Most Streamed Songs of Spotify 2023

Objective:

This project aims to analyze the most streamed songs of 2023, focusing on key features that contribute to their success. Characteristics such as energy, liveliness, speechiness, valence, danceability, and acousticness were studied. By creating dynamic visualizations and using Key Performance Indicators (KPIs), the project highlights trends and insights from the dataset. The analysis provides valuable information about the factors that influence a song's popularity.

Data Overview:

Incorporating Album Images and Enhancing the Dashboard

To make the visuals more engaging, album images were included in the dashboard using the Spotify API. This required a Python script to connect to Spotify's Web API and fetch album image URLs. Here's how it was done:

API Setup: Logged into my Spotify account and created a Web API to get the Client ID and Client Secret, which were essential for the connection.

Integration: The script extracted album image URLs and added them to the dataset under a new column, "Image URL."

Data Cleaning

1. Empty or null values in the dataset were replaced with placeholders like "Unknown" or 0000/00/0, depending on the column type.
2. Errors were corrected, and data types for all columns were validated to ensure smooth analysis.

Dashboard Design and Styling

1. A custom background was created in PowerPoint, saved as a .png file, and imported into Power BI to implement a modern glass morphism design.
2. Spotify's color theme was applied using a palette sourced from color-hex.com to maintain consistency.

Dynamic Visuals Using DAX Queries

1. New measures were created in Power BI using DAX (Data Analysis Expressions) to provide detailed, flexible insights.
2. Each visual was designed to dynamically update based on user selections.

Additional Tools

1. **Bravo for Power BI**: Used to create a date dataset.
2. **Data Integration**: The release date (day, month, and year) was combined into a single "Date" column to establish a many-to-one relationship with the main dataset for better time-based analysis.

Dashboard Design

1. To enhance visualization, a glass morphism design was implemented:
2. A custom background was created using PowerPoint and imported into Power BI.
3. The Spotify-inspired color palette was applied using themes from color-hex.com.

Visual Elements and Features

KPI Cards: Highlighted metrics such as track info, music stats, and average streams per year.

Slicers: Enabled users to filter data by artist, date, track, or year.

Line Chart: Track releases over time.

Stacked Bar Chart: Streams by track name.

Vertical Bar Chart: Top 10 streamed tracks.

Custom Visuals

Deneb Visual: Displayed energy levels of tracks.
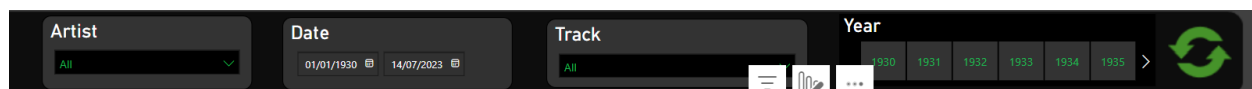
HTML Viewer: Showed album covers dynamically.

Interactivity:

