Decoding the Global 100: Spotify Analytics

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Introduction

Music plays a powerful role in people's lives, and certain songs naturally rise above the rest in popularity. As an avid Spotify listener, I wanted to explore what makes a song stand out and how today's top tracks compare to one another. Using data from Spotify's Global Top 100 playlist, with figures including artist details, track duration, popularity scores, and release dates, I set out to analyze the factors behind a song's success. My goal was to organize this data and build an interactive dashboard that gives users an easy, intuitive way to explore top Spotify tracks and uncover meaningful insights about their performance.

Data Exploration

How The Data Was Collected

The dataset was collected using Spotify's Web API. After applying for API access through Spotify for Developers, I obtained the required client credentials and followed the official documentation to authenticate and connect to the API. Using Python and the Spotipy library, I queried the playlist endpoints to retrieve detailed information about each track. This process allowed me to pull structured, real-time data directly from Spotify's platform and prepare it for analysis and dashboard visualization.

Issues Encountered

At the start of the project, I planned to use Spotify's official "Top 50 Global" playlist and build a fully dynamic dataset that would automatically update as the playlist changed. However, due to recent policy changes and limitations in accessing certain editorial playlists, I was unable to retrieve data from this specific source through the API. To continue the project, To move forward, I pivoted to a user-created playlist titled "Top 100: Global", which allowed unrestricted API access. While this playlist is not directly tied to Spotify's official global charts, it still provides a strong representation of currently popular songs and enabled me to perform meaningful analysis and complete the dashboard.

Additionally, there were several advanced features I hoped to incorporate, such as artists' genre detection, artist top-track analysis, and audio mood metrics. Due to further API limitations and ongoing policy changes, many of these endpoints were either deprecated or required elevated permissions that are no longer available to non-commercial developers. As a result, I narrowed the scope of the project to the data fields that were reliably accessible.

Features Identified For Analysis

The features for the analysis include track name, artist name, album image, duration, popularity, genre, explicit content, release date, and artist followers. The reason for selecting these features is that they provide a well-rounded view of what contributes to a song's visibility and performance on Spotify. These attributes help capture both the musical characteristics of each track (such as duration, genre, and explicitness) and the artist's influence (including follower count and overall popularity). Together, they offer meaningful context for comparing songs, identifying trends, and understanding the factors that may drive a track's success on the platform.

Visualisations Generated Using Power BI

Methods

Loading the Dataset

The dataset was loaded by connecting to Spotify's Web API using Python and the Spotipy library. After authenticating with client credentials, playlist data was retrieved through the playlist_items() endpoint. Artist and top-track data were collected using the /artists and /artist_top_tracks API endpoints.

Understanding the Dataset

The initial dataset included key track-level attributes such as track name, artist, duration, popularity, release date, and album information. Additional artist metrics like followers, genres, and popularity were added to provide more context for analysis. This structure allowed for comparisons across songs, artists, and playlist patterns.

Cleaning the Dataset

Data cleaning involved converting duration from milliseconds to minutes, joining artist details to track data, and formatting fields like genre lists and album images. Duplicate entries and missing values were checked to ensure accuracy and consistency. Final cleaned datasets were exported as CSV files for visualization in Power BI and further analysis.

