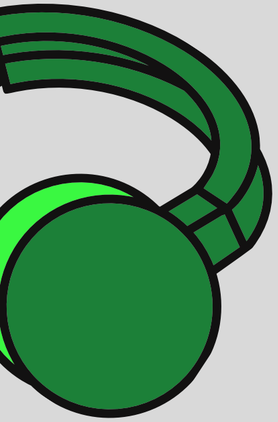
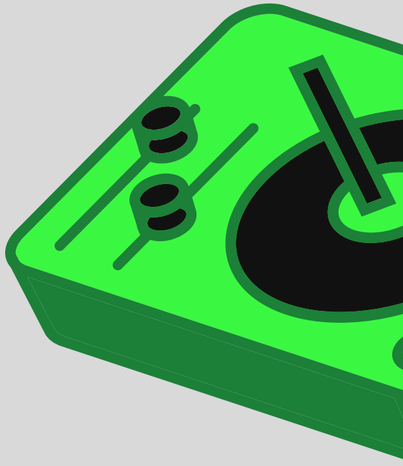
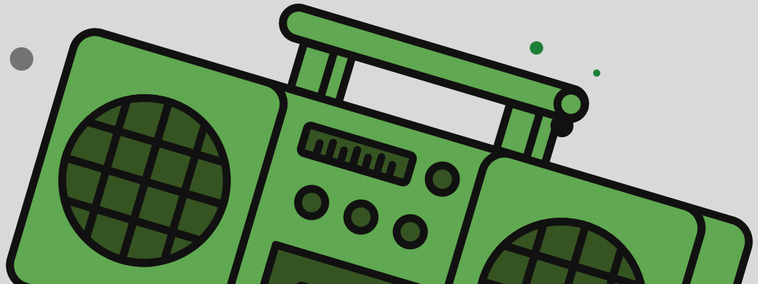
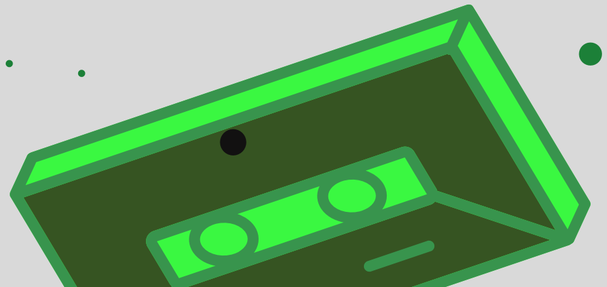


Spotify



By: Jasmine Castañeda, Nayma Kim, Matilda Sorić





OUTLINE

OUR DISCUSSION POINTS

Goals

Data Overview

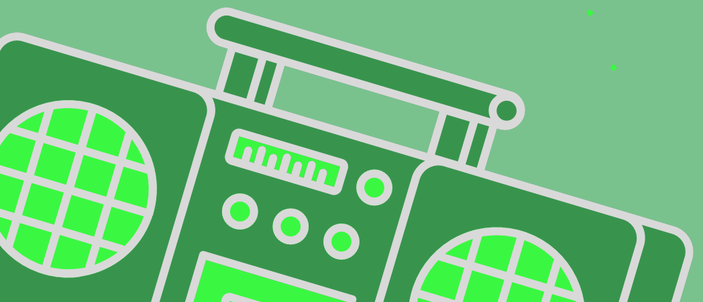
Features

Analysis

Linear Regression Model

Recommendation Model

Suggestions



GOALS

HELPING RECORD PRODUCERS MAKE INFORMED DECISIONS

Sign artists that have a high chance of being popular

FIND VARIABLES THAT CONTRIBUTE TO POPULARITY

What features tend to make songs more popular?

PREDICT POPULARITY

Model that will predict the popularity based on their features

BUILD PLAYLIST BASED ON LISTENERS TASTE

Given a song, what are songs the user would also like

Data Overview

Observations:

- 30% did not have month or day of release
- 16% of data had a popularity of 0 (27,296)
- 79.5% only had one artists

Specifics:

- Mean is 31.5
- Median is 34
- Data Splitting

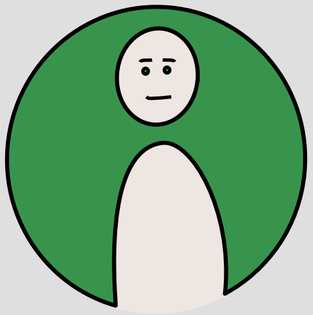
170,653 rows and 19 columns → 168,694 rows and 17 columns

R: duplicates

C: Id and Key

FEATURES

HOW ARE SONGS MEASURED?



