Spotify Data Visualizations

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Bar Plot

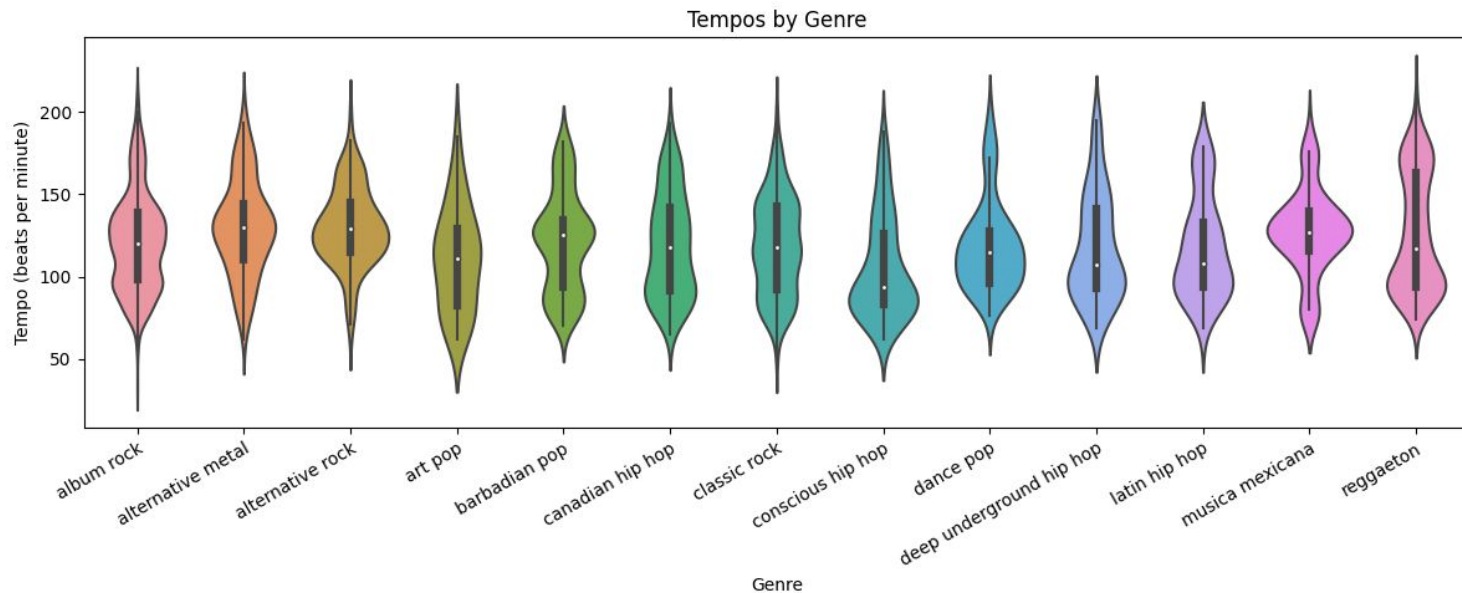**Top 20 Artists by Followers**
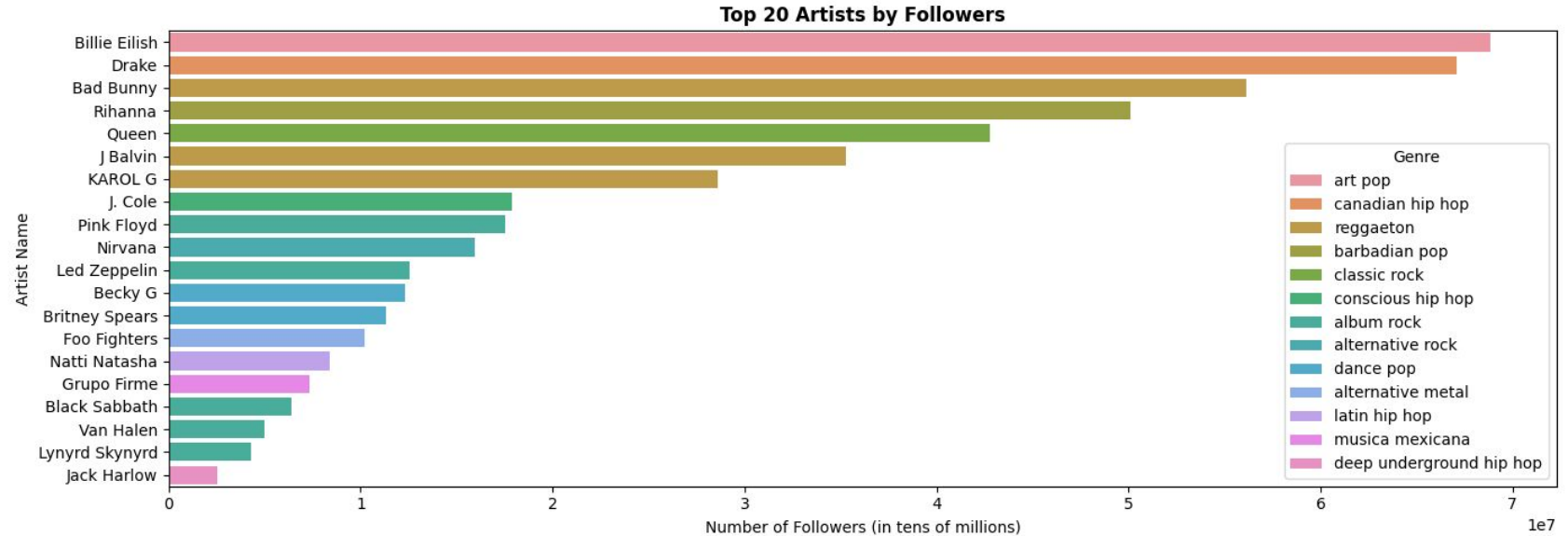
The top 20 artists in the database based on the number of followers and color labeled by genre

