Cutting Through The Noise

US centric study on music streaming in the early 2020's

Content

Question and Hypothesis

1) As a musical artist in the modern age, does the type of music you make have an effect on how popular it would be with the public?
   - I believe the type of music does impact how widely accepted a song could be with audiences.
2) Does danceability in musical tracks impact popularity with listeners?
   - Danceability does play a large role in popularity, due to how likely it is to make a person feel positive emotions or want to play it in public places such as night clubs or events.
3) With pop and hip-hop being the most dominant musical genre on the radio, do other genres have a chance of breaking the mainstream?
   - Other genres of music do have a good chance of breaking into the mainstream regardless of genre.
4) Does music theory play a role in listener popularity?
   - Music theory such as modes and keys have a great role in popularity with an audience due to the moods and emotional perception associated with Major or Minor keys.

Approach

1. Data table downloaded from Spotify's API as a primary source.
2. Formatted and cleaned using Python and Pandas for easier analysis.
3. SQL Queries will be utilized to obtain the data we want in a table.
4. Graphical visualizations will be made to showcase the findings and make it digestible to the average person.

Challenges

1) A lot of the data has some missing information so that will be discarded for our analysis.
2) With songs spanning multiple genres, there are multiple entries for each genre so some information will be discarded to not have so many duplicates in the visualization data.

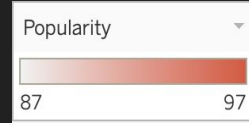# Q1) Listeners Preferred Music Genres

When analysing the data from the dataset, we can see that the most popular music genres present are Pop, Rock, and Rap.
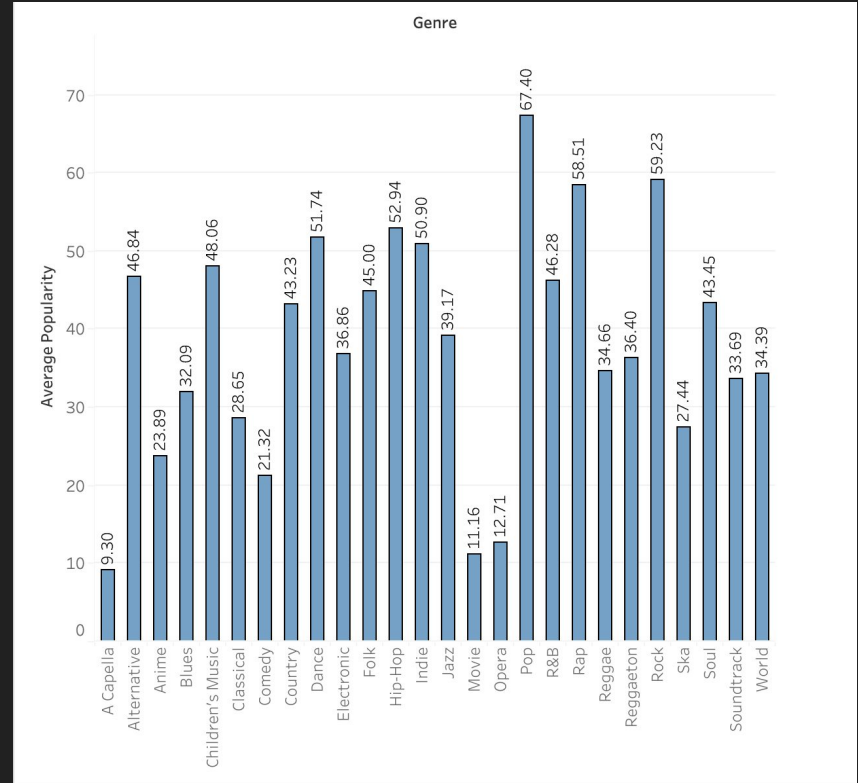
Q1 cont.

Within the top tracks, ranked on popularity, the most common genres seen are Pop, Rap, and Reggaeton, which wasn't present in the most popular in the last visualization. This could be due to the genre seeing a surge in popularity in current times.