Valence

Acousticness

Energy

Liveness

Explicit

Dancebility

Instrumentalness

Liveness

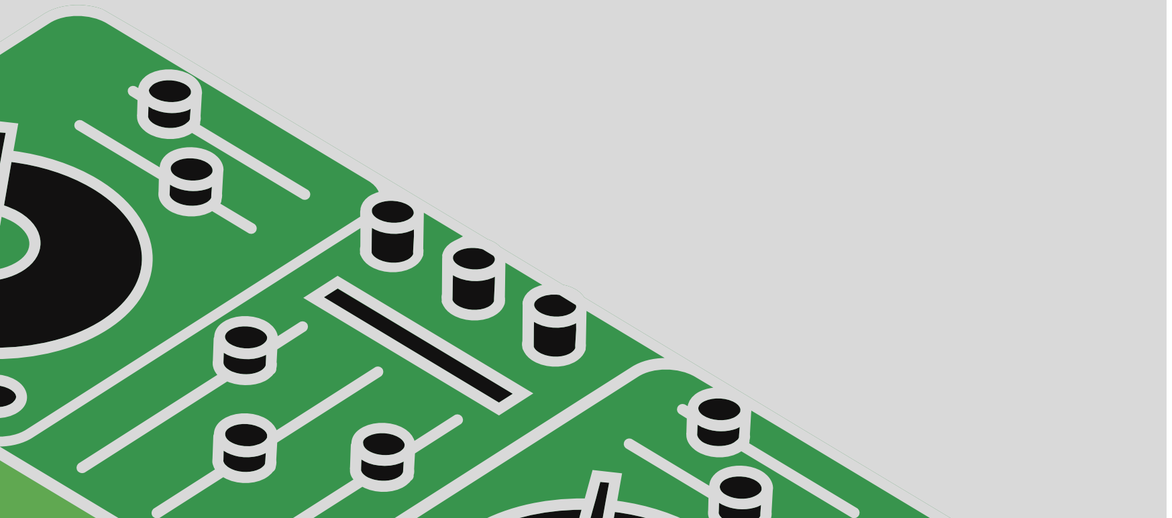
Tempo

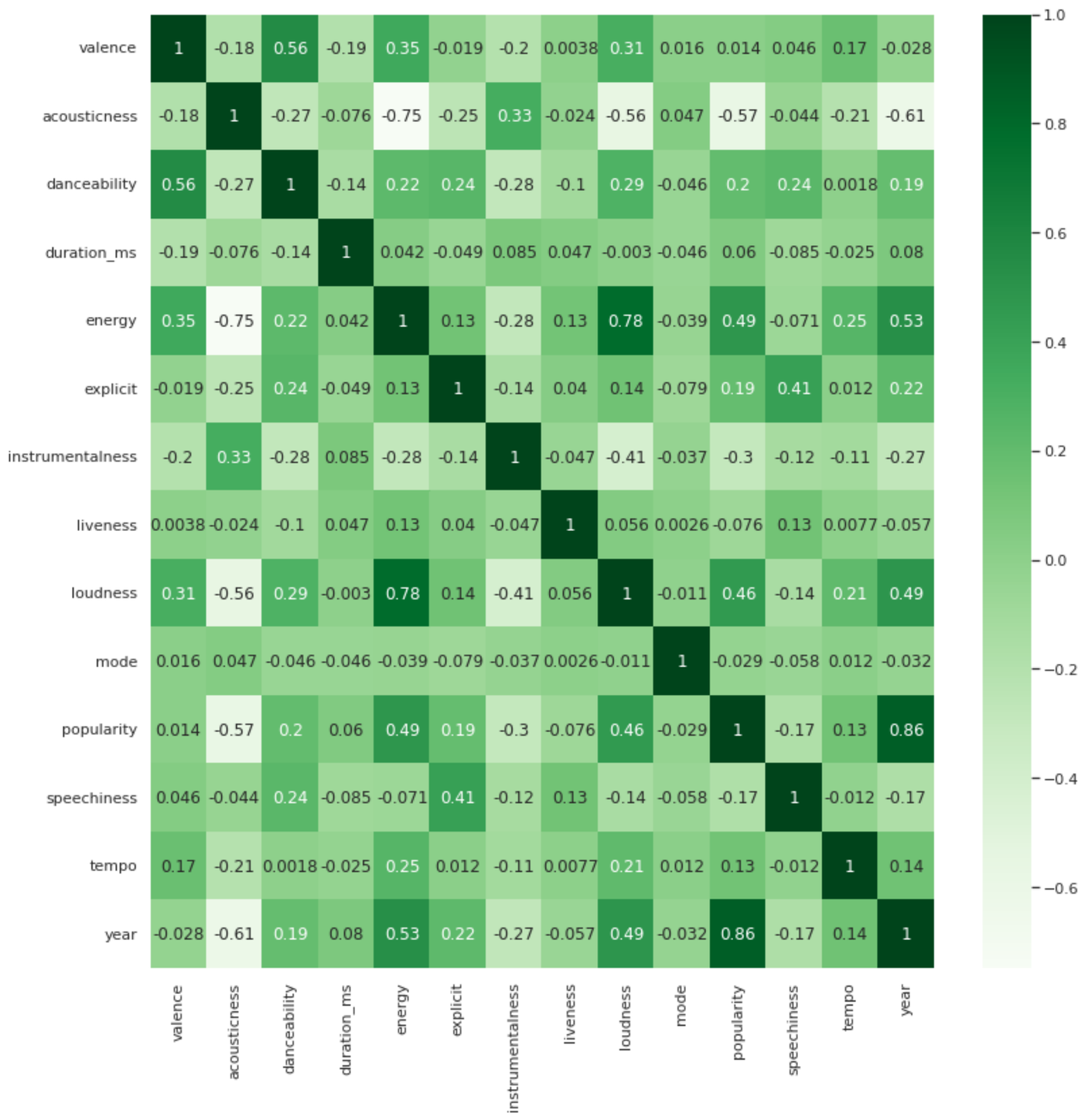
Mode