- Billie Eilish's genre is art pop and has almost 70 million followers
- The artists with a genre of reggaeton have around 30 million followers or more
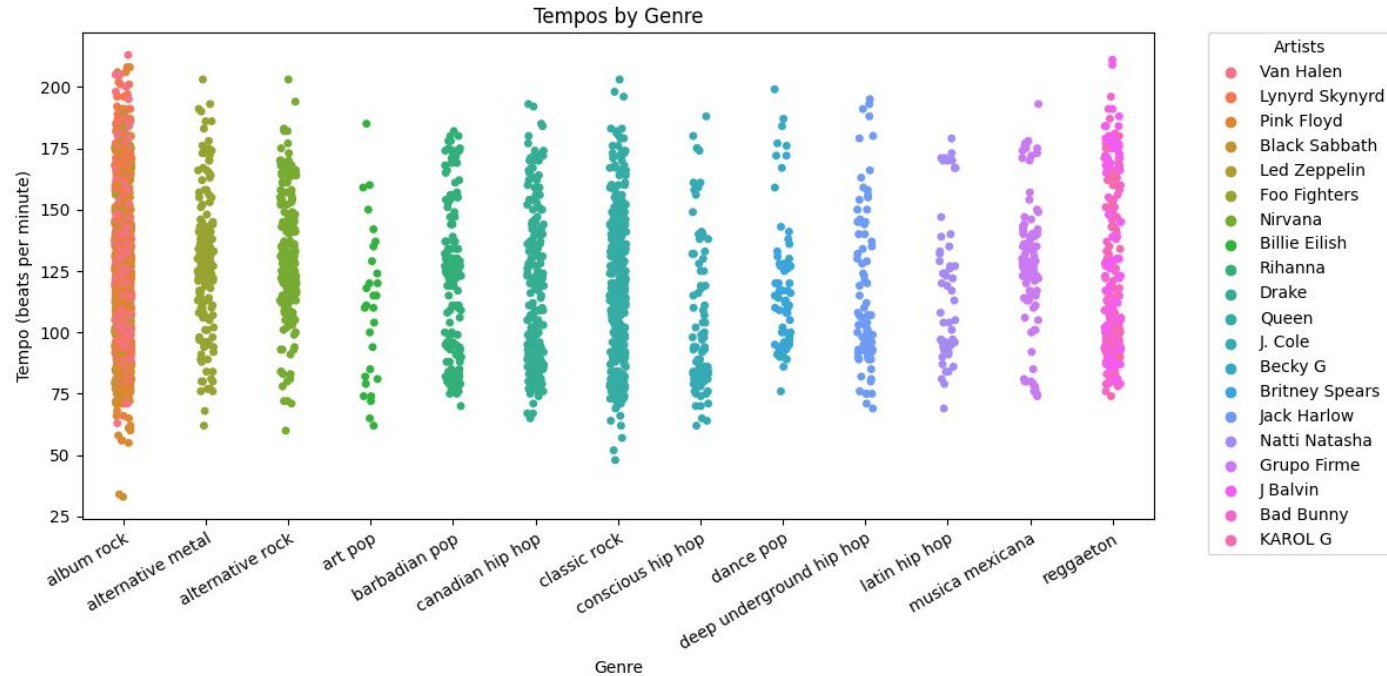- Jack Harlow has the least amount of followers 2.5 million followers

