Spotify Wrapped:
Insights from Music Playback Patterns in 2023

Bootcamp Data Analyst with SQL & Python using Google Platform

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Background & Project Goal

Spotify is a music streaming platform that offers millions of songs across various genres and artists. With features like personalized playlists, shuffle mode, and AI-driven recommendations, Spotify has become an integral part of many people's listening habits.

DQLab received a request from a client in Indonesia to analyze Spotify users' music playback patterns throughout 2023. The client aims to understand how genre, playback mode (shuffle vs. sequential), and user behavior (skip rate, playback duration) influence engagement on the platform.

How do music playback patterns, popular genres, and listening habits influence user engagement on Spotify in 2023?

Tools

Library

Dataset 1

The first dataset (Spotify_history dataset) contains a list of play times, duration, platform type, date time
https://docs.google.com/spreadsheets/d/1K799qpQDxfMj_QuPdwT09DdFdhjcGCj5YT2t-tO12l0/edit?usp=sharing

play_time	platform	ms_played	track_name	artist_name
2013-07-08 03:17:00	web player	0	We Own The Sk	M83
2013-07-08 03:20:00	web player	12846	Midnight City	M83
2013-07-08 03:22:00	web player	95817	Do I Wanna Kno	Arctic Monkey
2013-07-08 03:22:00	web player	1763	Time To Preten	Mgmt
2013-07-08 03:41:00	web player	229589	Electric Feel	Mgmt
2013-07-08 03:41:00	web player	7332	Kids	Mgmt
2013-07-08 04:07:00	web player	230216	Say	John Mayer
2013-07-08 04:18:00	web player	2301	Free Fallin Live	John Mayer
2013-07-08 04:27:00	web player	269661	Heartbreak Wa	John Mayer
2013-07-08 04:31:00	web player	250368	Half Of My Hea	John Mayer
2013-07-08 04:44:00	web player	249651	Your Body Is A V	John Mayer
2013-07-08 04:50:00	web player	1375	Who Says	John Mayer
2013-07-09 01:05:00	web player	638	Mr Brightside	The Killers
2013-07-09 01:06:00	web player	86897	Somebody Told	The Killers

Dataset II

The second dataset contains a list of genres and popularity.

https://docs.google.com/spreadsheets/d/1kxZqmOXp_SPiZv9HomLYZk1-4W-c-ft3rIiSb3mD-O8/edit?usp=sharing

| track_genre	popularity
french	51
french	76
garage	54
alt-rock	72
alt-rock	77
alt-rock	78
singer-songwriter	61
singer-songwriter	72
singer-songwriter	65
singer-songwriter	65
singer-songwriter	74

Problem Identification

1. what are the favorite artists and favorite genres?
2. what music playback patterns will look like by genre?
3. Which music genres were the most played by users in?
4. How does the total listening time compare to the average listening time for each genre?