Track Name	Genre	
Calma - Remix	Pop	97
Dancing With A Stranger (..	Pop	97
Happier	Pop	97
Secreto	Reggaeton	96
Adan y Eva	Hip-Hop	95
Baila Baila Baila	Reggaeton	95
MIA (feat. Drake)	Reggaeton	95
Talk	Pop	94
Desconocidos	Pop	93
Thotiana	Rap	93
Amanece	Reggaeton	92
Be Alright	Pop	92
Lucid Dreams	Rap	92
Look Back At It	Rap	91
Robbery	Rap	91
Someone You Loved	Pop	91
Swervin (feat. 6ix9ine)	Rap	91
Te Vi	Pop	91
Bad Liar	Rock	90
Leave Me Alone	Hip-Hop	90
NI BIEN NI MAL	Reggaeton	90
Un Año	Pop	90
Armed And Dangerous	Rap	89
Believer	Rock	89
Bubalu	Pop	89
Girls Like You (feat. Cardi ..	Pop	89
idontwannabeyouanymore	Pop	89
Money	Rap	89

Popularity

87   97

Q1 cont.

Another clue into listeners and their preferred genres, based on the graphs, we can also see that the runtime of a song plays a role in popularity. A 3 minute runtime is most popular with audiences. Pop music is notorious for using common formulas such as songwriting structures that seem to fall in a 3 minute runtime to capitalize on a listener's attention span.
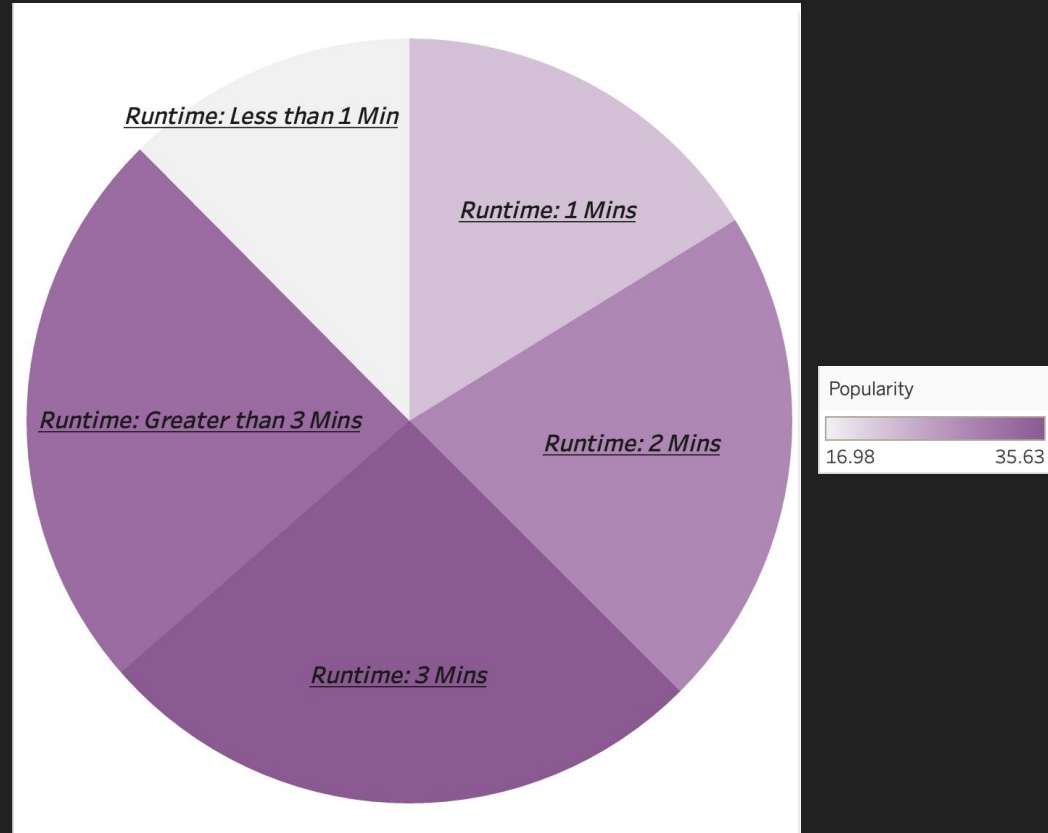
Q2) Does Tempo have an effect on Popularity?

When analysing the tempo of the dataset, songs with a tempo of 140-150 beats per minute seem to have greater popularity with listeners. These kinds of tempos are most seen in mid to fast paced pop and hip-hop songs.