Violin Plot

Tempos by Genre

The distribution of the varying tempos based on genre
- The majority of genres have a median tempo of between 100-150 bpm
- Conscious hip hop has the lowest median tempo of around 100 bpm
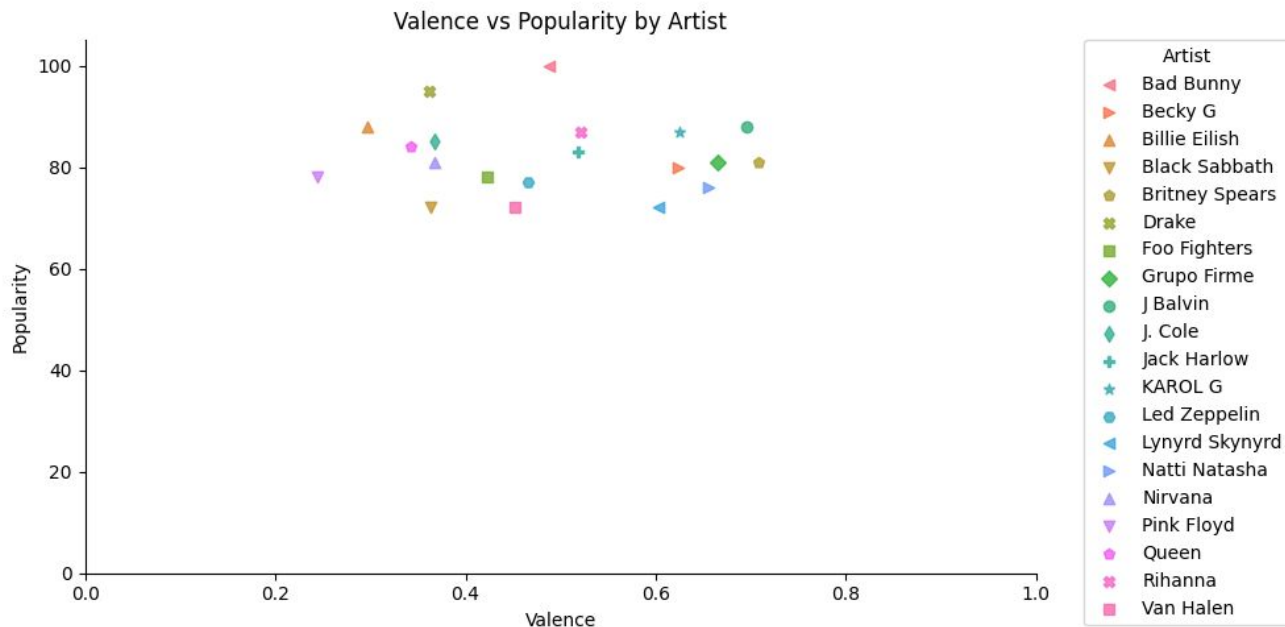- A lot of Musica Mexicana songs have a tempo of 125 bpm