1. Clear All Slicers Button: Allowed users to reset the dashboard.
2. Text Boxes: Used to emphasize key points in the analysis.
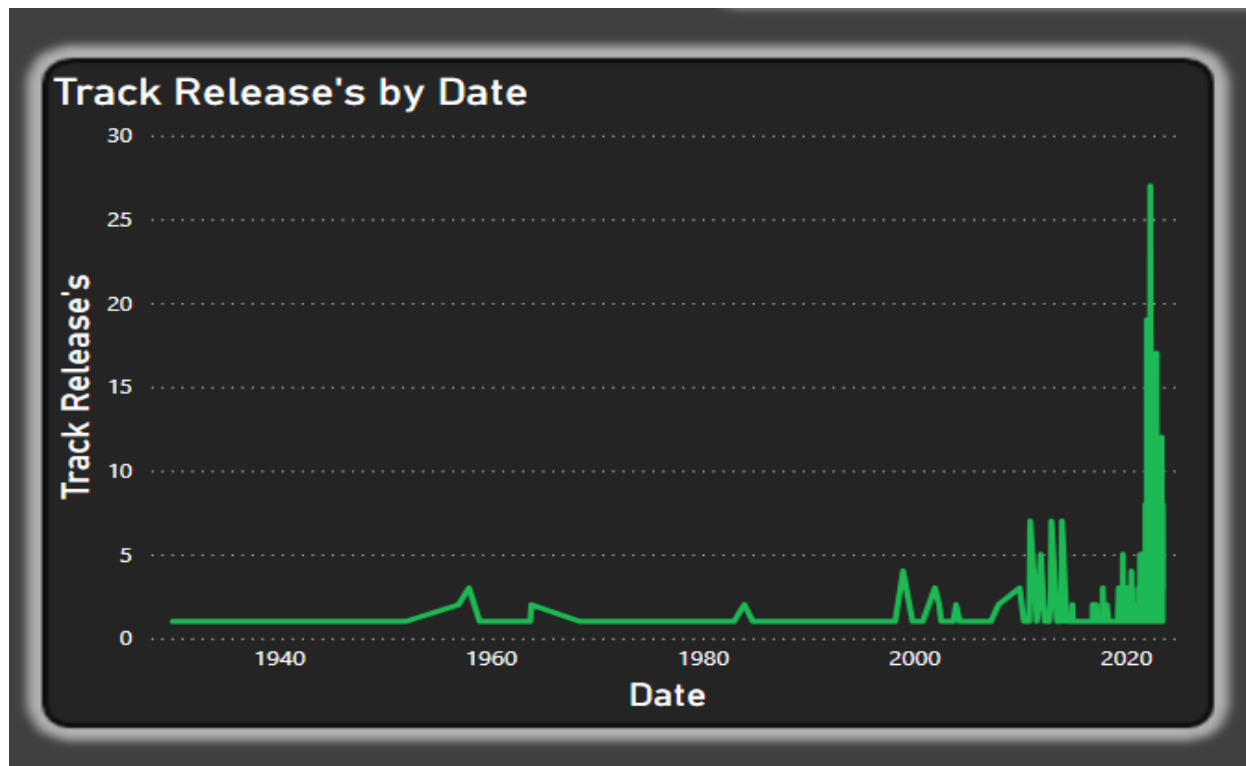3.

