Validation, Grid Search Hyperparameter Tuning.
- Using one method involves direct analysis of the raw audio information in a given song, scoring the raw data on a variety of metrics.
 - There are 2 data sets in the metadata: One is csv file - all about the songs such as title, artist, listeners number. The other is in Json file - about 8 musical features of each track such as 'danceability', 'acousticness', 'energy', 'instrumentalness', 'liveness', 'speechiness', 'tempo', 'valence' on a scale from -1 to 1.
 - Classify songs as being either 'Hip-Hop' or 'Rock'.

CLASSIFICATION RESULTS COMPARE BETWEEN THE MODELS

Compare the models WITHOUT PCA and WITHOUT Grid Search Hyperparameter Tuning:

Decision Tree : 0.804945054945055
Logistic Regression : 0.8087912087912088
Random Forest : 0.8637362637362639

Compare the models WITHOUT PCA and WITH Grid Search Hyperparameter Tuning:

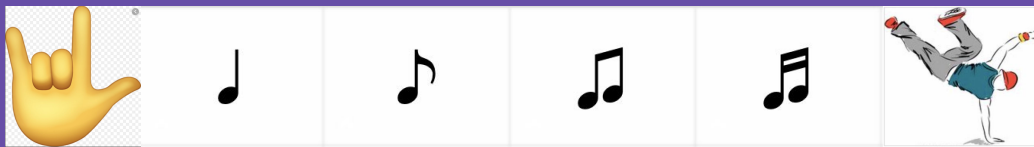
Decision Tree : 0.804945054945055
Logistic Regression : 0.8087912087912088
Random Forest : 0.8774725274725276

Compare the models WITH PCA and WITHOUT Grid Search Hyperparameter Tuning:

Decision Tree : 0.7241758241758242
Logistic Regression : 0.7752747252747252
Random Forest : 0.7862637362637361

Compare the models WITH PCA and WITH Grid Search Hyperparameter Tuning:

Decision Tree : 0.7241758241758242
Logistic Regression : 0.7752747252747252
Random Forest : 0.8104395604395604



HISTORICAL DATA

ACOUSTICNESS

DANCEABILITY

ENERGY

INSTRUMENTAINESS

LIVENESS

SPEECHINESS

TEMPO

VALENCE

MACHINE LEARNING MODEL

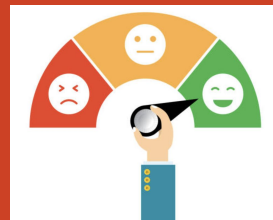
ROCK / HIP-HOP
CLASSIFICATION

RANDOM FOREST
WITH GRID SEARCH
HYPERPARAMETER
TUNING
ACCURACY 88%

DEFINE CUSTOMERS' FAVOURITES



MUSIC SUGGESTION



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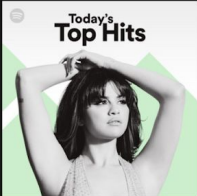
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PLAYLISTS

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Popular playlists



Today's Top Hits

Selena Gomez is on top of the Hottest 50!


25,378,377 FOLLOWERS



New Music Friday

Selena Gomez, Future & Drake, Halsey, Khalid, and so much more this New...


3,491,735 FOLLOWERS



Mood Booster

Get happy with this pick-me-up playlist full of current feel-good songs!


4,267,724 FOLLOWERS



Pumped Pop

Throw the weights around with your favorite uptempo pop songs!


704,846 FOLLOWERS



Chill Hits

Kick back to the best new and recent chill tunes.

5,404,916 FOLLOWERS




Mega Hits

A mega n favorite s few years

4,184,639 FOLLOWERS


Made for Maia

Get better recommendations the more you listen.



Your Daily Mix 1

Daily Mix 1



Your Daily Mix 2

Daily Mix 2

See what your friends are playing

FIND FRIENDS



THANK YOU FOR YOUR TIME !