Loudness

Speechiness

Correlation



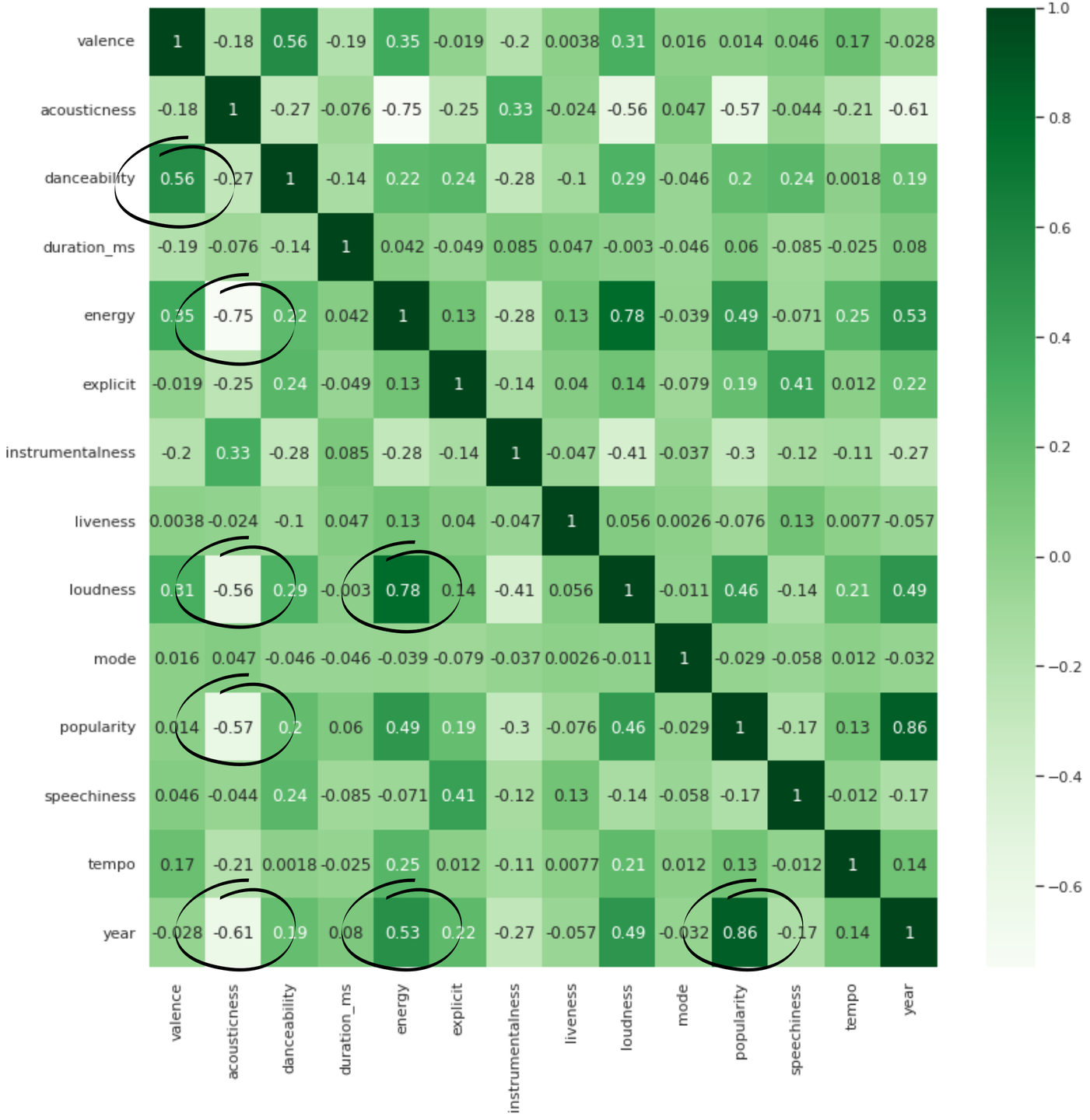


Negative

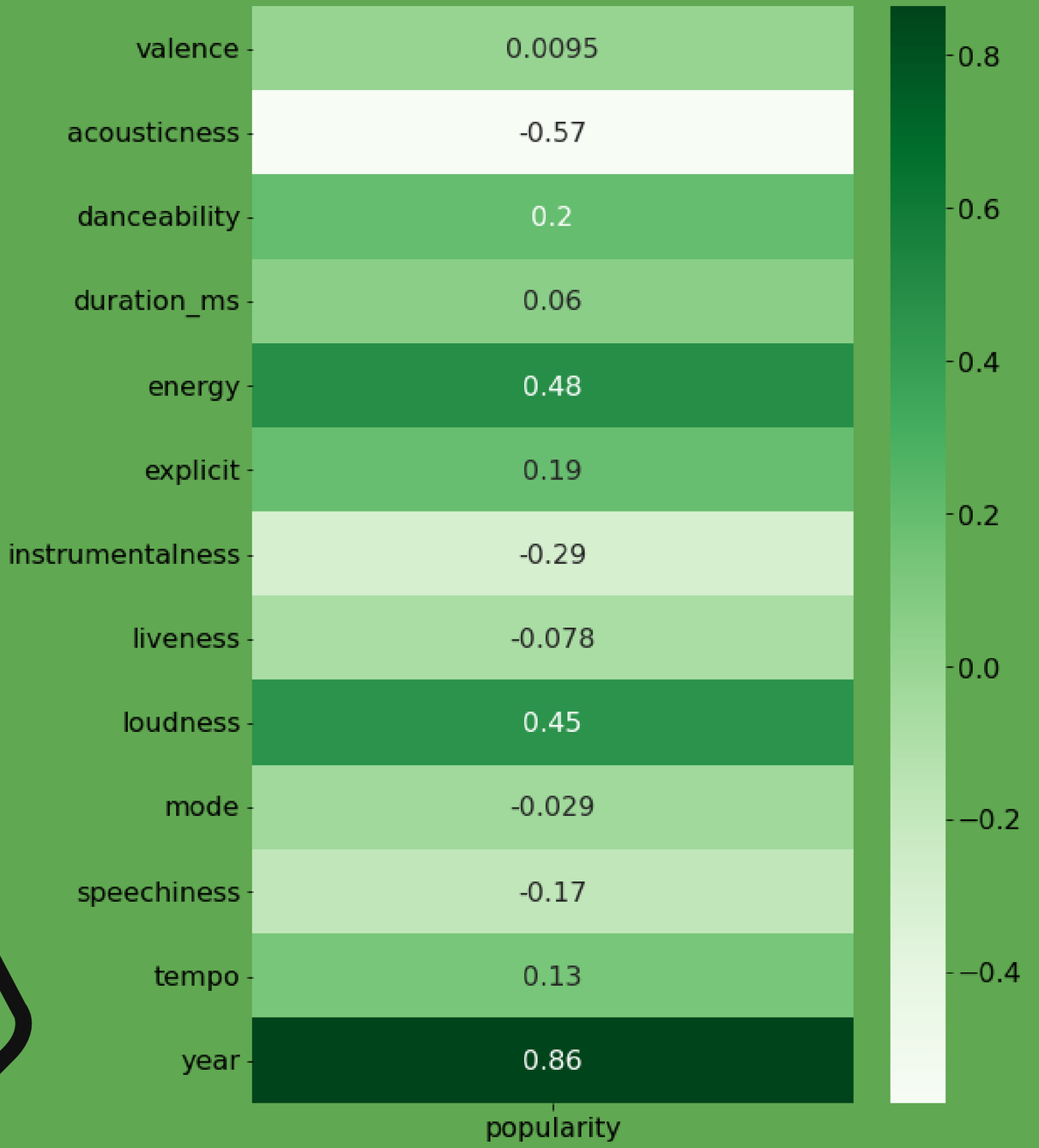
- Energy and Acousticness
- Loudness and Acousticness