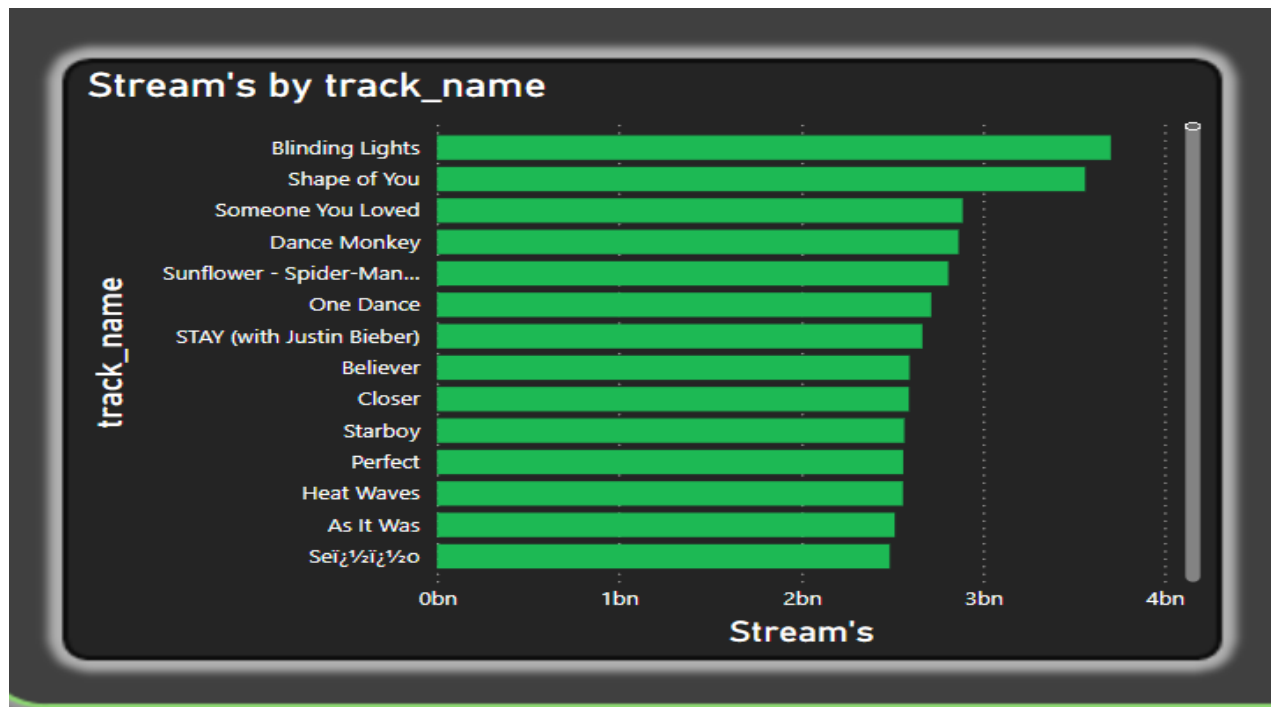KPI: Track Info, Music Info, Track Status, Avg Stream Per Year, Top VS Avg Song.
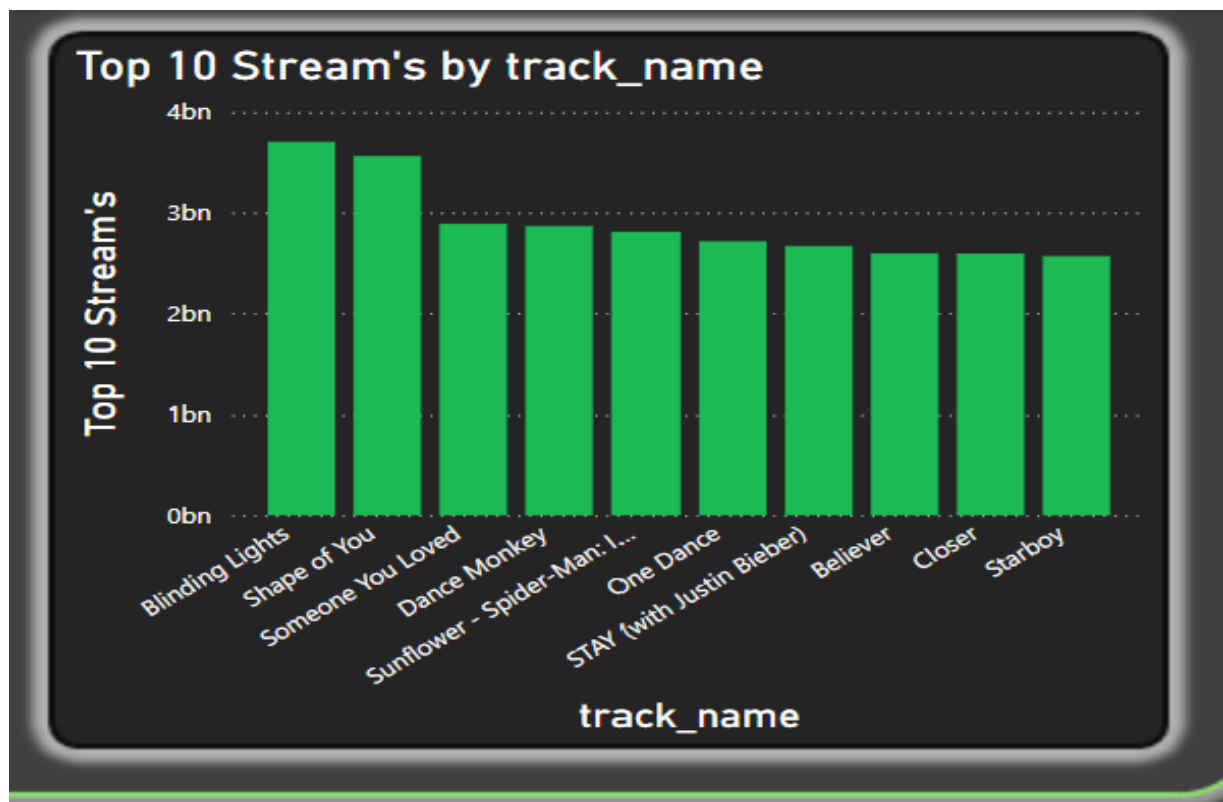