Strip Plot

Tempos by Genre

The distribution of the varying tempos based on genre and color coded by Artist
- Album Rock has the most variety of tempos
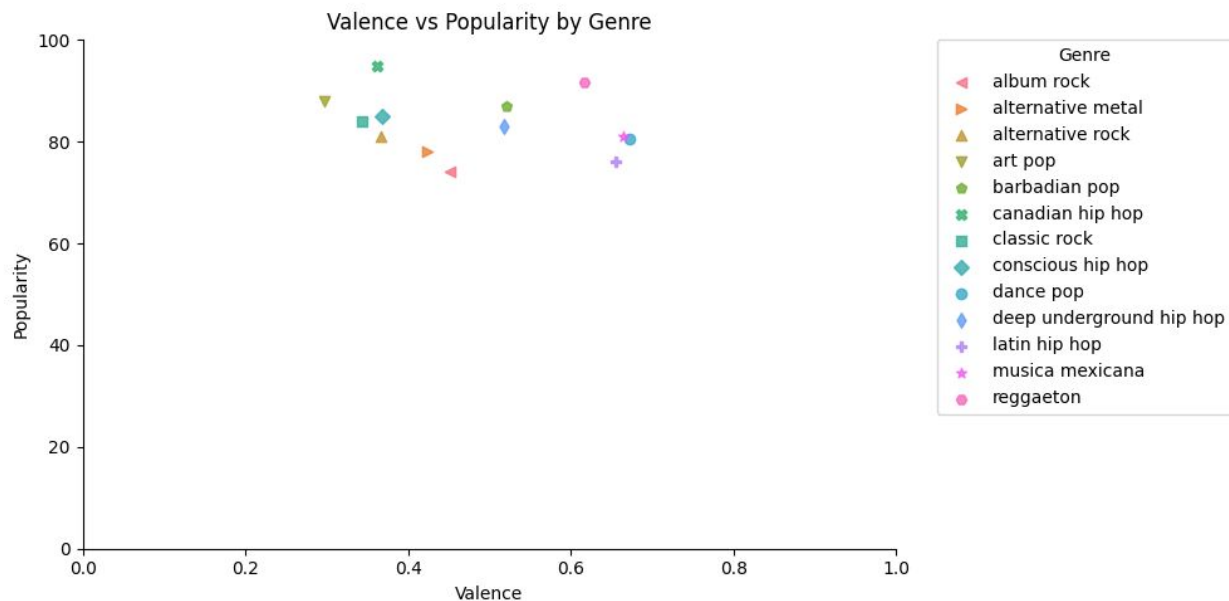- Latin Hip Hop has the least variety of tempos

Linear Model Plot

Valence vs Popularity by Artist

Valence vs Popularity based on Artist

Valence: a measure from 0.0 to 1.0 describing the musical positiveness conveyed by a track. Tracks with high valence sound more positive (e.g. happy, cheerful, euphoric), while tracks with low valence sound more negative (e.g. sad, depressed, angry).

- There is no obvious correlation with valence and popularity
- Bad Bunny with the highest popularity has a valence near 0.5
- Pink Floyd has the lowest valence and Britney Spears has the highest valence

Linear Model Plot

Valence vs Popularity by Genre

Valence vs Popularity based on Genre

Valence: a measure from 0.0 to 1.0 describing the musical positiveness conveyed by a track. Tracks with high valence sound more positive (e.g. happy, cheerful, euphoric), while tracks with low valence sound more negative (e.g. sad, depressed, angry).

