



Rock Through the Ages

Khyatee Desai & David Shin

The Progression of Rock

50s &
60s


The Who
The Beatles
Jimi Hendrix

70s &
80s

Fleetwood Mac
Queen
Aerosmith

90s &
2000s

Pearl Jam
Nirvana
Arctic Monkeys

The background of the slide is a collage of three famous rock bands. On the left is The Beatles, in the center is The Rolling Stones, and on the right is The Arctic Monkeys. The images are semi-transparent and serve as a backdrop for the text.

Can we
classify
songs...

...into
musical
eras...

...based on
their
attributes?

Business Goal

The Dataset

Spotify 1921-2020, 160k+ Tracks

Features

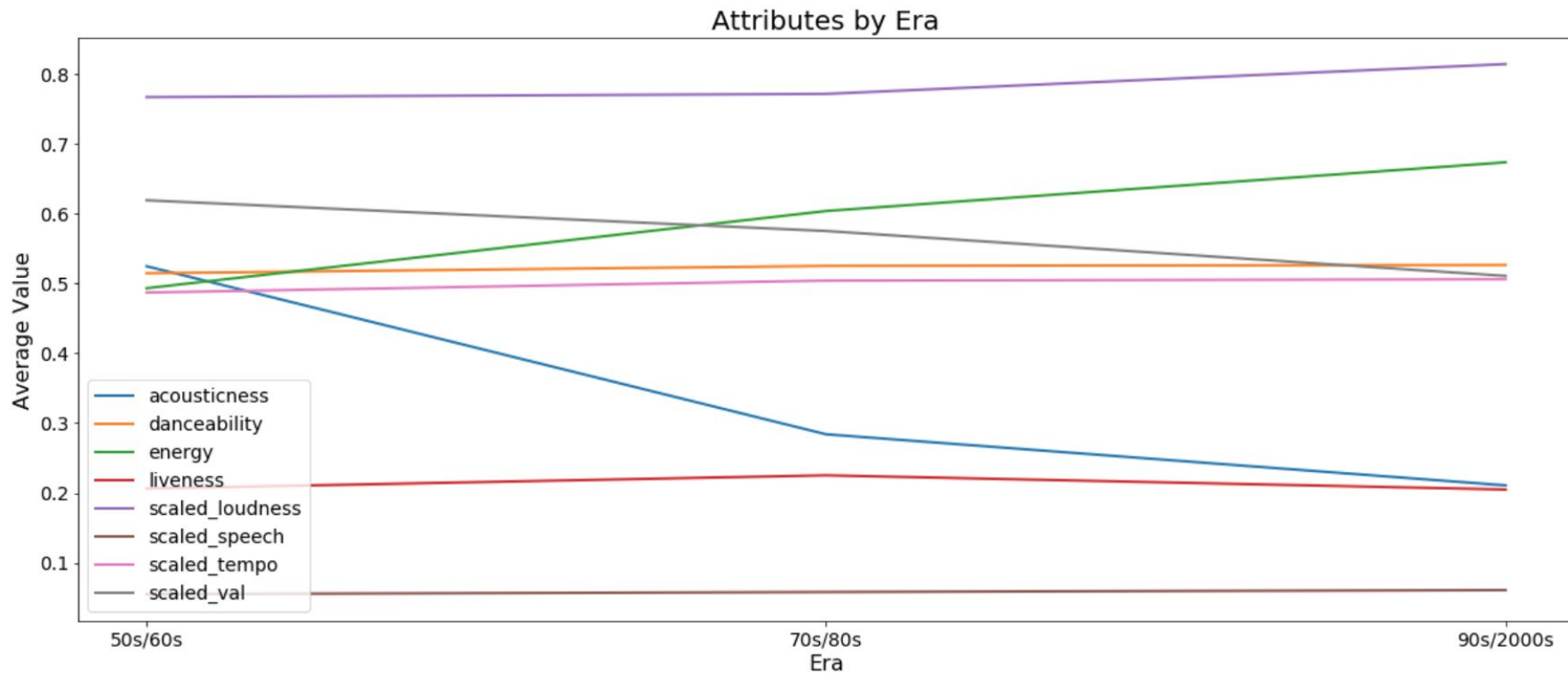


acousticness	danceability	duration_ms	energy	explicit	instrumentalness	key	liveness	loudness	mode	popularity	speechiness	tempo	valence	era
0.886000	0.421	131227	0.0794	0	0.000000	3	0.128	-16.983	1	30	0.0273	91.442	0.338	50s/60s
0.566000	0.574	204560	0.3250	0	0.000000	2	0.121	-14.197	1	32	0.0287	109.116	0.526	70s/80s
0.561000	0.356	367015	0.3640	0	0.000003	0	0.212	-12.682	1	43	0.0390	175.863	0.208	90s/2000s