- Popularity and Acousticness
- Acousticness and year

Positive

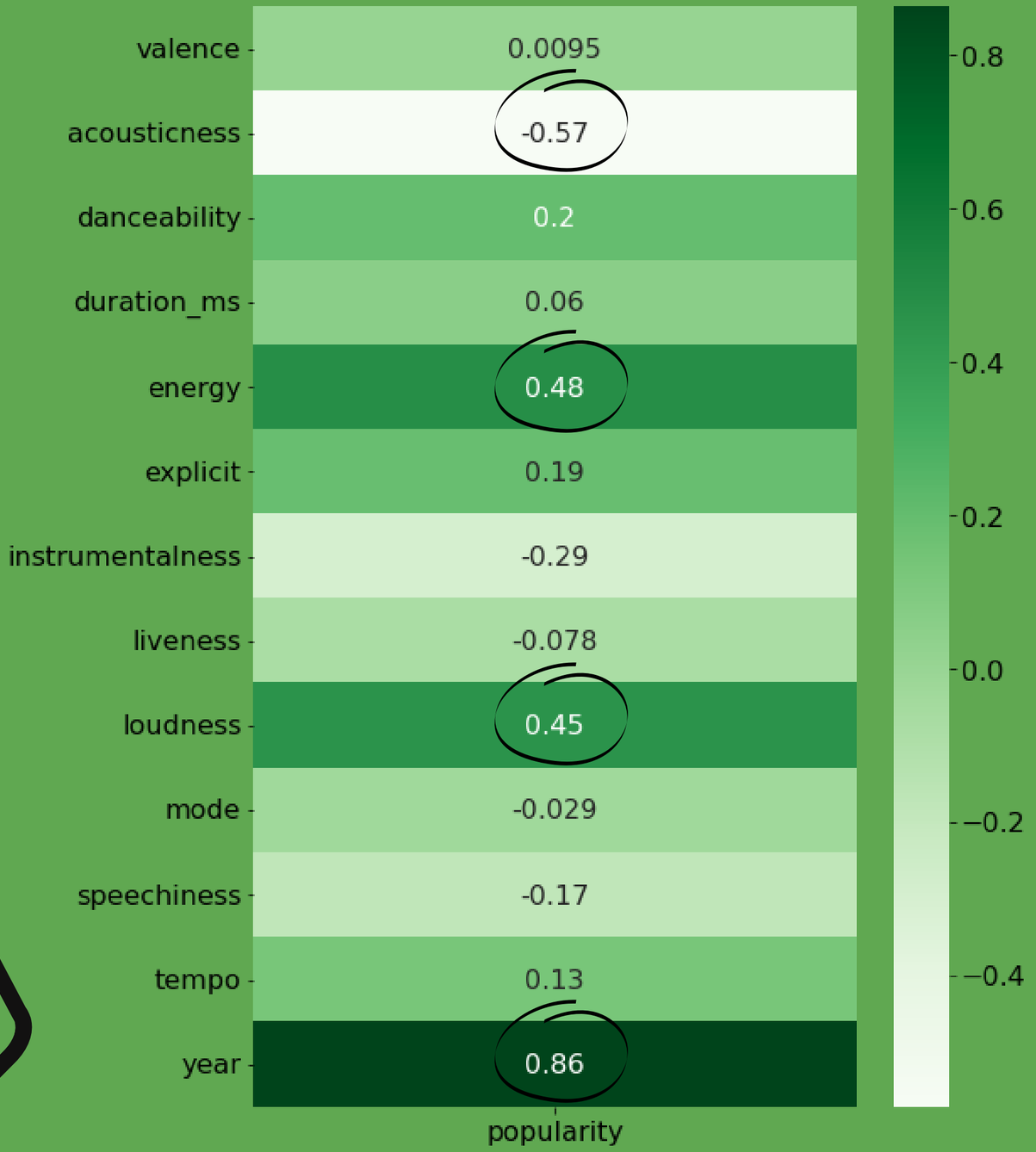
- Danceability and Valence
- Loudness and Energy
- Year and Popularity
- Energy and Year



