# **Step By Step Data Analysis Process**

This comprehensive analysis of Spotify data, powered by Excel and Power BI, delivers powerful and interactive insights into song performance. With a keen focus on metrics and trends, this approach enables users to confidently understand the factors that contribute to success on the platform.

**Business Understanding:**

**Identify the Problem:** Clearly define the business problem or question the analysis aims to solve.

**Set Objectives:** Set clear, measurable goals for the analysis.

**Question: -**

* Which track is the most popular among listeners?
* Which Of the most popular tracks are the most danceable?
* Which track has the highest tempo, and how does its popularity compare to others?
* Which artist has the most popular track, and how does their popularity compare to others on the list?
* What is the relationship between average tempo and popularity?
* What is the total number of Songs and Artists?
* How does the valence influence the popularity of a track and what is the average Mode?
* Which year saw the highest release of popular tracks based on the slicer for "Release Date" and the overall popularity trends in the graphs?
* Which year had the highest number of popular track and artist releases in 1971 to 2020?
* How does the total number of tracks vary across different playlist genres?
* Which track has the highest energy level, and what percentage of the total energy does it represent?

**Data Collection:**

**Gather Data:** Download the Spotify dataset from here

**Import Data:** Load the data into Excel.

**Data Cleaning:**

**Missing Data:** check the missing data then remove, and attribute it.

**Check for Duplicates:** Identify and remove duplicate entries.

**Filter Irrelevant Data:** Remove columns or rows that aren’t necessary for the analysis.

**Data Visualization:**

**Import Data:** Import data in Power BI and transform it to change Data types, then apply for data Visualization and dashboard Creation.

**Design Visualizations:** Choose appropriate visualizations (bar charts, pie charts, scatter plots, etc.) for insights.

**Summary of Dashboard:**

Here’s an explanation of your Spotify dashboard from Power BI, breaking down the visualized data:

**Top Most Popular Tracks:**

* The popularity score is plotted for a list of tracks.
* **Breathe** ranks highest in popularity, followed by other tracks like:
  + **Paradise**, **Poison**, **Alive**, **Forever**, etc.

**Top 10 Most Popular Artists:**

* The number of popular tracks associated with each artist is displayed, with **Queen** leading.
* Other artists include:
  + **Martin Garrix**, **Don Omar**, **David Guetta**, **Dimitri Vegas**, **Drake**, **Hardwell**, **The Chainsmokers**, **Logic**, and **Guns N' Roses**.

**Top 10 Most Popular Danceable Tracks:**

* The danceability score (a measure of how suitable a track is for dancing) is shown for the top 10 tracks.
* **Breathe** also leads in danceability, with other tracks following in the same order as popularity:
  + **Paradise**, **Poison**, **Alive**, **Forever**, **Stay**, **Hold On**, **Lost You**, **Alone**, **Changes**, **Heaven**, and **Without You**.

**Top 10 Tracks with Maximum Tempo:**

* Tempo (measured in beats per minute, BPM) is visualized here.
* **Breathe** is the fastest track in terms of tempo, followed by **Paradise**, **Poison and** **Forever**.

**Track Name by Year and Artist:**

* The lists of songs with details about their **release year**, **track name**, and **artist**.
* The year 2020 includes popular tracks like "Alive," "Alone," "Breathe," "Forever," etc.
* Various artists, including **Silvera**, **Klon**, **T-Mass**, and **Jacquie**, contributed to these tracks.

**Playlist Genre Distribution:**

* The **Playlist Genre** table shows the distribution of track counts across different genres.
* Breakdown of top genres by track count:
  + **Rap**: 5,401 tracks
  + **Pop**: 5,132 tracks
  + **EDM**: 4,877 tracks
  + **R&B**: 4,504 tracks
  + **Rock**: 4,305 tracks
  + **Latin**: 4,137 tracks
* **Total Track Count** across all genres: **28,356**.

**Energy by Track Name:**

* The pie chart displays **energy distribution by track**.
* Track energy breakdown:
  + **Breathe**: 23.66%
  + **Alive**: 22.26%
  + **Poison**: 21.18%
  + **Stay**: 17.53%
  + **Lost**: 15.37%

**Statistical Summary:**

* **Number of Artists**: 28.36K
* **Average Valence**: 0.51 (a measure of musical positivity)
* **Total Number of Songs**: 28.36K
* **Average Tempo**: 120.96 BPM
* **Maximum Popularity**: 100 (the highest popularity score)
* **Release Dates**: Spanning from **1957 to 2020**
* **Average Mode**: 0.57 (indicating a mixture of major and minor key tracks)

*This dashboard gives a holistic view of the most popular tracks, artists, and key musical attributes such as tempo, valence, and danceability. The visual breakdown helps understand which tracks and artists are most popular and the overall characteristics of the songs.*