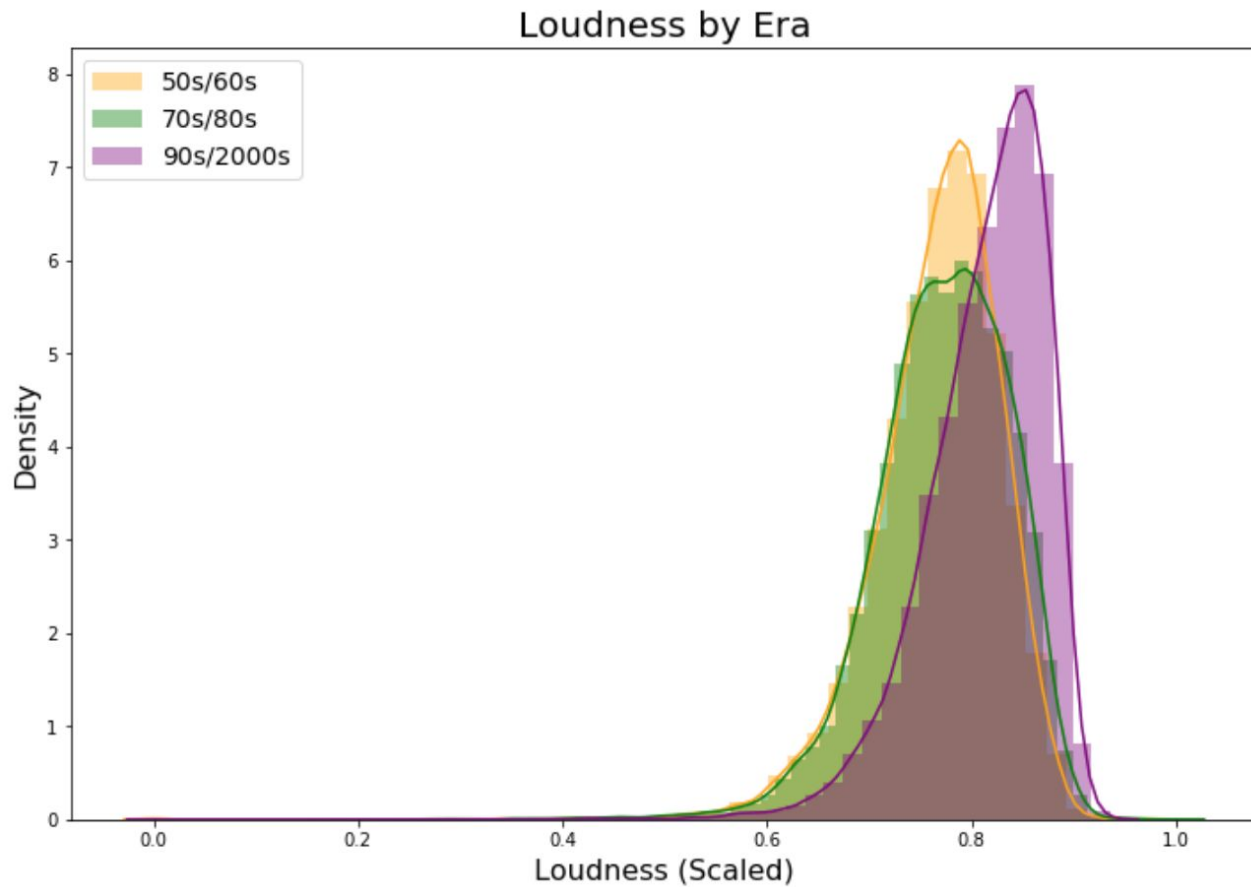
Target



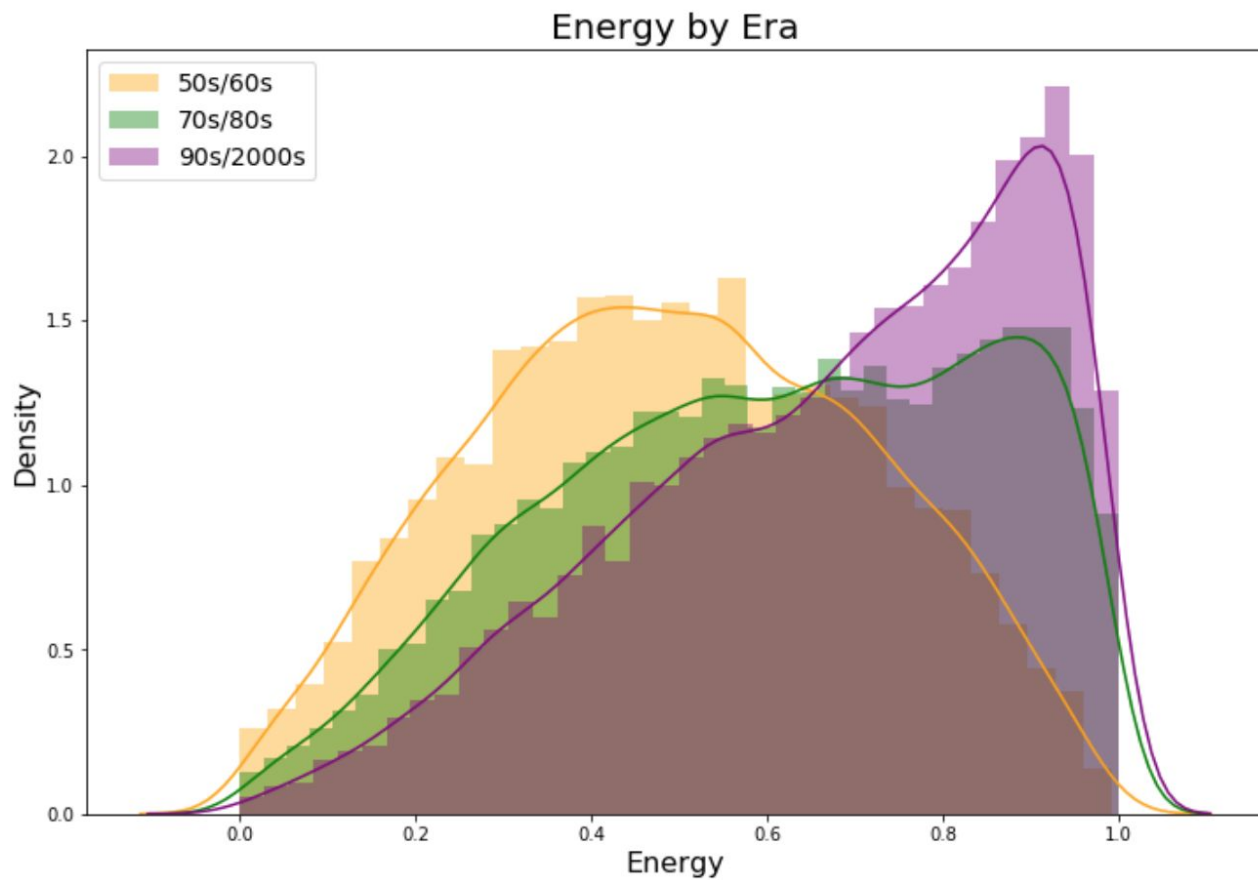
Feature Exploration



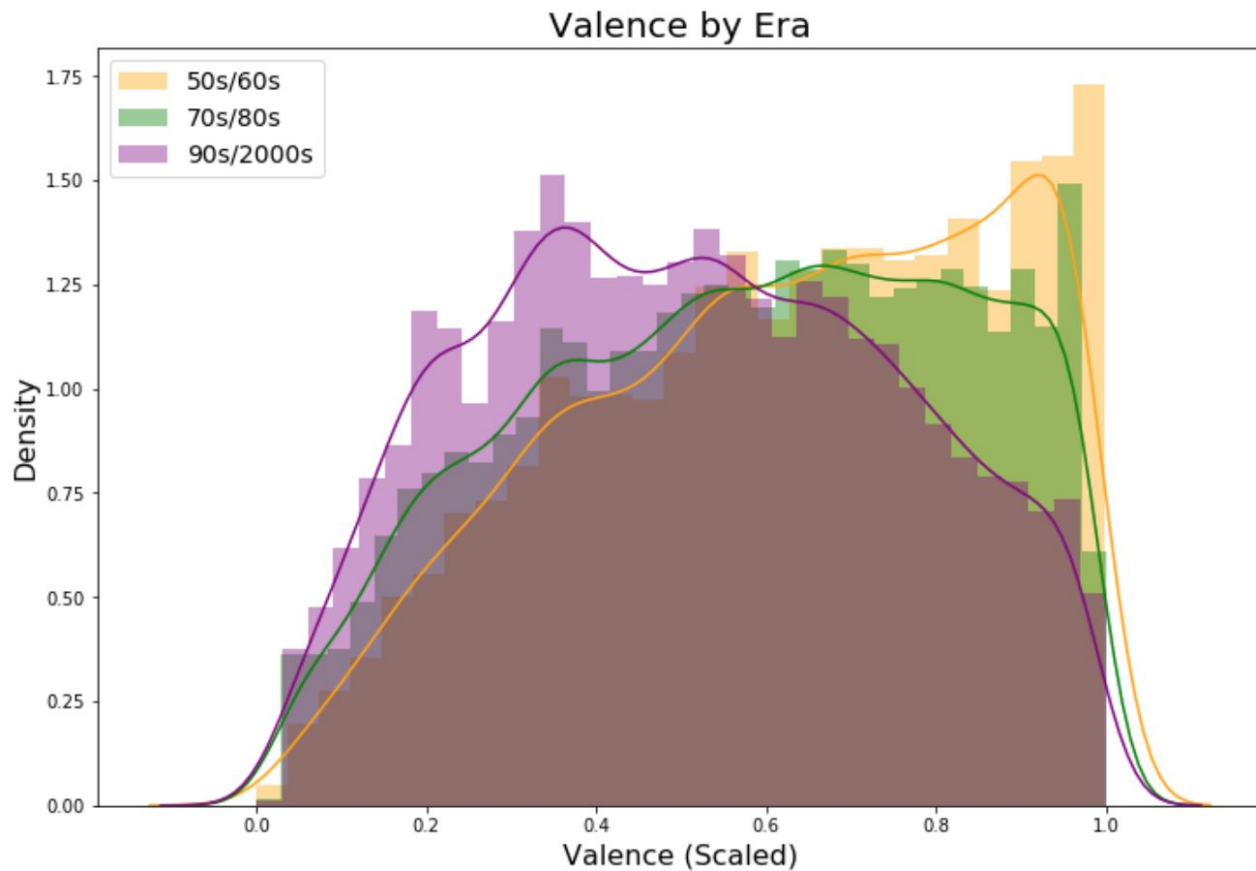
Loudness by Era



Energy by Era



Valence by Era





Modeling

Process

Data Cleaning

Outliers
Unpack list columns

Feature Engineering

Interactions
Polynomials
Natural Logs
Dummy Variables

Modeling

Logistic Regression
KNN
Decision Tree
Random Forest
XGBoost

Interpretation

Coefficients
Feature Importance

F1 Scores



Logistic
Regression

0.681



Decision
Tree

0.662



XGBoost

0.668



KNN

0.653



Random
Forest

0.721

Feature Importance



Acousticness
Energy
Instrumentalness
Valence
Loudness

Decision Tree

Energy
Loudness

XGBoost

Logistic
Regression

Loudness
Valence

Acousticness
Energy

Random Forest

Loudness
Valence

Popularity and Duration across the board

Applications

Spotify Playlist
Curation

Unsupervised
Learning Projects