Modelling and Results

General Findings

Broadly across the entire playlist, the top tracks showed several noticeable patterns. The average track length was 3.35 minutes, indicating a strong preference for songs that are concise, radio-friendly, and easy for listeners to replay. Additionally, 69% of the tracks were non-explicit, suggesting that mainstream success still leans heavily toward songs that appeal to a wider and more general audience.
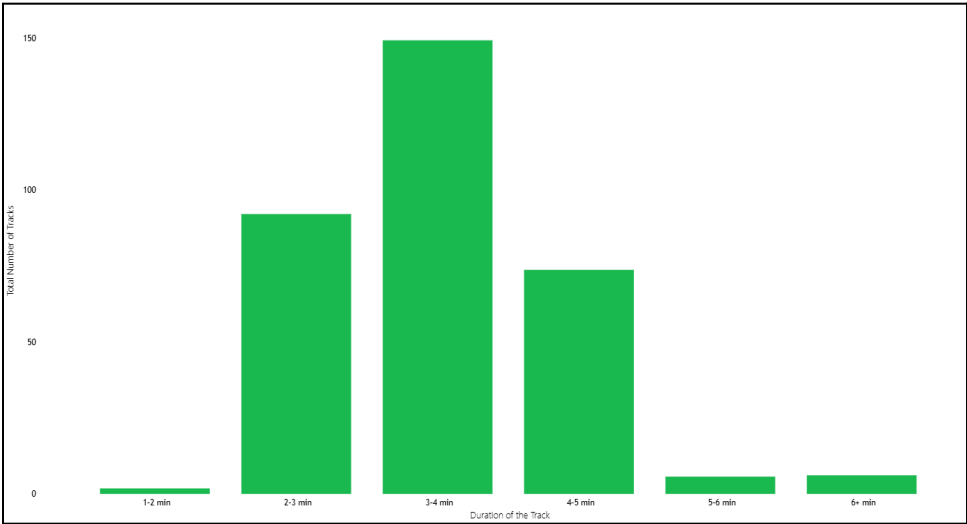

Table 1: Bar chart of the average duration of songs

Genre distribution revealed even more pronounced trends. Country music emerged as the dominant genre, making up the largest share of the playlist. This reflects the growing global popularity of contemporary country artists and the genre's increasing crossover into mainstream charts. Following country, the next most represented genres were Afro R&B and rap, both of which have surged in recent years due to their strong rhythmic elements, international reach, and influence on modern pop culture. Together, these patterns highlight the shifting landscape of global music consumption and the types of songs that resonate most with listeners.
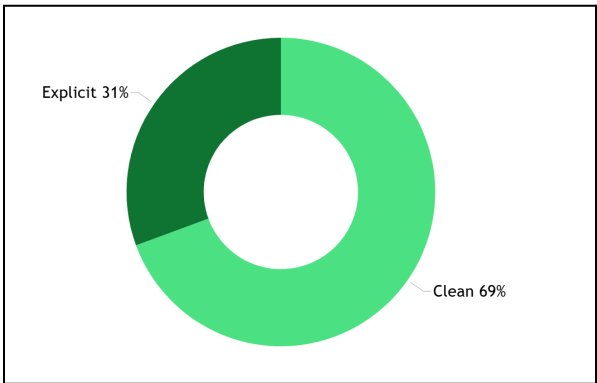

Table 2: Pie Chart of the percentage of explicit vs. non-explicit (clean) songs
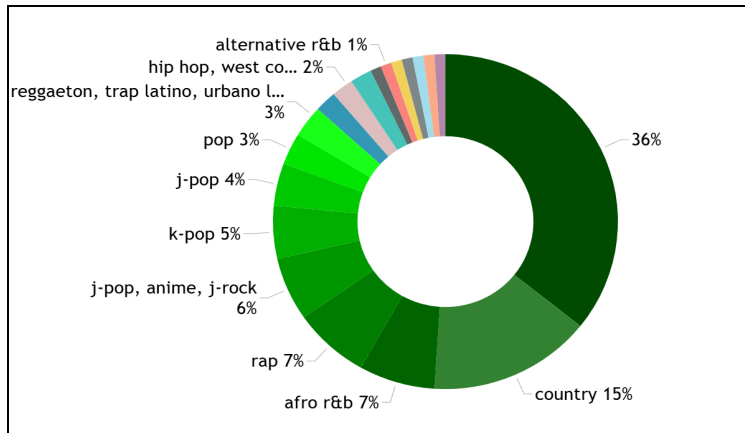
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Table 3: Pie Chart of the percentage of each genre of songs

artist_genres	Count of track_name
country	15
afro r&b	7
rap	7
j-pop, anime, j-rock	6
k-pop	5
j-pop	4
pop	3
reggaeton, trap latino, urbano latino, latin	3
corrido, corridos tumbados, corridos bélicos, música mexicana, sierreño, banda, electro corridos, sad sierreño	2
hip hop, west coast hip hop	2
r&b	2
alté, afroswing	1
alternative r&b	1
alternative r&b, indie soul	1
art pop, pop	1
chicago drill, drill	1
dark r&b, r&b, trap soul	1
soft pop	1

