PLAYLIST ANALYSIS

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MOTIVATION

- Music streaming services such as Spotify have become the primary way that music is consumed in the last 10 years.
- Streaming services have notoriously underpaid the artist (*$0.003-0.005*) per stream compared to the return on physical sales (cd, vinyl, tapes)
- Many musicians have turned to live touring as a viable way to make a living as a musician
- In 2020, the live music industry grinded to a halt leaving musicians in a difficult spot
- Playlists!
  - In 2018, Digital Music Alliance reported that 54% of listeners preferred to listen to playlists than albums.
  - Some musicians have found that through strategic placement on some popular playlists, they can earn a viable income due to the high number of streams

DATA QUESTIONS

- Target Audience: Music Artists who are interested in getting their music on popular playlists
- Data Goal: To provide insights to Music Artists about which playlists they should target for placement
- Question 1: What are the most popular playlists for a given category/genre?
- Question 2: What insights can be gained about the songs that are placed on these top playlists

DELIVERABLES

- Dashboard 1 (Playlists): Interactive Dashboard that allows the Musical Artists to explore the most popular playlists and gain insights about the songs listed in each playlist
- Dashboard 2 (Genres): Interactive Dashboard which allows the Music Artist to examine a select genre or metric and determine key insights.

DATA ACQUISITION

- Using Python (Jupyter Notebooks) to pull from Spotify's API, the following data was acquired:
- Genre Recommended Songs: For each of the 126 listed genres, the 100 most popular recommended songs along with several metadata categories was compiled
- Category Playlists: For each of the 55 categories, all the playlists were compiled along with several metadata categories (over 1000 different playlists)
- Metadata: The metadata for each song in the above lists was acquired using the "audio_features" function from Spotify's API (over 70,000 songs analyzed)

- NOTE: The data was compiled between 08-05-2021 & 08-12-2021 and so the data reflects a snapshot of the current offerings on Spotify.
  - These lists would be curated over time and so would require updated data pulls to investigate trends over time

SPOTIFY POPULARITY INDEX

- A key metric that is utilized through this analysis is **POPULARITY**
- The popularity index is described as follows in the Spotify API documentation:
- Popularity:
  - The popularity of a track is a value between 0 and 100, with 100 being the most popular.
  - The popularity is calculated by algorithm and is based, in the most part, on the total number of plays the track has had and how recent those plays are.

- In this analysis, the popularity index will be used to calculate which playlists are recommended for a set of given parameters.

SPOTIFY METADATA

- Spotify provides several metadata categories for each song on its platform:
    1. acousticness
    2. danceability
    3. duration_ms
    4. energy
    5. instrumentalness
    6. key
    7. liveness
    8. loudness
    9. mode
    10. speechiness
    11. tempo
    12. time_signature
    13. valence

METADATA DESCRIPTIONS

Acousticness	A confidence measure from 0.0 to 1.0 of whether the track is acoustic. 1.0 represents high confidence the track is acoustic.
Danceability	Danceability describes how suitable a track is for dancing based on a combination of musical elements including tempo, rhythm stability, beat strength, and overall regularity. A value of 0.0 is least danceable and 1.0 is most danceable.
Energy	Energy is a measure from 0.0 to 1.0 and represents a perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy. For example, death metal has high energy, while a Bach prelude scores low on the scale. Perceptual features contributing to this attribute include dynamic range, perceived loudness, timbre, onset rate, and general entropy.
Instrumentalness	Predicts whether a track contains no vocals. “Ooh” and “aah” sounds are treated as instrumental in this context. Rap or spoken word tracks are clearly “vocal”. The closer the instrumentalness value is to 1.0, the greater likelihood the track contains no vocal content. Values above 0.5 are intended to represent instrumental tracks, but confidence is higher as the value approaches 1.0.
Liveness	Detects the presence of an audience in the recording. Higher liveness values represent an increased probability that the track was performed live. A value above 0.8 provides strong likelihood that the track is live.
Loudness	The overall loudness of a track in decibels (dB). Loudness values are averaged across the entire track and are useful for comparing relative loudness of tracks. Loudness is the quality of a sound that is the primary psychological correlate of physical strength (amplitude). Values typical range between -60 and 0 db.
Speechiness	Speechiness detects the presence of spoken words in a track. The more exclusively speech-like the recording (e.g. talk show, audio book, poetry), the closer to 1.0 the attribute value. Values above 0.66 describe tracks that are probably made entirely of spoken words. Values between 0.33 and 0.66 describe tracks that may contain both music and speech, either in sections or layered, including such cases as rap music. Values below 0.33 most likely represent music and other non-speech-like tracks.
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).

METADATA DESCRIPTIONS

Duration(ms)	The duration of the track in milliseconds.
Key	The key the track is in. Integers map to pitches using standard Pitch Class notation . E.g. 0 = C, 1 = C♯/D♭, 2 = D, and so on.
Mode	Mode indicates the modality (major or minor) of a track, the type of scale from which its melodic content is derived. Major is represented by 1 and minor is 0.
Tempo	The overall estimated tempo of a track in beats per minute (BPM). In musical terminology, tempo is the speed or pace of a given piece and derives directly from the average beat duration.
Time Signature	An estimated overall time signature of a track. The time signature (meter) is a notational convention to specify how many beats are in each bar (or measure).