Rounded Tempo	Average Popularity
Tempo: 150 BPM	34.505
Tempo: 140 BPM	34.301
Tempo: 120 BPM	33.484
Tempo: 160 BPM	32.988
Tempo: 170 BPM	32.644
Tempo: 130 BPM	32.453
Tempo: 100 BPM	32.193
Tempo: 110 BPM	32.149
Tempo: 180 BPM	31.664
Tempo: Greater than 200 BPM	31.069
Tempo: Less than 100 BPM	30.351

Average Popularity
30.351   34.505

Q2 cont.

Looking at the top 20 tracks on the dataset, based on popularity, we can see that most of the tracks lie within at least 30 bpm of the average bpm across the dataset. This shows that tempo could also have something to do with how favorable a song is with listeners.
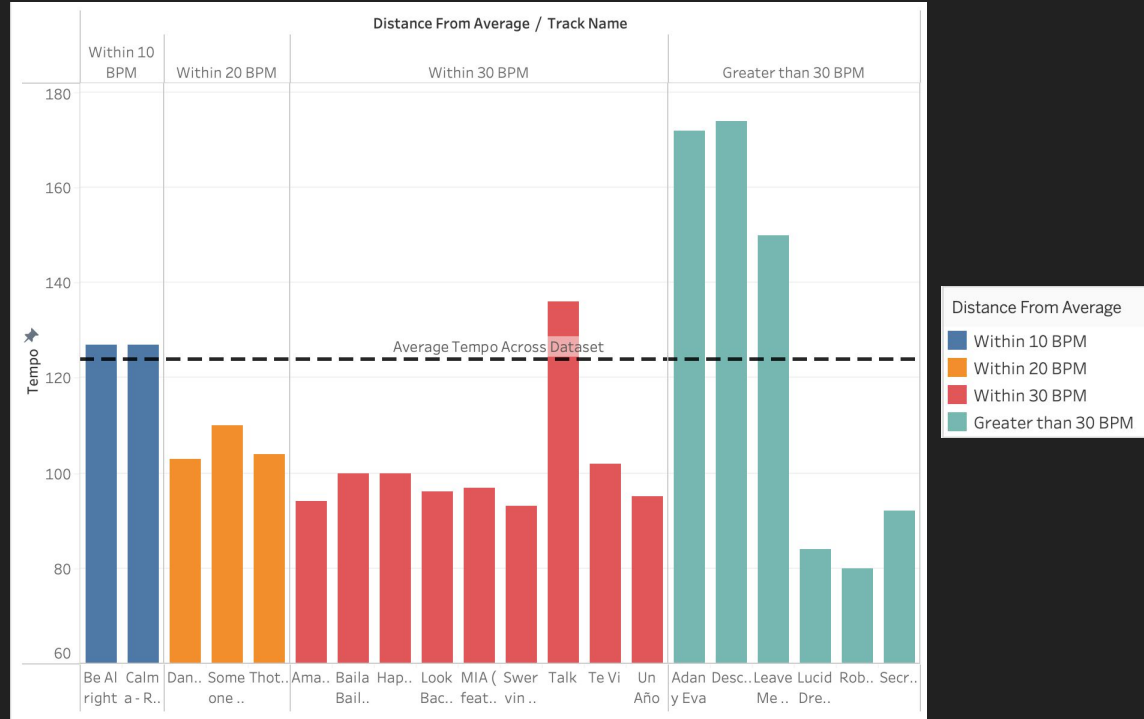
# 3) Danceability and Listener Popularity