- There is no obvious correlation with valence and popularity
- Dance Pop, Musica Mexicana and Latin Hip Hop have the highest valence
- Art Pop has the lowest valence

Heat Map

Correlations between track audio features

- Positive relationships:
  - Danceability and Valence
  - Tempo and Energy
  - Energy and Valence
- Negative relationships:
  - Instrumentalness and Valence
  - Instrumentalness and Danceability

Spotify definitions:
Danceability: describes how suitable a track is for dancing based on a combination of tempo, rhythm stability, beat strength, and overall regularity
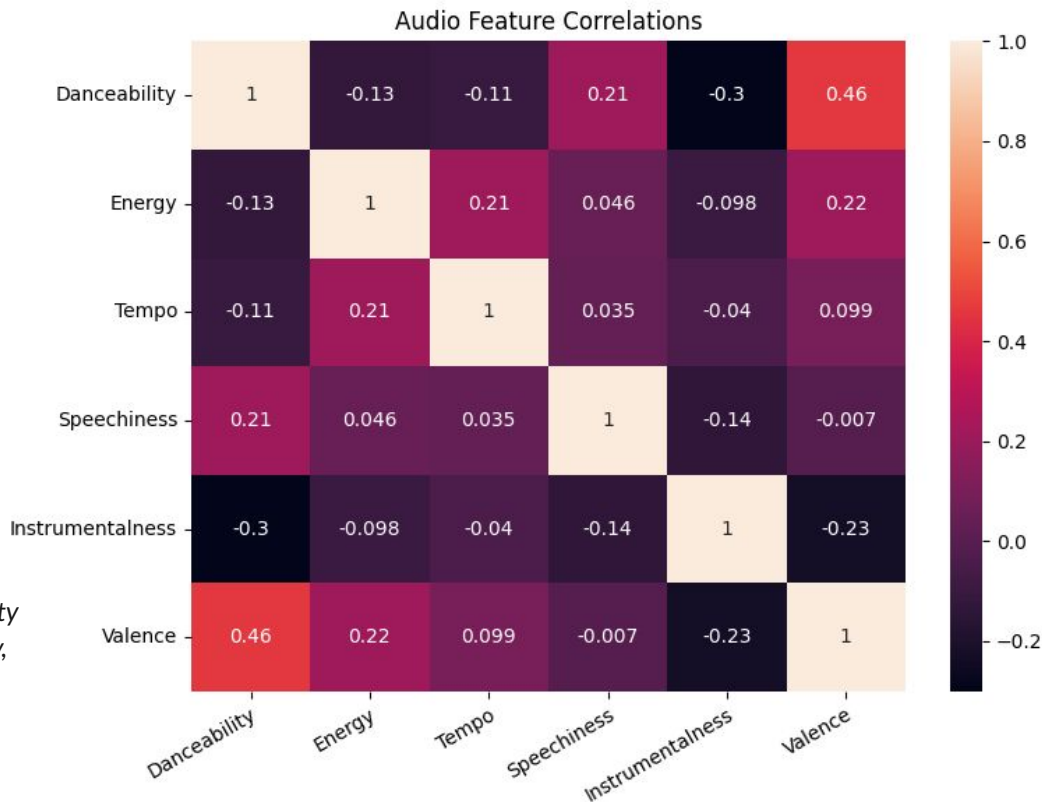*Energy: represents a perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy*
Tempo: overall estimated tempo of a track in beats per minute (BPM)
Speechiness: detects the presence of spoken words in a track
Instrumentalness: predicts whether a track contains no vocals. "Ooh" and "aah" sounds are treated as instrumental in this context
Valence: describing the musical positiveness conveyed by a track

Audio Feature Correlations

	Danceability	Energy	Tempo	Speechiness	Instrumentalness	Valence
Danceability	1	-0.13	-0.11	0.21	-0.3	0.46
Energy	-0.13	1	0.21	0.046	-0.098	0.22
Tempo	-0.11	0.21	1	0.035	-0.04	0.099
Speechiness	0.21	0.046	0.035	1	-0.14	-0.007
Instrumentalness	-0.3	-0.098	-0.04	-0.14	1	-0.23
Valence	0.46	0.22	0.099	-0.007	-0.23	1

Pair Plot

Relationship between track audio features

- Positive relationships:
    - Danceability and Valence
    - Tempo and Energy
    - Energy and Valence
- Negative relationships:
    - Instrumentalness and Valence
    - Instrumentalness and Danceability

Average Audio Features by Artist