MOST POPULAR: PLAYLIST

- Playlist Name: Top 50 – Global
- Avg. Popularity: 89.5
- Notable Metadata points:
  - There are zero instrumental tracks on this playlist
  - There is an above avg Danceability rating of .68 (.63 is overall rating)
  - 25% of the songs on this playlist are in C# or F#
- Top 3 songs on this playlist:

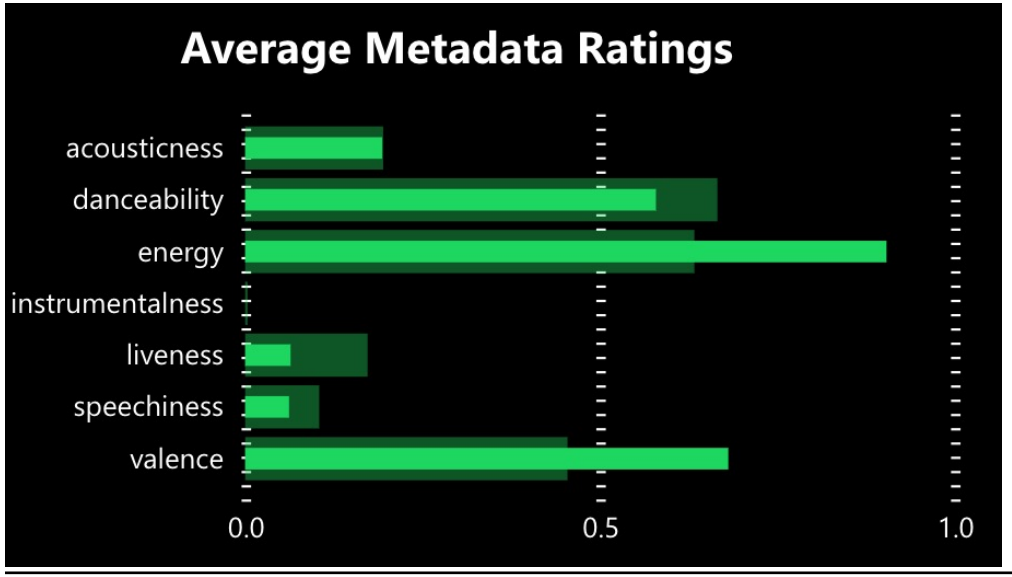
Track Title	Artist	Playlists Count	Popularity
Beggin'	M√•neskin	13	100
good 4 u	Olivia Rodrigo	17	99
Bad Habits	Ed Sheeran	21	98

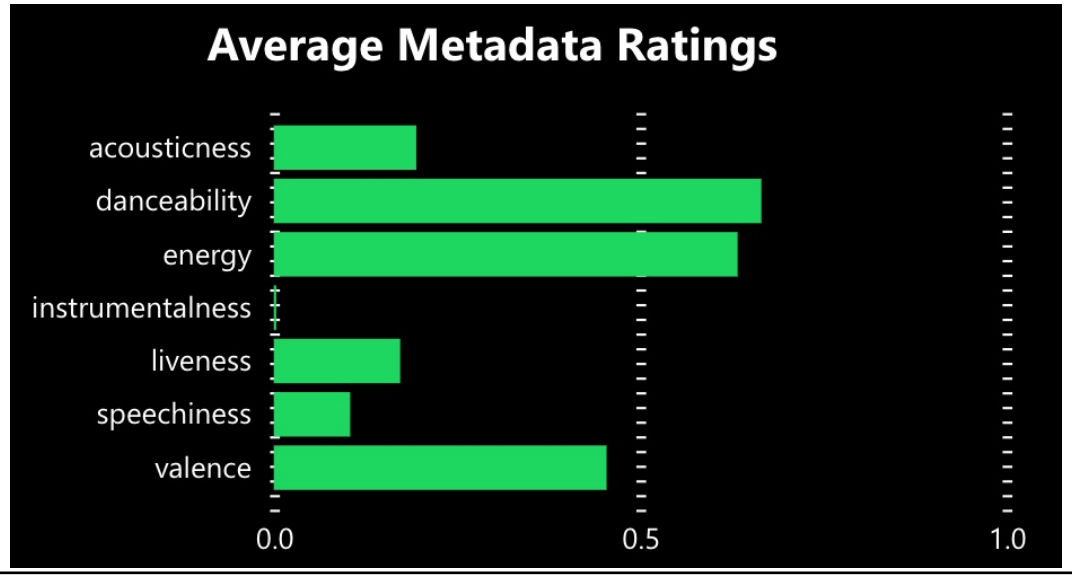
MOST POPULAR: GENRE

Genre: Pop

Song: High Hopes by Panic! At The Disco

Popularity: 81





PLAYLIST & GENRE DASHBOARDS

- LINK TO DASHBOARDS

LIMITATIONS OF THE ANALYSIS

- Popularity Index: Because Spotify puts their play counts behind a calculated Popularity Value, I was unable to gain some insights regarding potential financial returns for a given song or playlist
- Data timeframe: Because the data was pulled for a snapshot of time, I was unable to gain insights regarding trends over time
- **Goals for Analysis 2.0:**
  - Ability to filter playlists by specific metadata category
  - Allow artists to access their own metadata and create algorithm to match them with a particular playlist
  - Create way to pull current metadata for large number of songs quickly

RESOURCES REGARDING PLAYLIST PLACEMENT

- Links with resources for pitching your music to the Spotify content curators
  - ***How To Get Music in Spotify Playlists – Digital Music News***
  - ***Spotify Royalties Explained, In 3 Easy Diagrams…***
  - ***Lance Allen DIY Spotify Success***

THE END

Thank you!

QUESTIONS/COMMENTS/DISCUSSION