Table 4: Table of all song genres and the amount of each

Another notable trend in the data is the concentration of highly popular songs released between August and September. Many of the tracks that performed the strongest on the playlist debuted during this period, suggesting that late summer releases tend to gain significant traction with listeners. This may be tied to seasonal listening patterns, major album drops, or increased music promotion toward the end of summer, ultimately making August and September a key window for chart-topping success.
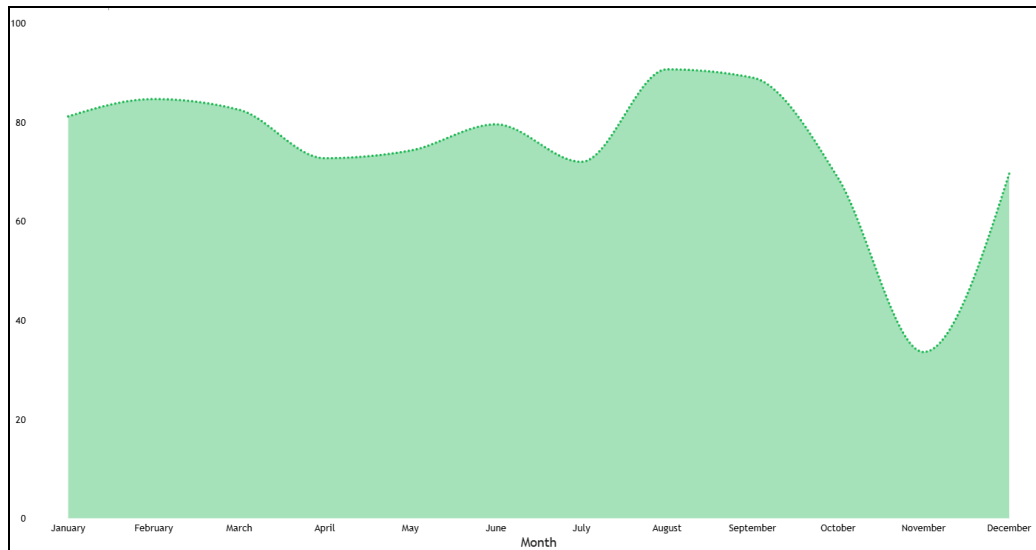
Table 5: Line graph of the average popularity of songs based on each month the songs were released