The relationship between danceability and popularity doesn't seem to be as strong but there is a trend that the danceability aspect is assumed for genres such as hip-hop and reggaeton.
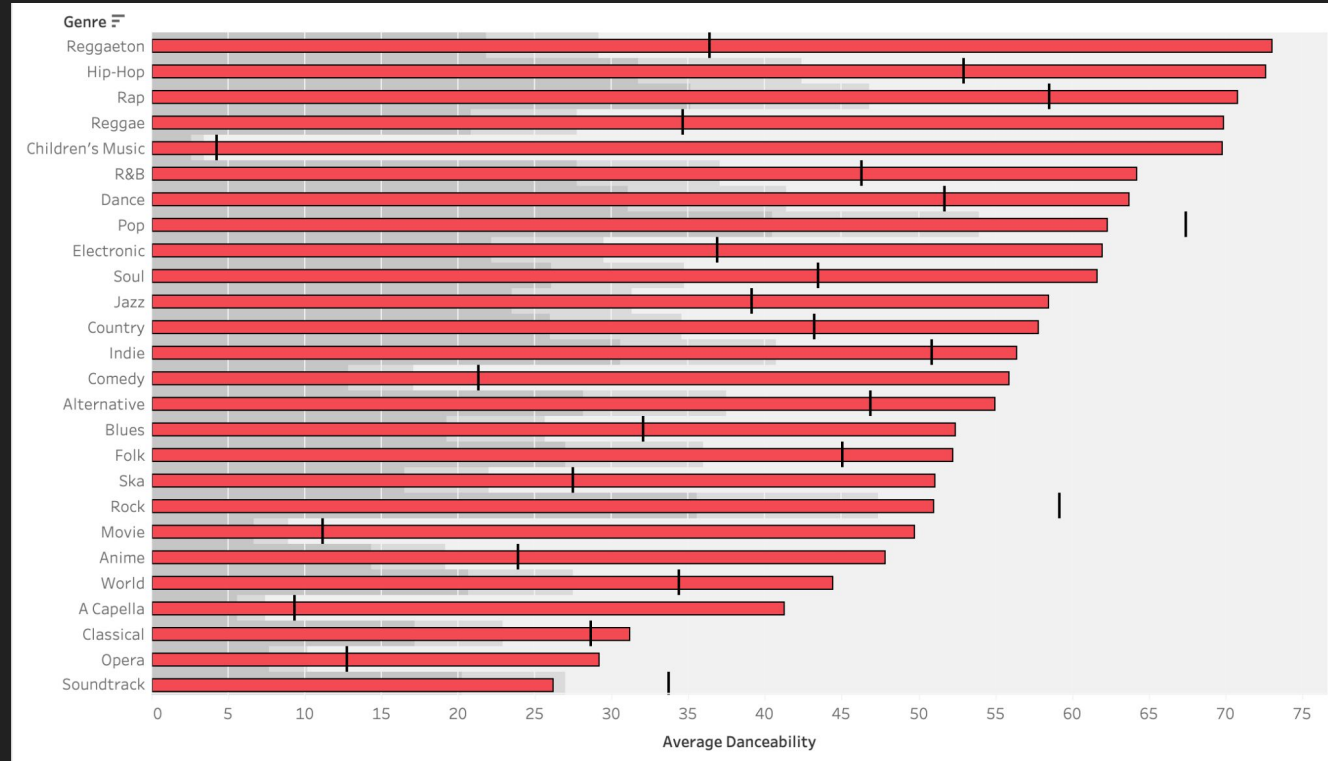
Q3 cont.

Even though danceability and popularity don't share a truly linear relationship, the time signature of a song does play a significant role in danceability and popularity. A 4/4 time signature gives the listener a consistent beat to follow and find rhythm in, making the listener more likely to dance or hum along to a song. Other time signatures may be too confusing for the average listener to follow or find a consistent rhythm in.

Time Signature	
4/4	55.39
5/4	41.05
1/4	40.77
3/4	40.69

Average Danceability

40.69   55.39
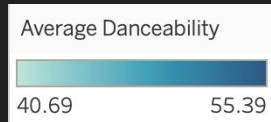
Q3 cont.