Exploratory Data Analysis

Top Artist & Genre

The visualization shows the distribution of popular music genres and artists. **Guitar** is the most preferred genre (40.0%), followed by **ambient** and **acoustic** (17.8% each), while **pop** (13.3%) and **folk** (11.1%) have smaller shares. Among artists, **Abba** leads with **30.8%**, followed by **Taylor Swift** (23.1%), while **Afroman, Harry Styles, and Jóhann Jóhannsson** each hold **15.4%**. This suggests a listener preference for instrumental and soothing music while maintaining a diverse interest in artists across genres.
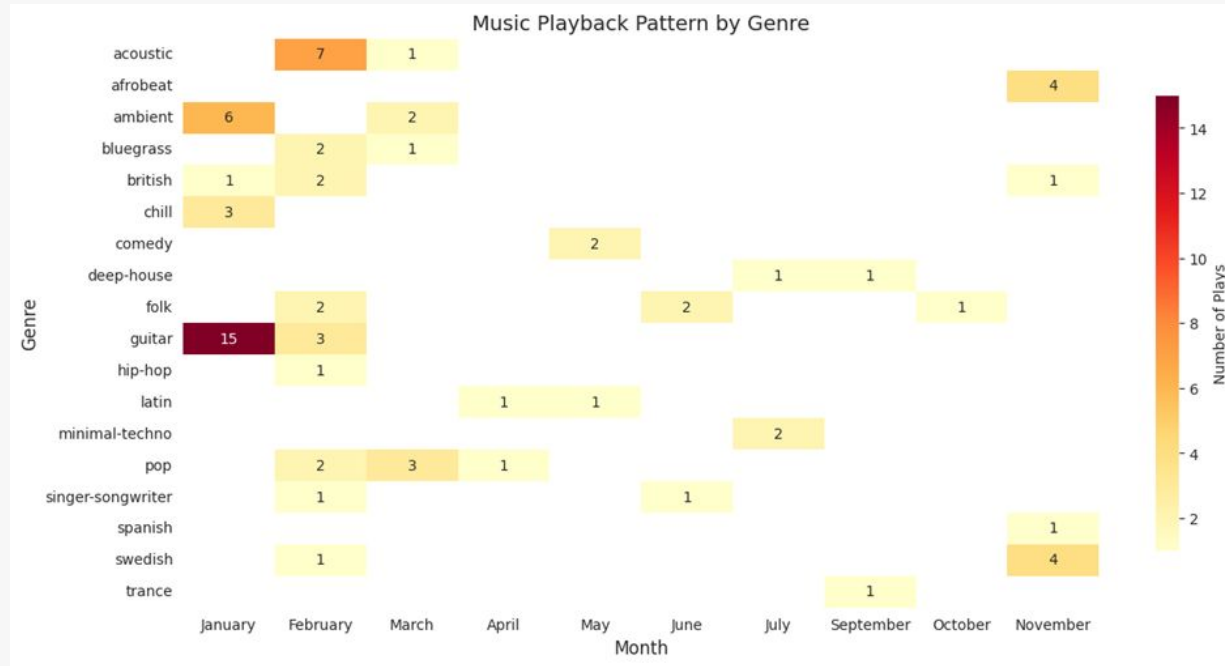

Top 5 Most Popular Music Genres
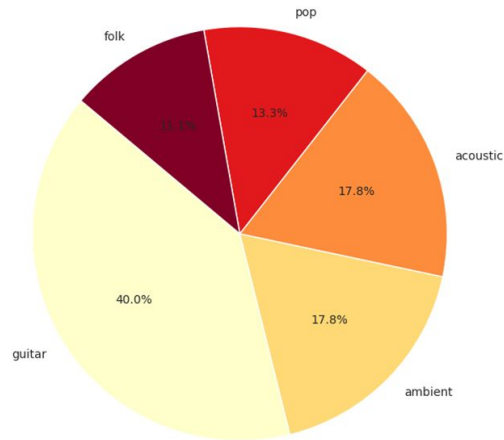
Distribution of Most Popular Artists

Music Playback Pattern by Genre
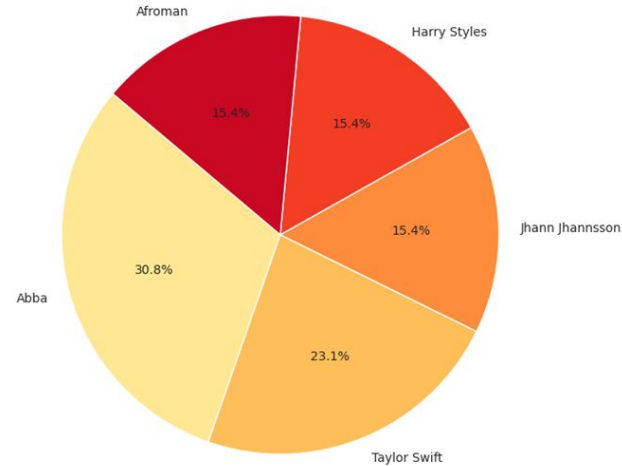
The heatmap visualizes music playback patterns by genre across different months. **Guitar** stands out with the highest **playback count (15)** in January, indicating a strong preference during this period. **Acoustic** and **ambient** also show notable play counts, especially in January and February. Some genres, like **deep-house, hip-hop, and bluegrass**, appear sporadically, suggesting seasonal or occasional listening habits. There are minimal plays in the mid-year months, with a slight increase again in November. This pattern suggests that music preferences fluctuate over time, potentially influenced by seasonal moods or external factors.