Slicers: Artist, Date, Track, Year.
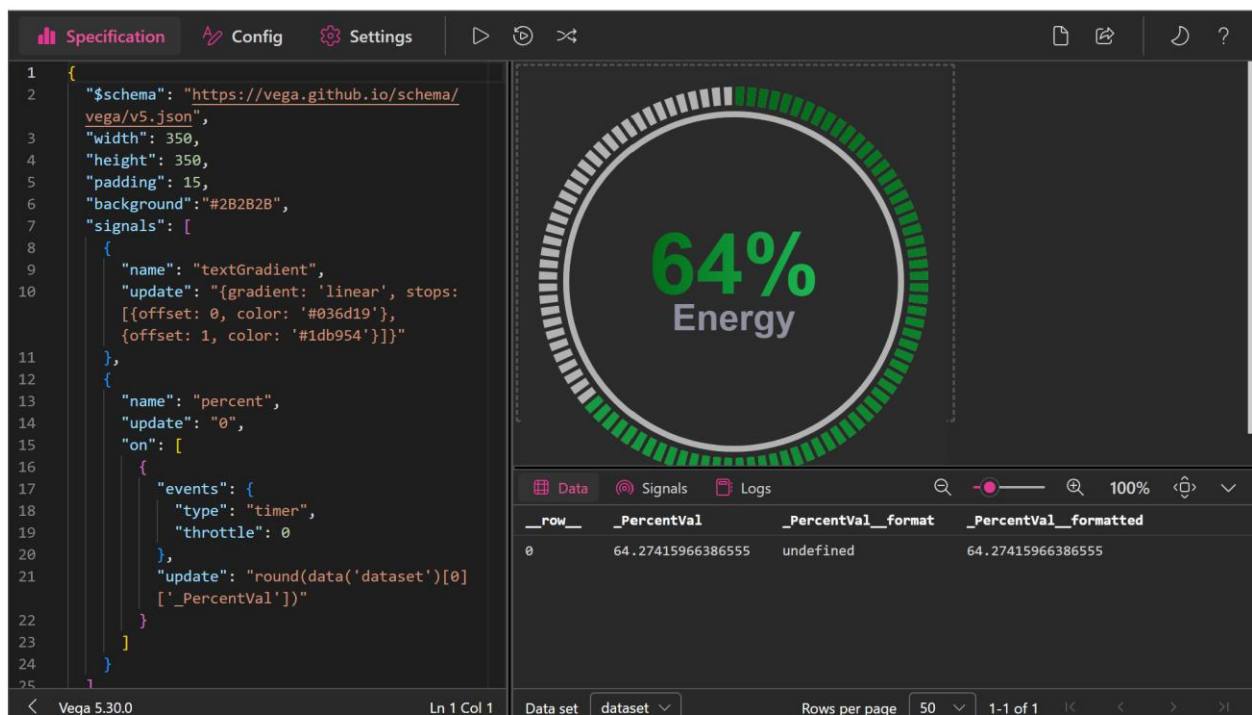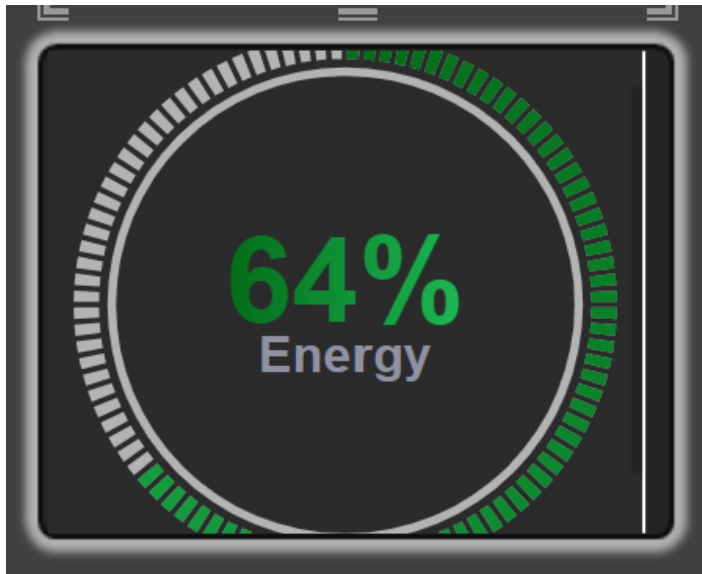
Line chart: Track Release's by Date

Track Release's by Date

Stacked bar chart: Streams by Track Name.

Stream's by track_name

track_name	
Blinding Lights	
Shape of You	
Someone You Loved	
Dance Monkey	
Sunflower - Spider-Man...	
One Dance	
STAY (with Justin Bieber)	
Believer	
Closer	
Starboy	
Perfect	
Heat Waves	
As It Was	
Seï¿½ï¿½o	

Stream's: 0bn, 1bn, 2bn, 3bn, 4bn

Vertical bar chart: Top 10 Streams by Track Name.

