

STREAMING KILLED THE VIDEO STAR?

Spotify Popularity Prediction

01

**A CENTURY IN
MUSIC**

02

2019'S TRACKS

03

**WHAT MAKES A
SONG POPULAR?**

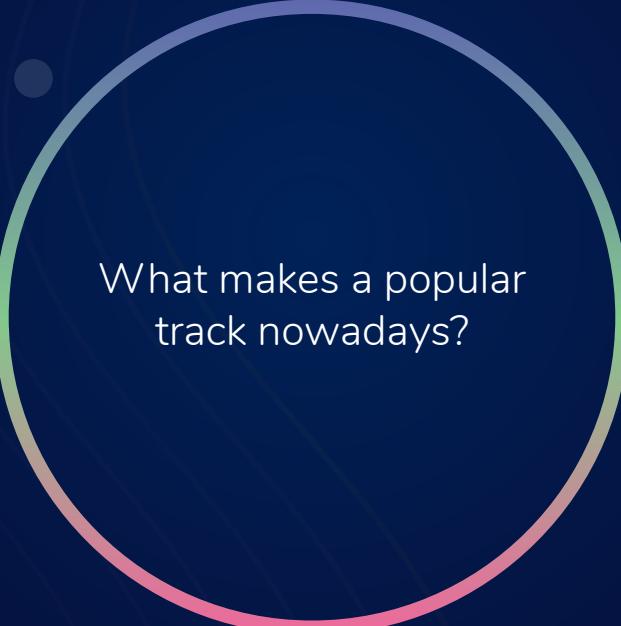
04

TRY IT!

05

FUTURE WORK

WHAT WAS THE OBJECTIVE?



What makes a popular
track nowadays?

WHAT WAS THE RESULT?

Track Popularity Predictor

Intro

Development

Your track

Results

Predicted Popularity

Congratulations! Your track will become the next big thing! Way to go, superstar!

Similar Tracks

track

artists

cover

preview

Aware of the Moment

Foreverless



[Link to preview](#)

The background features a dark blue gradient with a complex pattern of thin, light-colored wavy lines and small white dots, resembling sound waves or musical notation.

01

A CENTURY IN

MUSIC

Exploratory Data Analysis

WHAT DATA WAS AVAILABLE?



ARTISTS

The artists of the track



GENRES

The genres the artist is associated with



AUDIO FEATURES

Audio features like loudness, acousticness or tempo..