Artist Findings

When analyzing artists individually, a clear distinction appeared between average performance and cumulative success. Taylor Swift ranked as the top-performing artist by average popularity, achieving an exceptional 98.50 average across her tracks. Although she had fewer songs represented in the playlist, each release performed at a remarkably high level. She also held the most popular individual song, "Opalite," which reached a popularity score of 97. Taylor Swift maintained a popularity rating of 100 and had a massive 146 million followers, making her the most followed artist in the dataset. All of her songs included in the playlist were clean, and her tracks tended to be longer, with an average duration of 3.92 minutes, which places her music at the higher end of both popularity and listener engagement.
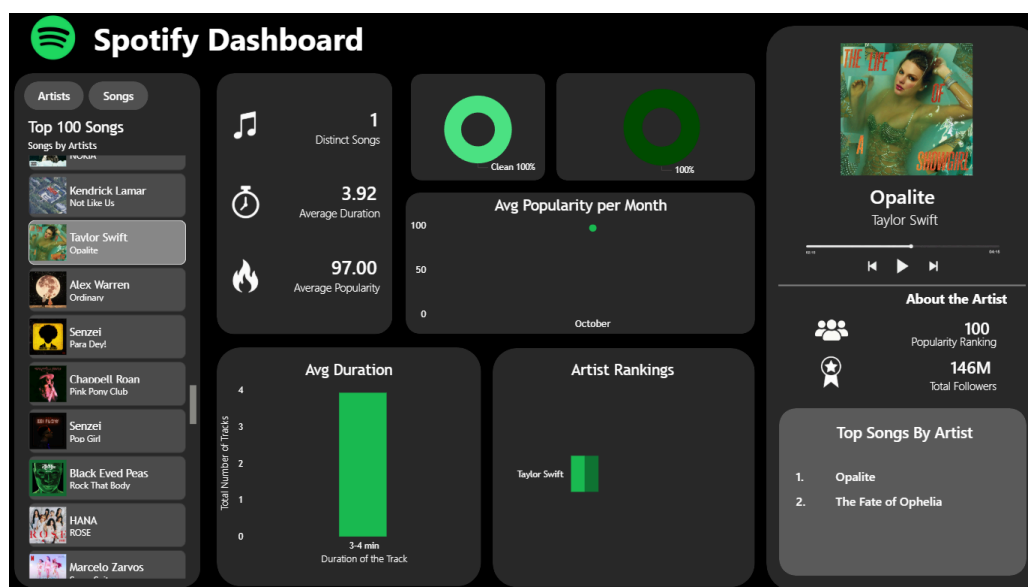

Table 6: Visualization created by Power BI showing the statistics of Taylor Swift's songs and following

In contrast, Morgan Wallen ranked as the most popular artist by total popularity, with a combined score of 1,117. His high cumulative score resulted from his strong presence on the playlist, with 15 songs from 2025 appearing in the Top 100, more than any other artist. Morgan Wallen had an overall popularity rating of 89, a solid 14 million followers, and all of his tracks were 100 percent clean and country, which closely matched the broader patterns observed in the playlist. His songs were also shorter, with an average duration of 2.68 minutes, contributing to their replayability and aligning with trends within the country genre. Together, these findings highlight two different styles of success: Taylor Swift's dominance through consistently high-performing releases, and Morgan Wallen's dominance through volume and strong representation within the country genre.

Table 7: Visualization created by Power BI showing the statistics of Morgan Wallen's songs and following

Overall, the analysis revealed several factors that appear to contribute to a song's success in the global charts. The most popular tracks tended to fall within a small set of dominant genres, while many others were left unclassified, suggesting that songs with broad, less strictly defined genre labels may appeal to wider audiences. In addition, release timing played a noticeable role in popularity, with many high-performing tracks being released during the late summer months. These patterns indicate that songs released around August and September, combined with accessible or mainstream genre characteristics, are more likely to gain traction and appear within the Top 100. Together, these insights highlight how both musical style and seasonal timing shape global listening trends.

Conclusion

Based on the analysis, the playlist showed clear trends in track characteristics and artist performance. Country music emerged as the dominant genre, and the majority of high-performing songs were non-explicit and relatively short in duration. While several other genres appeared in the dataset, many entries were left blank because their genres were either unknown or not marked by Spotify. Taylor Swift stood out for having the strongest average popularity and the highest-ranking track, while Morgan Wallen led in total popularity due to his large number of charting songs. One of the main challenges in this project was navigating Spotify's API policy changes, which limited access to certain playlists and advanced audio features. This required switching to a user-created playlist and adjusting the scope of the analysis. A success of this work was the ability to use Python to collect, clean, and analyze the data, and to transform these insights into a clear and interactive dashboard for users.

References

1. Radar, A. (n.d.). *Top 100: Global*. Spotify.
   https://open.spotify.com/playlist/0sDahzOkMWOmLXfTMf2N4N

2. Web api. Web API | Spotify for Developers. (n.d.).
   https://developer.spotify.com/documentation/web-api