Upon further inspection into the top 20 popular songs in the dataset, we can see danceability isn't as effective as I assumed. Even so, the one common trait amongst each top song is a 4/4 time signature proving that rhythm of a song plays a large role in listener popularity.
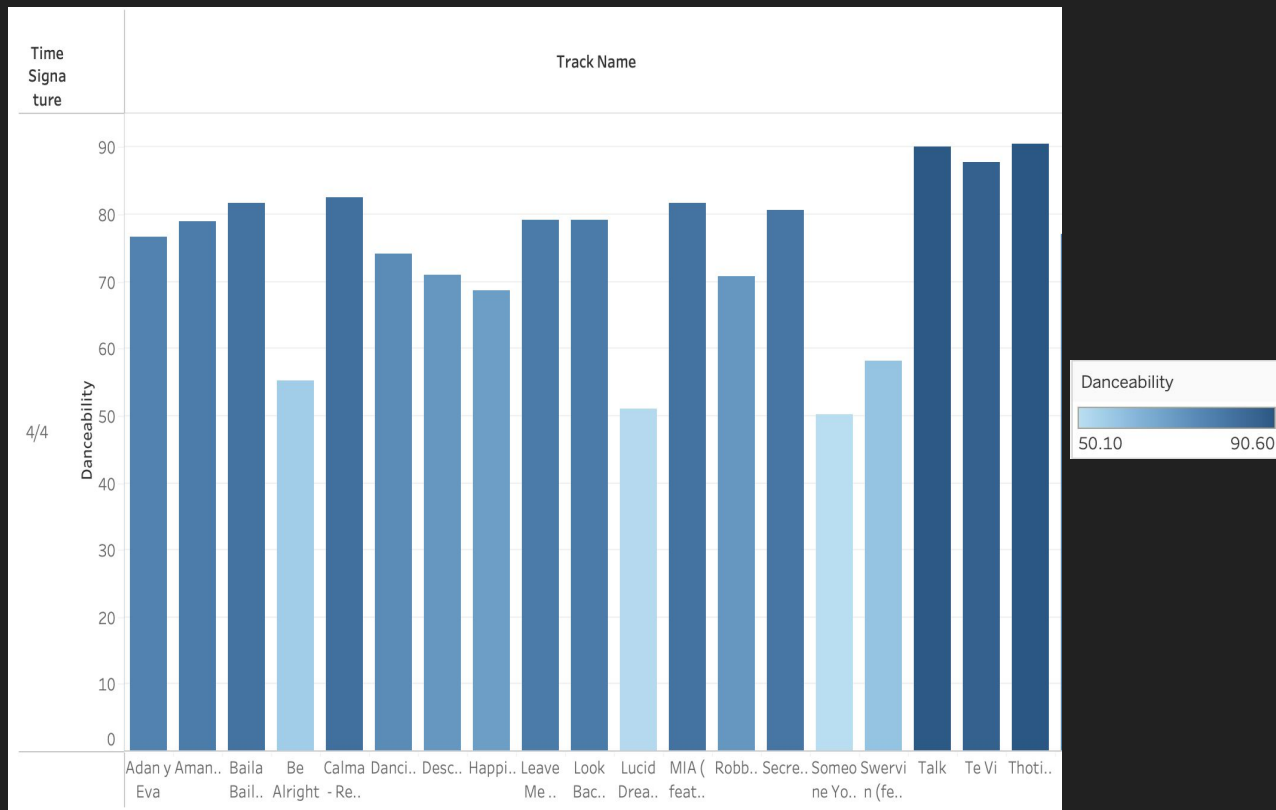
Q4) Valence/Energy and Popularity