ALBUM INFO

Album name, number of tracks it includes and track number of the specific track



RELEASE DATE

Release date of the album the track is on

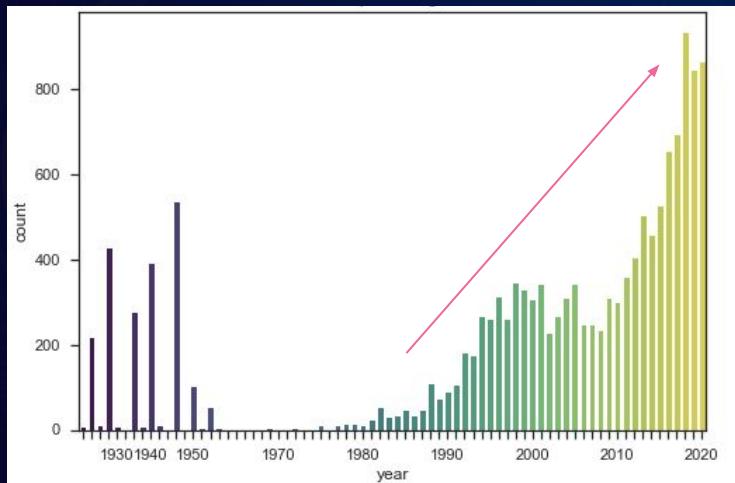


POPULARITY

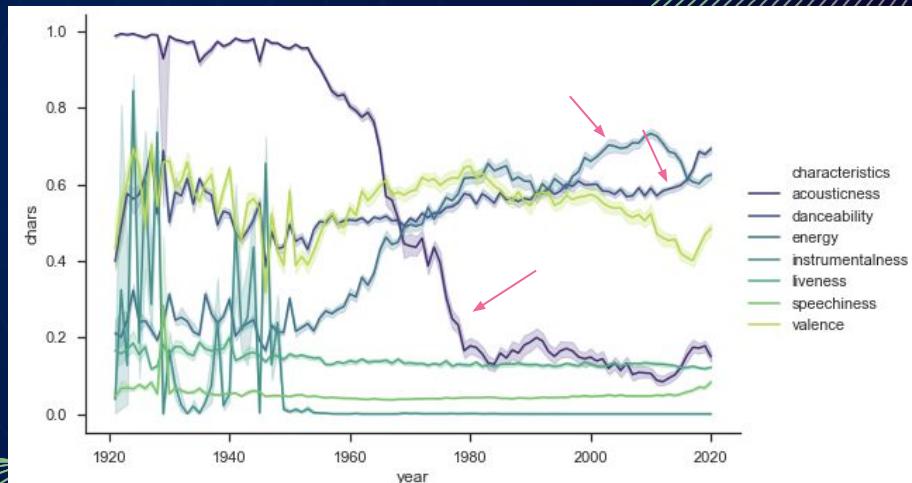
Score between 0 and 100, given by Spotify and highly dependent on plays

HOW DID MUSIC EVOLVE?

EXPLICITY OVER TIME



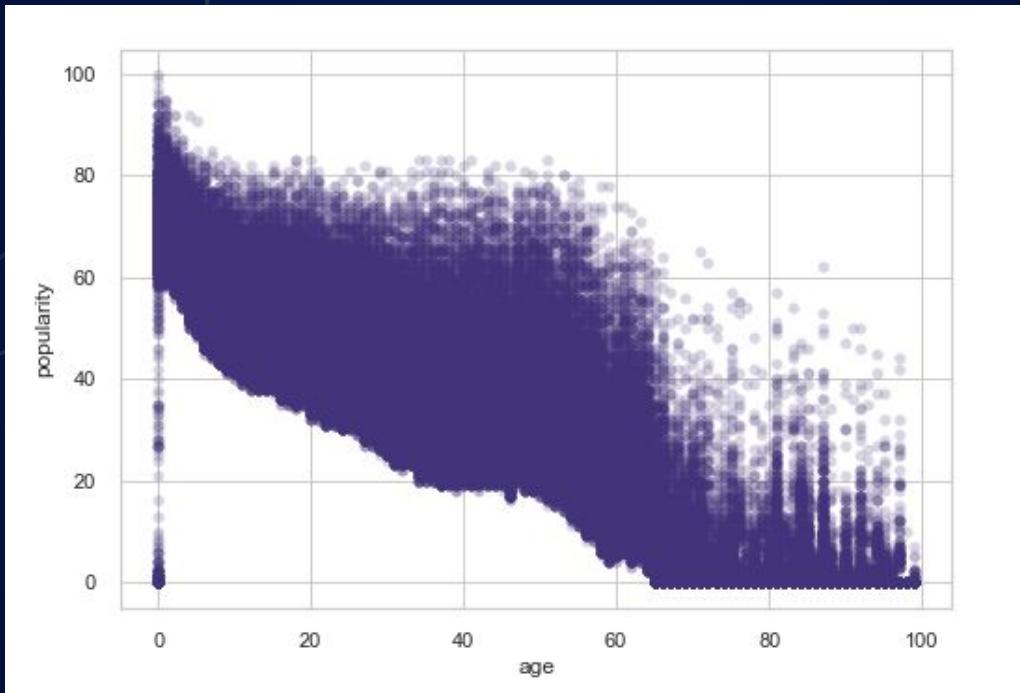
AUDIO FEATURES OVER TIME



WHO RELEASED TRACKS AND WHEN?



HOW DOES A TRACK'S AGE IMPACT IT'S POPULARITY?