Number of Song Plays per Genre (2023)
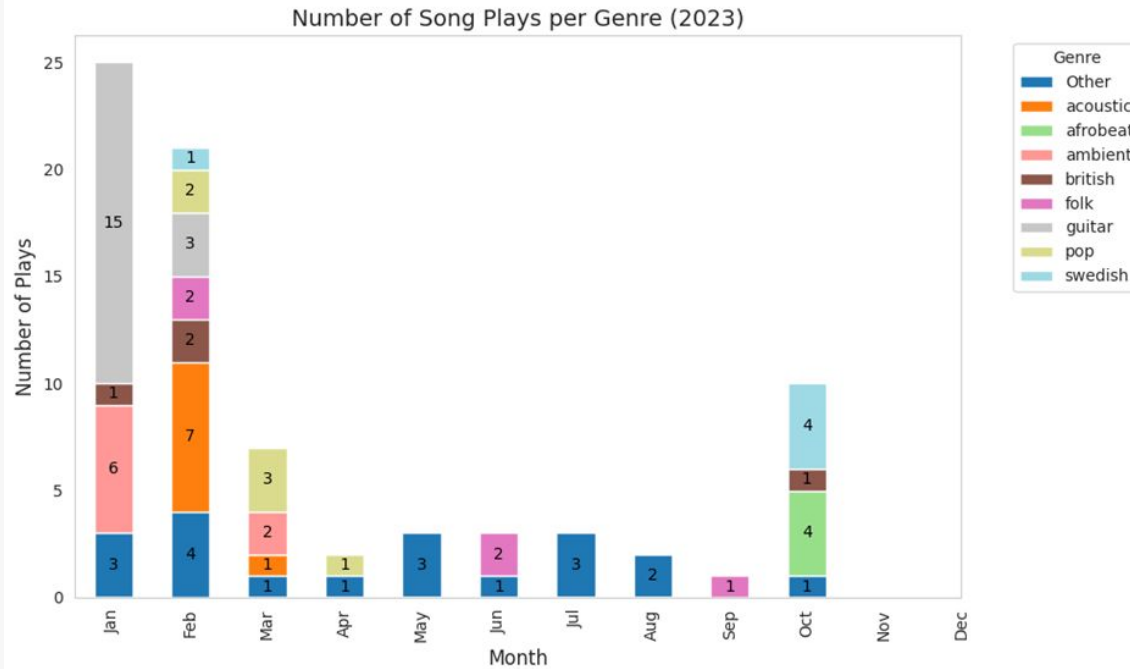
The bar chart illustrates the number of song plays per genre throughout 2023. **January** recorded the highest number of plays, with **guitar** being the most played genre, followed by **folk** and **acoustic**. **February** also saw a significant number of plays, mainly dominated by **acoustic** and **other genres**. Playback activity declined in the following months, with a small spike in **March** due to **pop and folk**. The mid-year months experienced low music engagement, with only a few scattered plays. However, **October** showed a slight resurgence, mainly driven by **swedish and pop** genres. This trend suggests that listening activity is more concentrated at the beginning of the year, possibly due to seasonal preferences or user engagement fluctuations.