Valence, the measure of mood such as happiness, in a song is consistent whether the song is in a Major Key, associated with happiness and liveliness, or a Minor Key, which is associated with downtempo and emotion. Since we can rule out Modes of the songs in relation to energy or valence, we can investigate further in terms of how they could impact popularity.
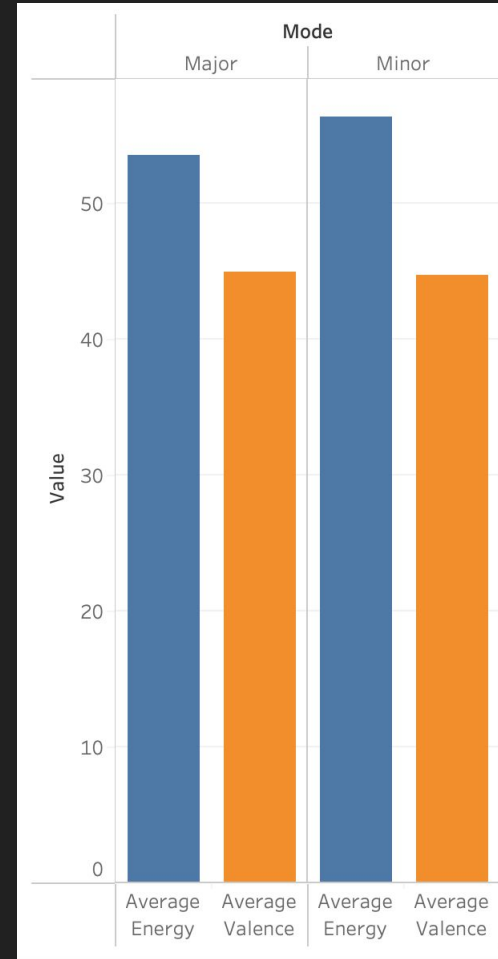
# Q4 cont. Energy and Valence in Popular Songs Visualization
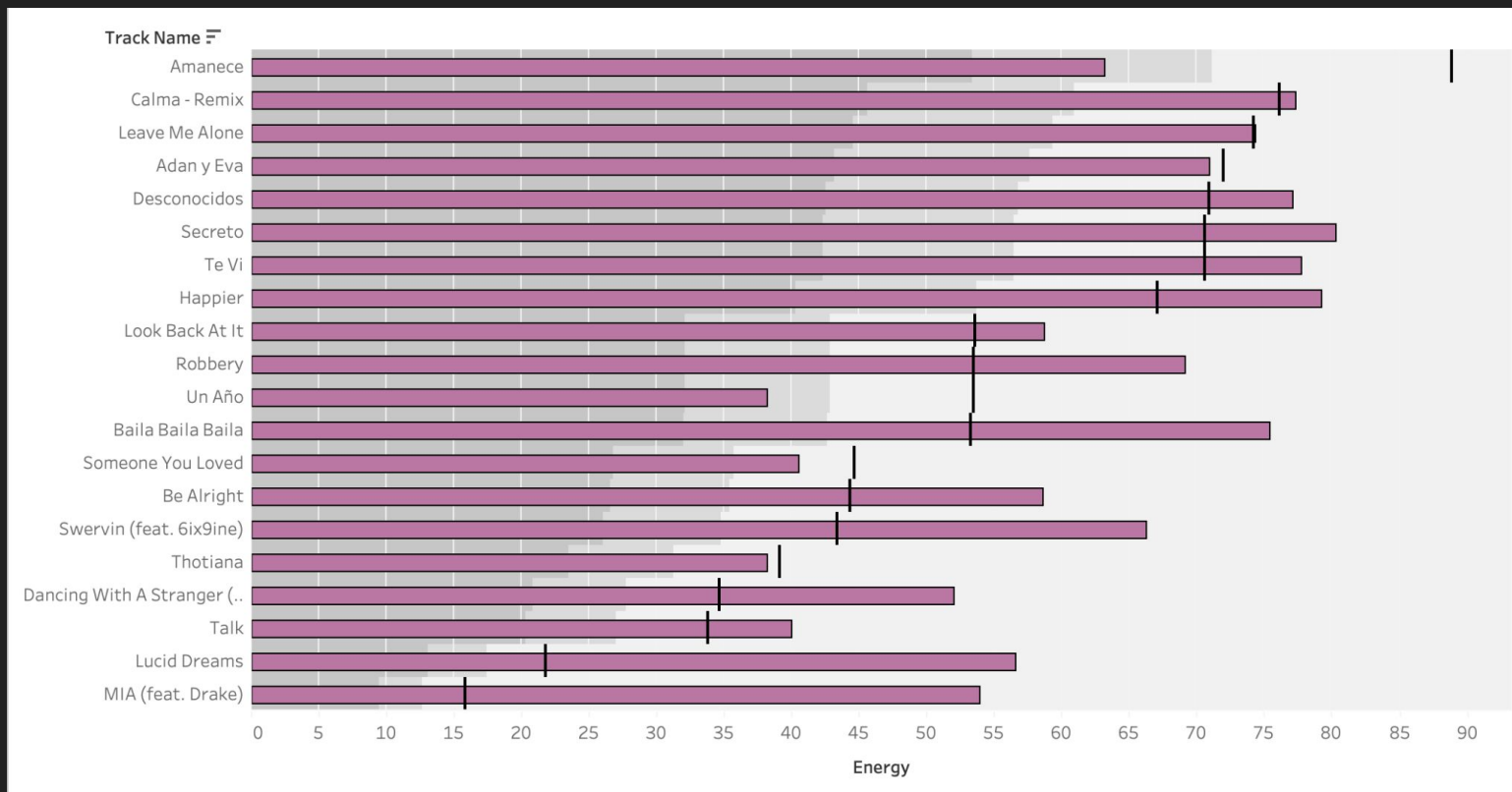
Q4 cont. Energy/Valence explanation

When inspecting the graph on the last slide, we can see a trend based upon the energy of a song. Listeners aren't listening to music to improve their energy but as a reflection of their energy. The most popular songs aren't too energetic but also not lacking energy entirely. Although, when comparing valence to the energy of a song in the graph we see no trend at all. The valences range anywhere from negative to positive valence, basing popularity on valence would prove to be insufficient since the widespan moods of any listener can vary greatly.

Q4 cont.