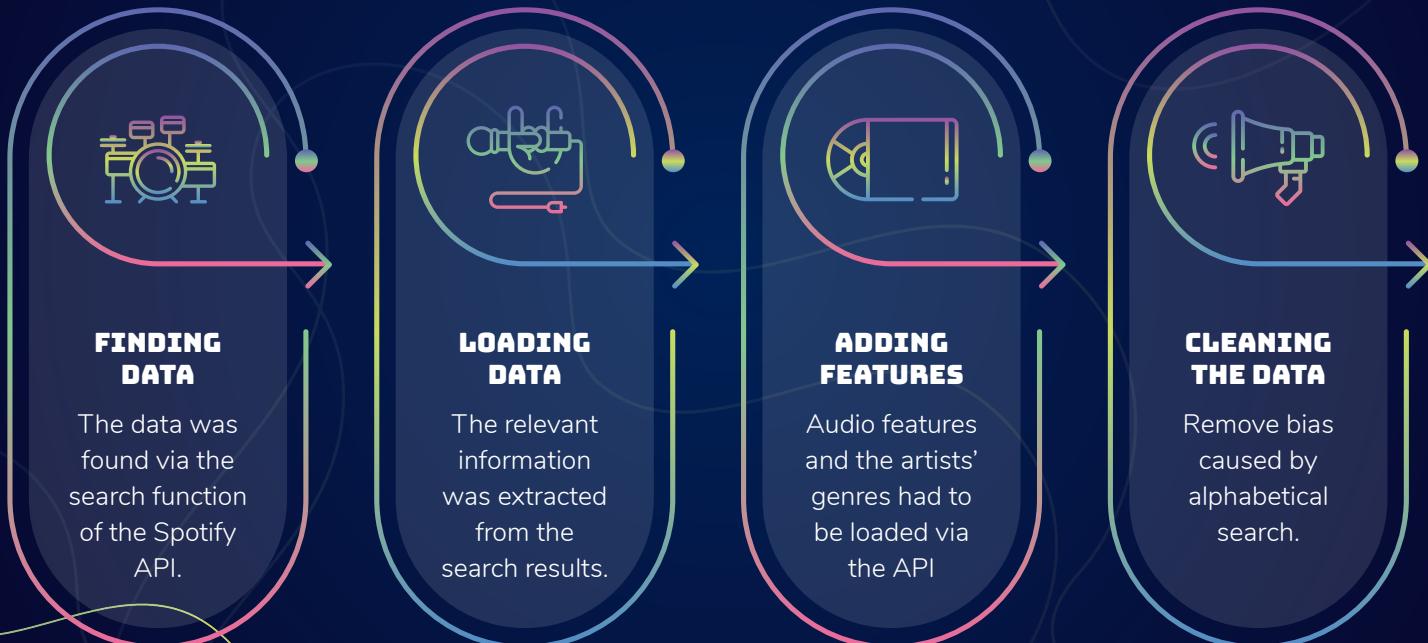


The background features a dark blue gradient with abstract white wavy lines and small white dots.