Correlation and Popularity



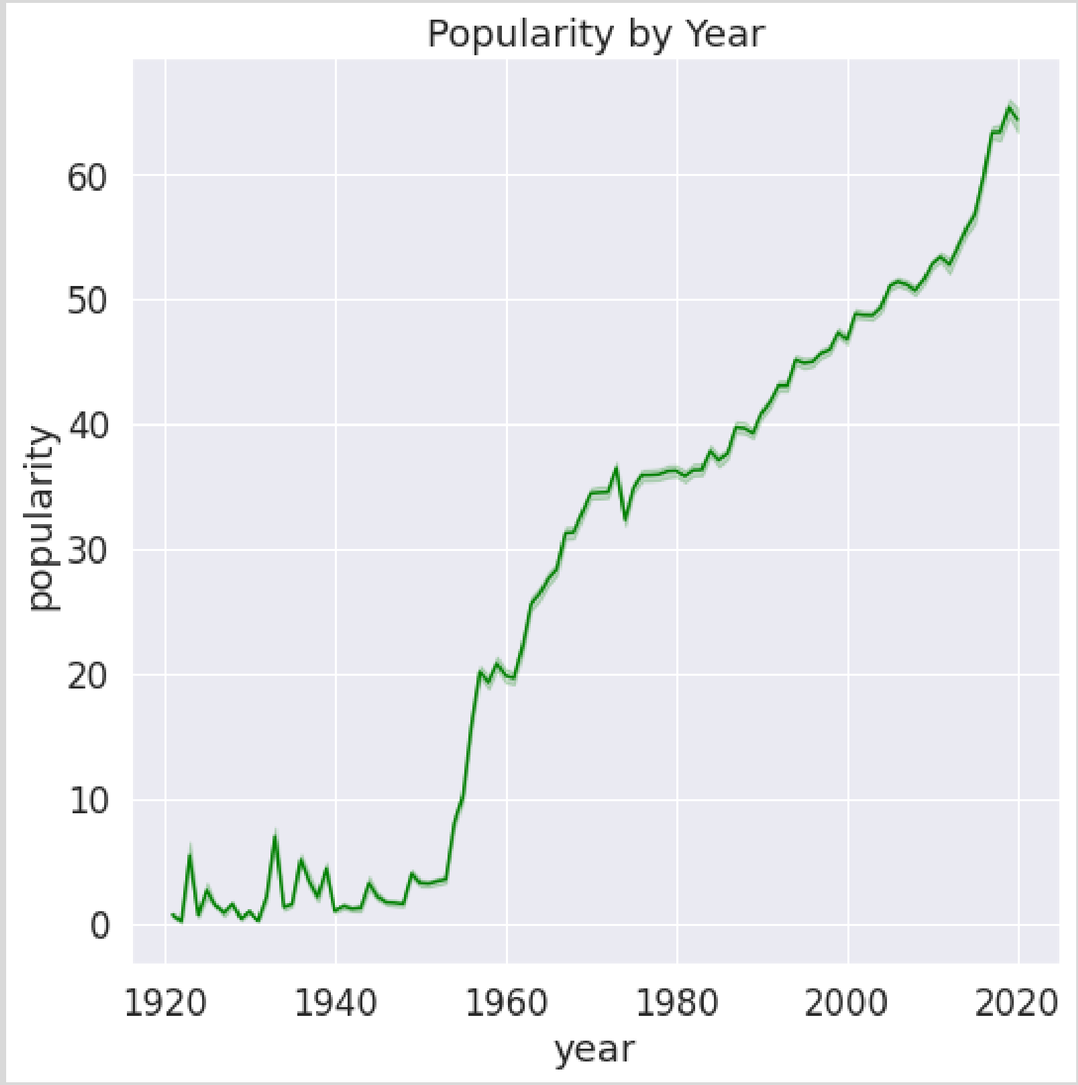
Correlation and Popularity

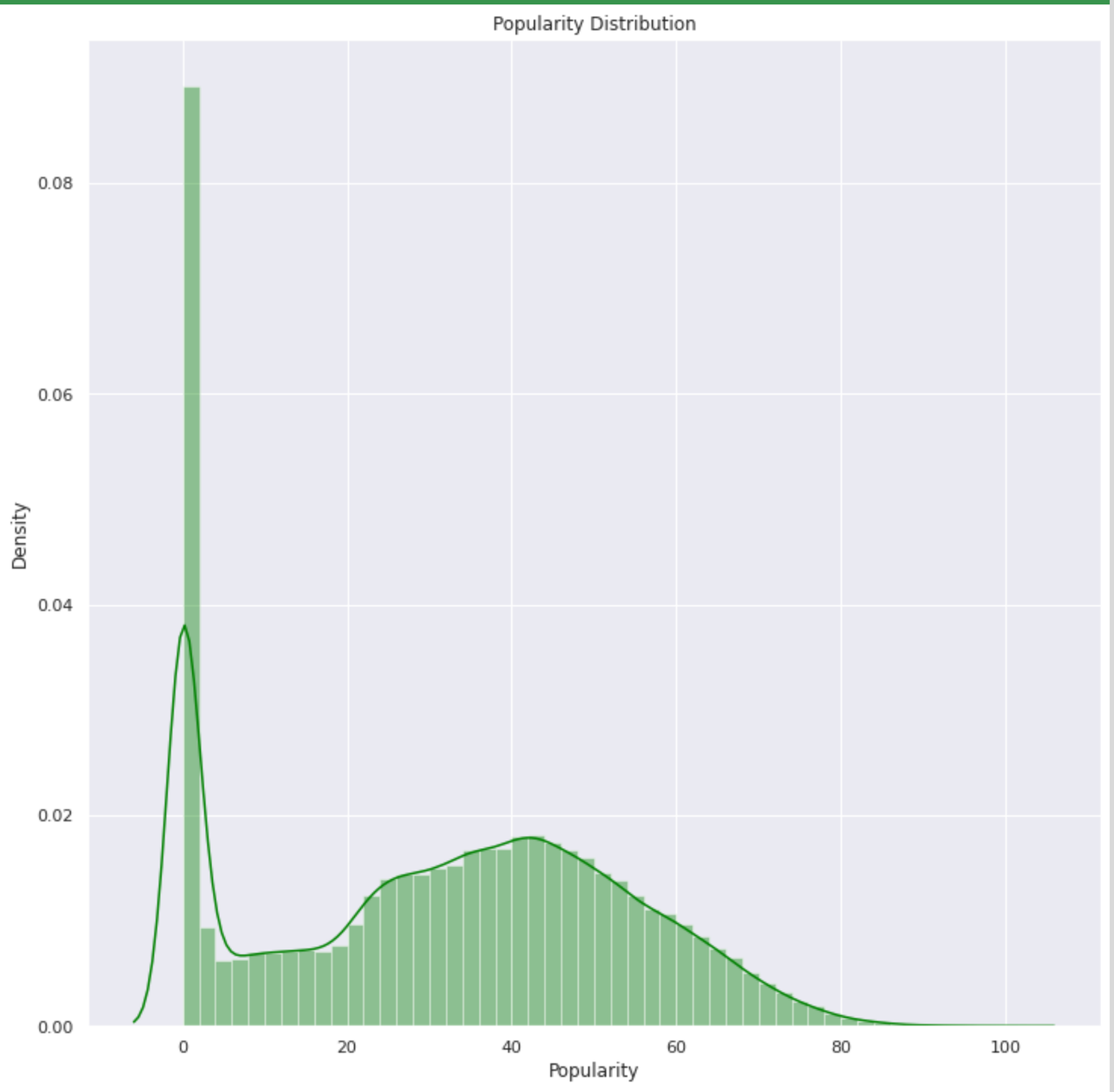


How is Popularity Measured?

- Total number of plays the track has had and how recent those plays are so natural year popularity is heavily influenced by year.

