Master's Task for Visualisation

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❖ Introduction to our dataset:

This dataset contains audio statistics of the ***top 2000 tracks on Spotify***. The data contains about 15 columns each describing the track and its qualities. Songs released from 1956 to 2019 are included from some notable and famous artists like *Queen*, *The Beatles*, *Guns N' Roses*, etc.

http://sortyourmusic.playlistmachinery.com/ by @plamere uses Spotify API to extract the audio features from the tracks given the Spotify Playlist URI. This data contains audio features like Danceability, BPM, Liveness, Valence(Positivity) and many more.

Each feature's description has been given in detail below.

❖ Content:

- ➢ **Index:** ID
- ➢ **Title:** Name of the Track
- ➢ **Artist:** Name of the Artist
- ➢ **Top Genre:** Genre of the track
- ➢ **Year:** Release Year of the track
- ➢ **Beats per Minute(BPM):** The tempo of the song
- ➢ **Energy:** The energy of a song - the higher the value, the more energtic. song
- ➢ **Danceability:** The higher the value, the easier it is to dance to this song.
- ➢ **Loudness:** The higher the value, the louder the song.
- ➢ **Valence:** The higher the value, the more positive the mood for the song.
- ➢ **Length:** The duration of the song.
- ➢ **Acoustic:** The higher the value the more acoustic the song is.
- ➢ **Speechiness:** The higher the value the more spoken words the song contains

➢ **Popularity:** The higher the value the more popular the song is.

❖ Our Analytical Questions:

1. How does the energy level of songs vary across different genres?

(Box - Plot Graph)

- ❖ **Observations:**
  - ➢ In terms of Average Energy dance pop genre is the most popular.
  - ➢ In terms of Average Energy dance neo mellow is the least popular.
  - ➢ Some genres, such as **Dance Pop** and **Big Room**, have consistently **high energy levels** (e.g., average energy close to or above 70).
  - ➢ Other genres, like **Acoustic Pop** and **Neo Mellow**, display **lower energy levels** (e.g., averages around 40-50).
  - ➢ Genres like **Canadian Pop** and **Electropop** show moderate energy levels.
  - ➢ For the top 15 percent of the avg popularity of these genres we can see that dance pop and pop have a wide range of energy levels, so it doesn't matter in these two genres even if a song has low energy, it is still popular.

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2. Is there a relationship between speechiness and song popularity?

(Scatter Plot Graph)

- ❖ **Observations:**
  - ➢ For the last 5 years (2014 - 2019) we see a trend where songs with more speechiness increase in popularity.
  - ➢ The trend line here is showing an upward trend between popularity and speechiness because of songs in the top right corner quadrant. (i.e. 5 seconds of summer, Youngblood and billie eilish, bad guy)

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3. Which artists were most likely to produce songs that ended up in the Top 2000?

(Horizontal bars)

- **Observations:**
  - In terms of average popularity of songs among the top 10 artists, Coldplay (artist) was able to produce songs that ended up in the top 2000's list.

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4. Does the loudness of songs influence their valence (positivity)?

(Scatter Plot Graph)

- **Observations:**
  - There appears to be a slightly positive correlation between loudness and valence, as indicated by the trendline. This suggests that louder songs may tend to have higher valence (positivity), but the correlation is not strong.
  - The song **"Streetaal"** with a loudness of **-20 dB** has one of the lowest loudness values and a relatively low valence, placing it in the bottom-left corner.
  - Another song from the **"Atl Hip Hop"** genre has high valence but is positioned near the louder end of the spectrum (closer to -2 dB).
  - Most data points are clustered around the **average loudness (-10 to -6 dB)** and **average valence (40 to 60)**, indicating that many songs exhibit moderate loudness and positivity.
  - We find a slightly positive correlation between valence and loudness, however the correlation is not that pronounced here.

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5. How has the average song length changed over the years compared to the popularity?

- **Observations:**
  - In the earlier decades (1950s–1960s), songs were generally shorter, with the average duration around 180 seconds (3 minutes).
  - A gradual increase in the average song length is observed from the 1970s to 1990s, with durations peaking around 250–300 seconds (4–5 minutes).
  - After the 2000s, the average song length stabilizes around 200–250 seconds (approximately 3–4 minutes)
  - Even though the length of the two songs is quite low in the years 1960-1961 they have the most popularity around that time.

1960s Songs:

- **Etta James**'s song *"At Last"* (1960) had an average length of 180 seconds.
- **Elvis Presley**'s *"Can’t Help Falling in Love"* (1961) had a slightly longer duration at 182 seconds.
- These songs represent iconic music with enduring popularity, despite their shorter lengths.