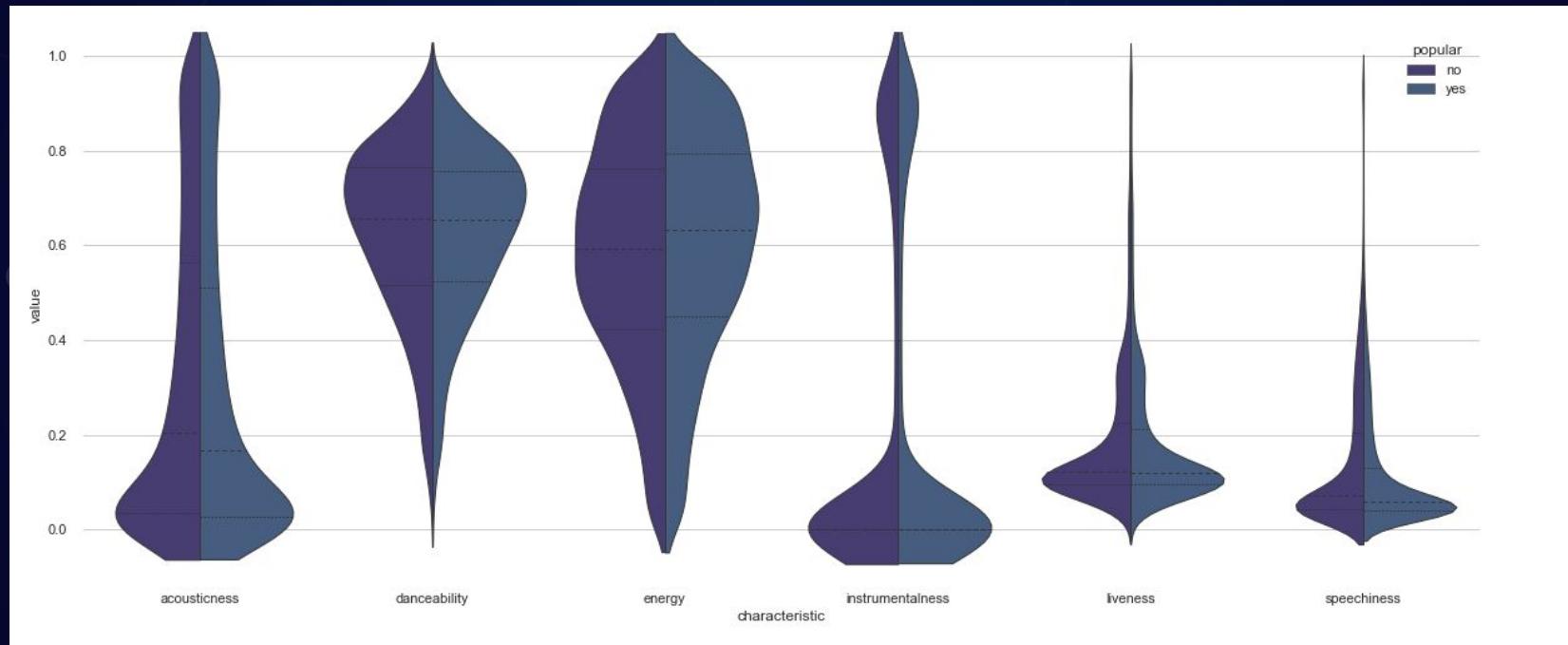
02 2019'S TRACKS

Exploratory Data Analysis

NEW DATA NEEDED - BUT HOW?



WHAT ARE THE CHARACTERISTIC OF 2019'S TRACKS?



The background features a dark blue gradient with abstract white wavy lines and small circular dots of various sizes scattered across the surface.

03

WHAT MAKES A SONG POPULAR?

Predictive Modelling

WHAT DETERMINES A TRACK'S POPULARITY?

POPULARITY SCORE

Score between 0 and 100, given by Spotify and highly dependent on plays

REGRESSION

- Linear, Passive Aggressive, RANSAC Regression
- ElasticNet
- Stochastic Gradient Decent
- Decision Tree & Random Forest
- AdaBoost, XGBoost
- Neural Net
- Stacked Model



RESULTS

- Insufficiently reliable findings

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POPULAR OR UNPOPULAR?

Top 20% of the data is considered popular.

CLASSIFICATION

- Naive Bayes'
- Logistic Regression
- Decision Tree & Random Forest
- AdaBoost, XGBoost
- Neural Net
- Stacked Model

RESULTS

- Log. Reg. and XGBoost produce reliable findings



HOW DID THE CLASSIFICATION MODELS PERFORM?

THE ACCURATE MODEL PREDICTS...

78%

of the **unpopular**
tracks

74%

of the **popular**
tracks

CORRECTLY.

92%

of the **unpopular**
tracks

52%

of the **popular**
tracks

...ARE PREDICTED CORRECTLY
BY THE CONSERVATIVE MODEL.

WHICH FEATURE WERE MOST IMPORTANT?

duration

number of
genres

number of
album tracks

explicit

track number

The background features a dark blue gradient with a subtle texture of wavy lines and small white dots.

05 TRY IT!

Application

TRACK POPULARITY PREDICTOR



The background features a dark blue gradient with a complex pattern of thin, light-colored wavy lines. These lines form several large, sweeping curves that overlap each other, creating a sense of depth and motion. Small, semi-transparent circular dots are scattered across the background, some aligned with the wavy lines and others appearing independently.

06 FUTURE WORK

WHAT NEXT?

MODEL PERFORMANCE

Improve accuracy of the predictive models (both regression classification) by adding features



GENERALISABILITY

Use time-series data to be able to generalise over time (i.e. predict popularity at the time) determine long-term successes.