Average Playback Duration per Genre (2023)
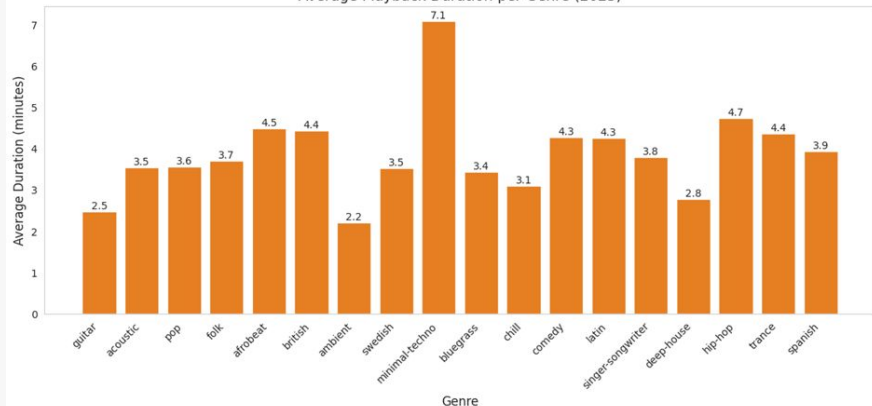
Total Playback Duration per Genre (2023)
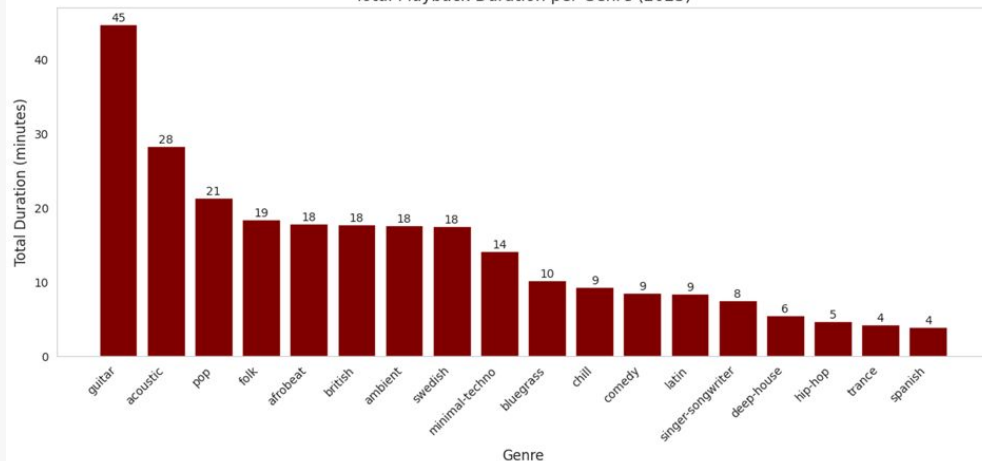
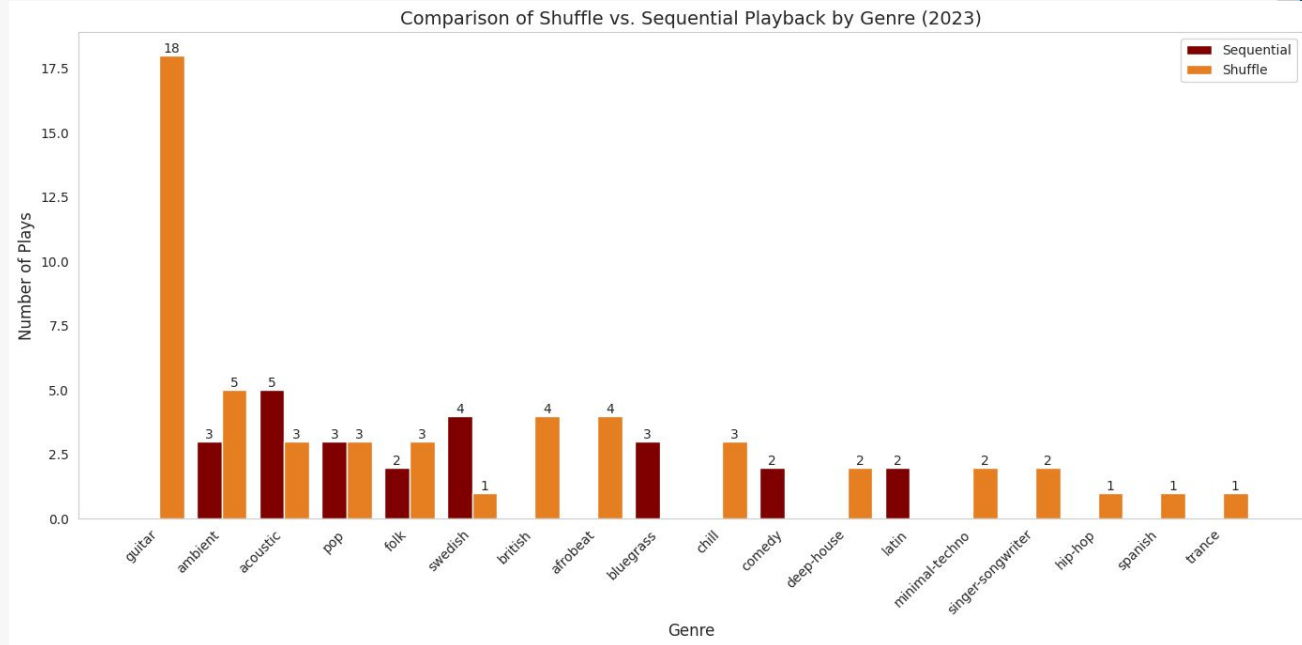Based on the visualization results, the guitar genre has a lower average compared to minimal-techno, despite having a high total duration. This is because songs in the guitar genre generally have shorter durations compared to songs in the minimal-techno genre, as observed from the dataset."

Music playback in 2023 was not often skipped during its duration.

