Spotify Music Trend Analysis

Dataset: Spotify Charts & Metadata (Kaggle)
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Date: September 2025

Executive Summary

This project analyzes global music trends using Spotify datasets, focusing on songs, artists, and genres across multiple years and countries. The study uses data cleaning and exploratory data analysis (EDA) in Python (Jupyter Notebook) and presents interactive insights through a Power BI Dashboard. Findings highlight the most popular artists and genres, seasonal hits, and the evolution of music features such as energy, danceability, and tempo.

Introduction

Music is an essential part of culture and lifestyle. Analyzing streaming data allows us to understand global preferences, discover trends, and observe how music evolves over time. The goal of this project is to: 1. Identify top artists, songs, and genres. 2. Understand music trends across years and countries. 3. Discover seasonal patterns and evolving audio features. 4. Build an interactive Power BI dashboard for insights.

Dataset Description

The project uses two Kaggle datasets: - Spotify Charts (Top 200 Daily & Weekly by Country and Date). - Spotify Tracks Metadata (including audio features). Columns include: track name, artist, streams, date, region, popularity, and audio features (danceability, energy, tempo, valence, etc.).

Methodology

Step 1: Data Collection - Collected datasets from Kaggle and stored as raw CSV files. Step 2: Data Cleaning (Python – Pandas) - Removed duplicates, handled missing values, and formatted date columns. Step 3: Exploratory Data Analysis (EDA) - Top artists and songs by streams. - Genre popularity over years. - Seasonal music patterns. - Correlation of audio features. - Regional preferences. Step 4: Dashboard (Power BI) - Created KPIs and interactive visuals. - Designed a professional dark theme with Spotify branding. - Added slicers for year, region, and genre.

Key Findings

- Ed Sheeran, Drake, and The Weeknd are among the most streamed artists globally. - Seasonal spikes occur in December due to Christmas songs. - Pop and Hip-Hop dominate streams worldwide. - Energy levels in popular music have slightly declined over recent years, while danceability has increased. - The US, UK, Brazil, and Mexico are the top streaming countries.

Power BI Dashboard Overview

Page 1: Overview → KPIs, Top Songs/Artists, Global Map. Page 2: Trends → Yearly and Seasonal Trends, Genre Evolution. Page 3: Audio Features → Energy, Danceability, Tempo, Correlation Heatmap. The dashboard uses an interactive design where filters

update all visuals dynamically.

Conclusion

This project demonstrates how data analysis can uncover meaningful patterns in music consumption. Spotify data provides valuable insights into global music culture, highlighting how preferences shift by artist, genre, and time. Future extensions may include adding YouTube Music data, analyzing lyrics sentiment, or building machine learning models to predict hit songs.

Tools & Technologies

- Python (Pandas, Matplotlib, Seaborn, Plotly) - Power BI (Dashboard & Reporting) - Kaggle Datasets (Spotify Charts & Metadata)

References

- Kaggle Datasets: Spotify Charts & Spotify Tracks Metadata - Spotify for Developers Documentation