When visualizing the valence of genres, we can also confirm that the most popular genres' valence is somewhere around the middle to have the songs not too negative sounding or positive.
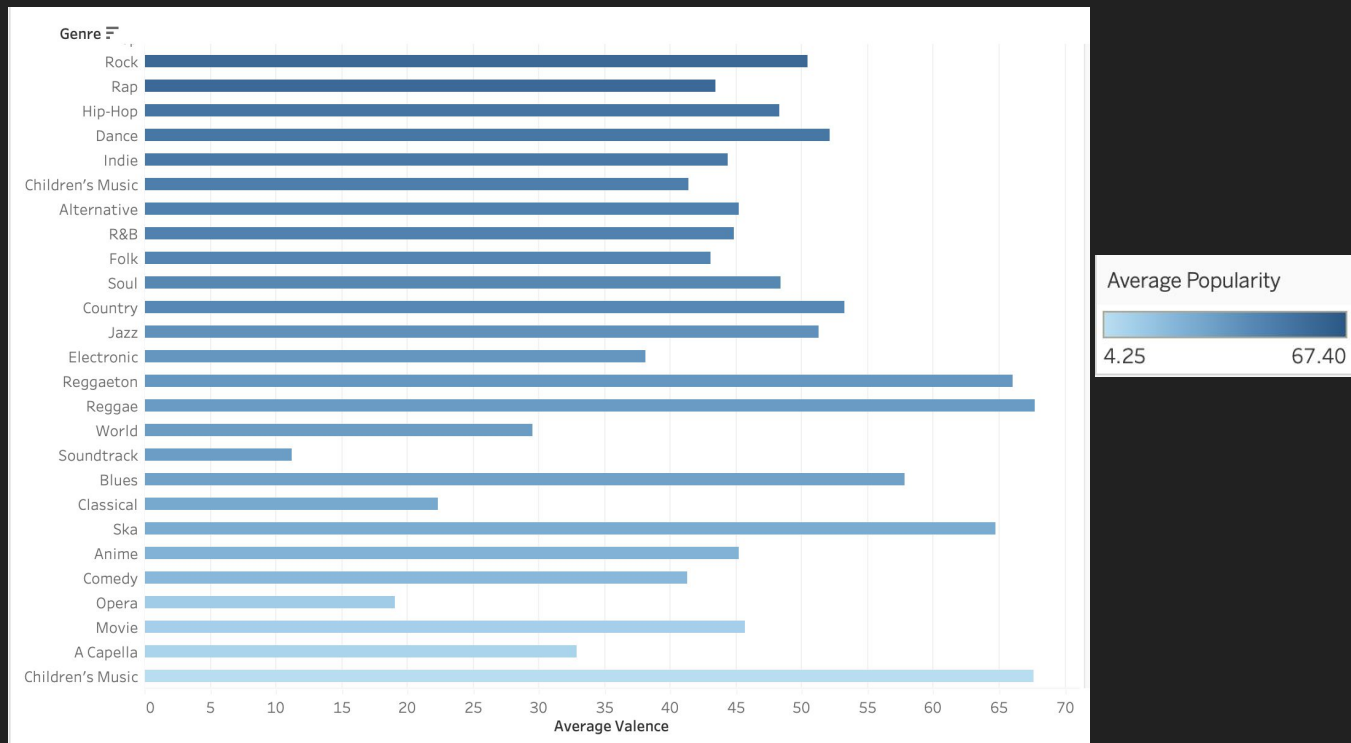
Findings and Hypothesis

To summarize my findings after analysing the data, 3 out of my 4 hypothesis were correct. The type of music, such as genre, does play a large role in how popular a song could be. More pop and hip-hop songs are seeing more airplay and retaining popularity amongst listeners. Even so, genres such as Reggaeton and Rock still see popularity in the industry today, especially with Reggaeton seeing a surge in popularity in the modern age. These genres of music also have a great amount of danceability present in their songs, making listeners feel more engaged with the beat. My hypothesis about musical modes and theory playing a role in popularity was disproved by the data. Modern music listeners aren't all musically inclined to have musical modes or uncommon time signatures play a part in how much the songs are being listened to.

Conclusion

When making music in the modern age, when wanting to cut through the noise of the large list of songs that are released daily. We can conclude genre, tempo, danceability, and even runtime play a pivotal role in how much a listener will like the song or how widely a song can reach in terms of popularity. The most popular songs have consistent rhythm, a fast paced tempo, and are in genres such as pop, hip-hop, and rock. There is a working formula for why the songs we hear on the radio are as popular as they are.