Comparison of Skipped vs. Unskipped Playback by Genre (2023)
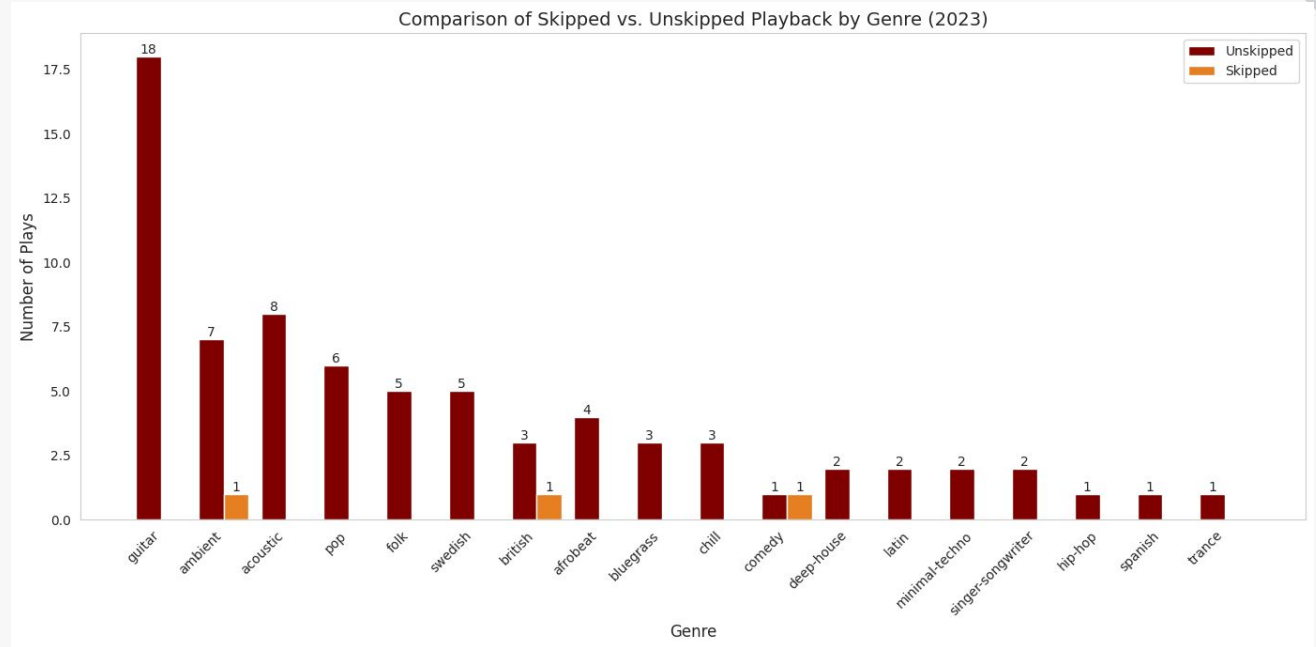
Based on play mode, when comparing shuffle and sequential mode, the values are not significantly different for certain genres. However, some genres only have shuffle mode

Comparison of Shuffle vs. Sequential Playback by Genre (2023)

On average, users listen to music more at night and on weekends, except for Wednesdays. On Wednesdays, music is mostly played between 5 PM and 8 PM.

Daily Music Playback Pattern

Summary

1. The most popular artists include Taylor Swift, Abba, and Afroman. The most played genres are **guitar, pop, and ambient**, with significant variations in listening frequency.

2. Some genres are played consistently throughout the year, while others have **specific peak months**. For example, **guitar and pop** were played regularly, while **ambient and acoustic had occasional spikes**.

3. **Guitar and pop** had the highest total play count, followed by **ambient and folk**. However, some genres, such as **minimal-techno, were played less frequently but had longer average listening durations**.

4. Although **guitar music had a high total listening time, its average play duration per track was lower than minimal-techno**, indicating that **guitar songs tend to be shorter in length**.

Suggestion

> Since listening behavior varies by genre and time, **Spotify can provide tailored recommendations** based on users' preferred genres and listening times.

> Given that **users listen more at night and on weekends**, curated playlists for **evening relaxation or weekend moods** could improve engagement.

> Since some genres are played **only in shuffle mode**, optimizing recommendations for **shuffle-based listening experiences** could enhance user satisfaction.

> Since **Wednesdays see a peak in music playback between 5-8 PM**, promoting **special playlists or new releases during that window** could boost engagement.

https://lookerstudio.google.com/reporting/fa1628b7-4354-4ddf-90e8-9d8781f81277