Top 10 Stream's by track_name

Top 10 Stream's: 4bn, 3bn, 2bn, 1bn, 0bn

track_name: Blinding Lights, Shape of You, Someone You Loved, Dance Monkey, Sunflower - Spider-Man: I..., One Dance, STAY (with Justin Bieber), Believer, Closer, Starboy

Deneb: To track energy levels.

HTML: Display album covers.
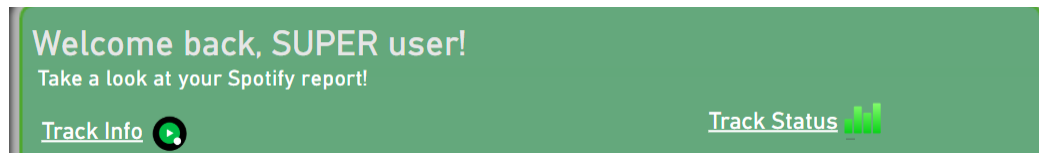


```
1   _ImageHtml =
2   VAR x =
3       CALCULATE(
4           MAX('spotify2023URL'[image_url]),
5           'spotify2023URL'[streams] = MAX('spotify2023URL'[streams])
6       )
7   RETURN
8       "
9       <!DOCTYPE html>
10      <html lang='en'>
11      <head>
12          <meta charset='UTF-8'>
13          <title>Dynamic Image</title>
14          <style>
15              .image-container {
16                  width: 365px; /* Fixed width */
17                  height: 416px; /* Fixed height */
18                  position: relative; /* Ensures the image is positioned within the container */
19                  overflow: hidden; /* Prevents overflow */
20                  border-radius: 15px; /* Optional rounded corners */
21              }
22              .image {
23                  position: absolute;
24                  top: 0;
25                  left: 0;
26                  width: 100%; /* Fills the width of the container */
27                  height: 100%; /* Fills the height of the container */
28                  object-fit: cover; /* Maintains aspect ratio and ensures no distortion */
29              }
30          </style>
31      </head>
```
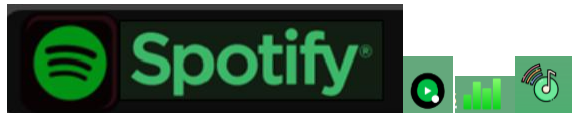
Clear all slicers button: Refresh

Text Box: Basic text was used to highlight the key points.

Welcome back, SUPER user!
Take a look at your Spotify report!

Track Info ▶   Track Status ▮▮▮

Images:

Dashboard's

50 cent

SZA

Doja Cat

Above are the dashboards of one of my favorite artists whose analysis has been drawn using the measures created using the DAX query.

Analysis

Key Findings and Analysis

Top Performers:

➢ Blinding Lights by The Weeknd ranked as the most streamed song in 2023 with a high energy level (64%).

Low Performers:

➢ Que Vuelvas had the lowest performance, with a significant drop compared to the top-ranked song.

Artist Insights:

➢ The Weeknd was the most streamed artist of 2023, although his track Starboy ranked last among his top songs.

Additionally, once again Starboy from Weekend ranks last when TOP 10 songs comparison is placed in the scenario hence forth making Weekend the most streamed artist.

The analysis reveals that songs with higher energy, danceability, and valence tend to perform better, providing critical insights into listener preferences.

Conclusion

The project offers a detailed analysis of Spotify's most streamed songs in 2023. It highlights the importance of various audio features and their impact on popularity. This interactive dashboard serves as a useful tool for exploring trends in the music industry and can be further developed to generate deeper insights.

References

1. Injae Park
➢ Country: Poland
➢ Contribution: Insights on Vega and Deneb gauge chart visualizations for Power BI.
➢ Source: Stack Overflow Discussion

2. Deneb Showcase
➢ Repository by: David Eldersveld
➢ Purpose: Provided examples of Deneb custom visuals in Power BI, offering inspiration and templates for advanced visualizations.
➢ GitHub Link: Deneb Show

3. Color Palette Resource
➢ Website: Color-Hex
➢ Contribution: Color palette used for Spotify-themed visualizations in Power BI to ensure aesthetic consistency.
➢ Palette Link: Spotify Palette

4. Spotify Data
➢ Source: Kaggle Dataset by Nadeeshan Elgiriyewithana
➢ Contribution: Dataset of Top Spotify Songs in 2023 used for analysis, insights, and dashboard creation.
➢ Dataset Link: Kaggle - Top Spotify Songs 2023