- The newer years have higher count of more recent plays





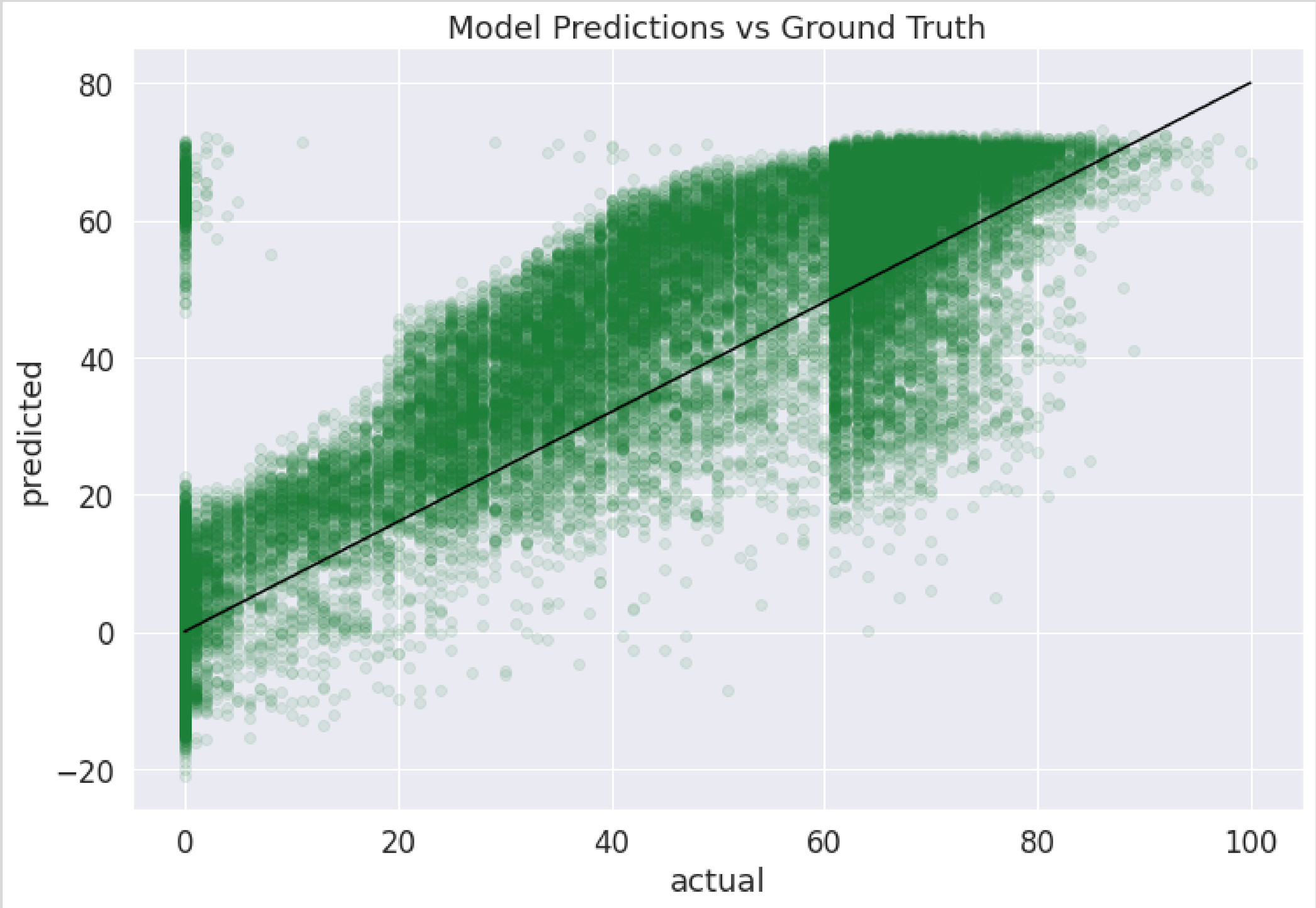
POPULARITY DISTRIBUTION

Overwhelming frequency of 0's, and greater than 75 are considered outliers

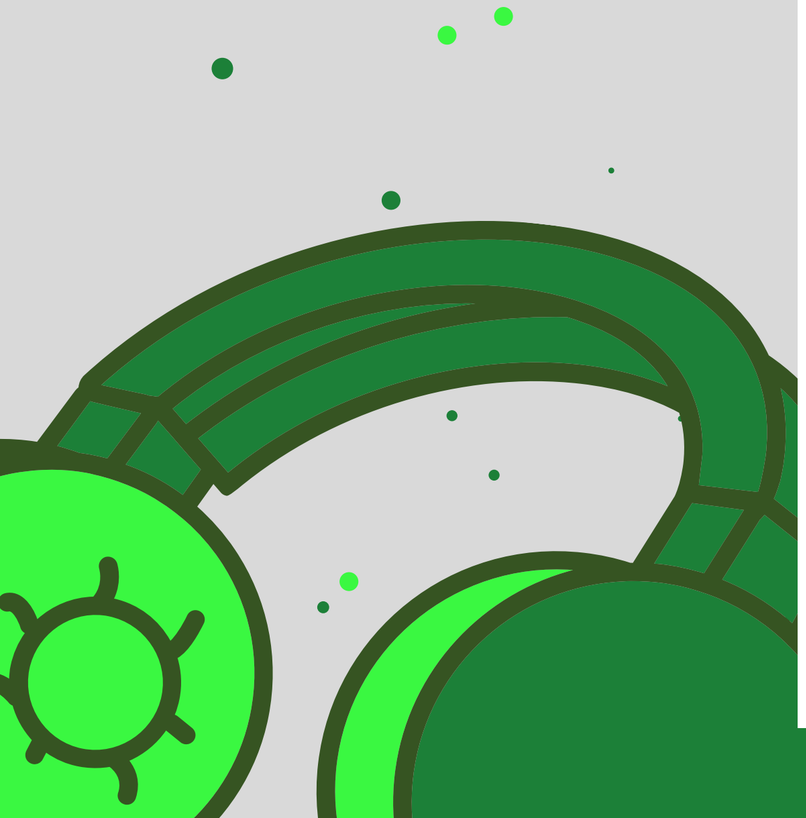
LINEAR REGRESSION MODEL

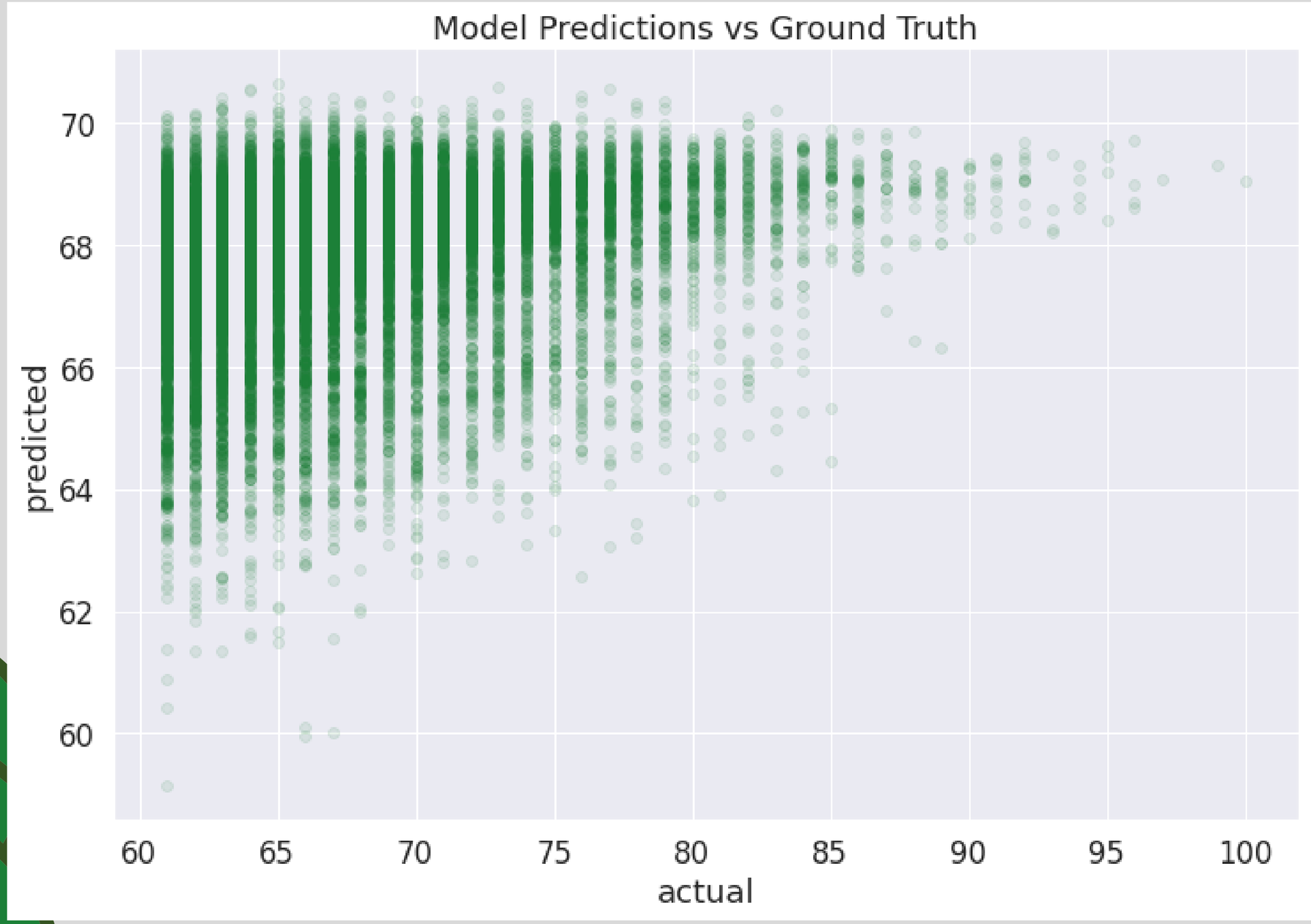
MAE = 8.7449

R^2 = 0.8223



WHY NOT HIGHER?





RECOMMENDATION MODEL

RECOMMENDATIONS

```
X=df[['valence','year','acousticness' , 'danceability', 'energy', 'explicit','liveness','loudness','mode','speechiness']]
y = df['name']
neigh = NearestNeighbors(n_neighbors=10)
neigh.fit(X,y)
ind=neigh.kneighbors(X.iloc[[567]])[1]
for i in ind:
  print(df.iloc[i][['name', 'artists']])
```

Cardigan by Don Toliver

	name	artists
57830	When You Love Me	['Memphis Minnie']
39126	New Orleans Stop Time	['Memphis Minnie']
1591	Pálida Noche - Instrumental (Remasterizado)	['Francisco Canaro']
39299	No Seas Malita - Instrumental (Remasterizado)	['Francisco Canaro']
20628	No Seas Amlita	['Francisco Canaro']
75774	Quand Il Joue De L'accordéon	['Fréhel']
39184	Farolito de papel - Instrumental (Remasterizado)	['Francisco Canaro']
57871	En la Trampa - Remasterizado	['Francisco Canaro', 'Charlo']
20610	Flores Secas - Remasterizado	['Francisco Canaro', 'Charlo']
75666	La Guardia Vieja - Instrumental (Remasterizado)	['Francisco Canaro']

Suggestions

- Add more songs above 70 popularity
- Look for songs with more energy and loudness
- Less acoustic songs