SUPERVISED CLUSTERING

Train a supervised machine learning model (e.g. using user data) to create a recommendation system



THANK YOU FOR YOUR ATTENTION

Do you have any questions?

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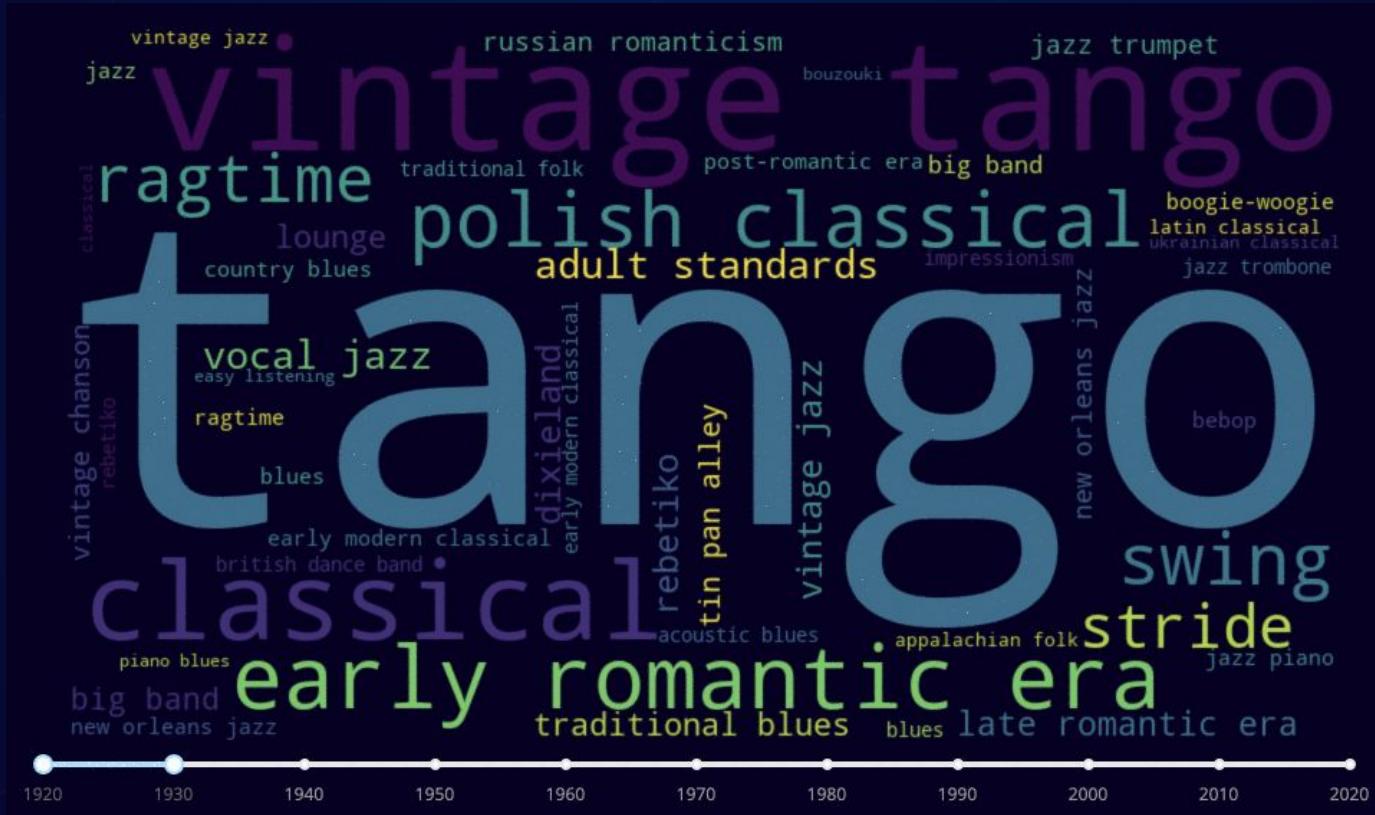
Have a look at the entire
project and its code:

<https://github.com/Vivi-Wi/Spotify>

CREDITS: This presentation template was
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APPENDIX

GENRES





CLUSTERING

- Unsupervised clustering to find similar tracks
- DBSCAN
- K-Means

