**Spotify Listening Pattern Analysis Report**  
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1. **Project Overview**  
   A comprehensive retrospective analysis of 9 years of Spotify streaming behavior (2016–2024) using a combination of structured metadata and behavioral metrics. The dataset included over 2,000 tracks spanning multiple genres, languages, and listening contexts. Using Microsoft Power BI, I built dynamic, filterable dashboards to examine patterns by year, artist, album, listening time, device, shuffle behavior, and skip activity. The project aims to uncover latent user behavior insights to enhance personalization, engagement, and music recommendation strategies.
2. **Key Insights & Analysis**

**A. Yearly Listening Trends**

* Assessed music evolution across each year by tracking unique albums, artists, and tracks.
* Computed growth metrics to visualize change over time.
* Identified 2021 as a pivotal year with a notable surge in music discovery, signaling peak exploration and engagement.

**B. Top Artists, Albums & Songs**

* Ranked top artists, albums, and songs by cumulative listening time and frequency.
* Used year-wise filters to identify changing preferences.
* Classic rock and alternative artists like The Beatles, John Mayer, and The Killers dominated long-term favorites.

**C. Listening Patterns by Day & Mood**

* Analyzed patterns between weekdays and weekends.
* Weekends made up over 60% of listening time, indicating stronger association with leisure.
* Shuffle usage rose significantly on weekends, suggesting ambient or exploratory listening.

**D. Hourly Listening Behavior**

* Plotted listening habits across 24 hours and 7 days.
* Key activity spikes observed between 7–11 PM and 12–3 AM, likely tied to relaxation.
* Weekday sessions showed dual peaks; weekend sessions were more evenly distributed.

**E. Device Usage Insights**

* Compared listening across Android, Web, iOS, and Cast.
* Android and Cast were primary platforms, with Cast popular during ambient/background listening.
* Mobile sessions showed higher skip and shuffle rates, hinting at shorter attention spans.

1. **Data Trends & Statistics**

**A. Listening Diversity (2019–2024)**

| **Year** | **Unique Albums** | **Unique Artists** | **Unique Tracks** | **Track Count Change** |
| --- | --- | --- | --- | --- |
| 2020 | 44 | 77 | 259 | — |
| 2021 | 65 | 108 | 405 | +56.4% |
| 2022 | 60 | 83 | 411 | +1.48% |
| 2023 | 48 | 67 | 368 | −10.4% |
| 2024 | 42 | 54 | 330 (est.) | −10.3% |

* 2021 marked the highest listening diversity.
* The following years showed a decline, suggesting narrowing preferences or reduced exploration.

**B. Artist Consistency**

* The Beatles, John Mayer, and The Killers consistently ranked in top 5.
* Albums like Abbey Road and Born and Raised demonstrated high replay value.
* Emotional resonance likely drove frequent revisits.

**C. Session Focus and Duration**

* Weekdays favored focused listening windows (8–11 AM and 8–11 PM).
* Weekends had flatter but longer sessions.
* Peak focus periods included Sunday evenings and Thursday nights.

**D. Platform Usage Patterns**

* Android comprised ~60% of total listening.
* Cast usage suggested a preference for communal or passive sessions.
* Shuffle mode led to 18% higher skip rates, indicating exploratory sessions.

1. **Business Recommendations & Application Opportunities**

**A. Smart Playlists Based on Listening Hours**

* Use time-of-day and day-of-week preferences to push personalized playlists.
* Develop curated night or weekend mixes optimized for relaxation.

**B. Re-engagement via Nostalgia**

* Highlight best listening years like 2021 with personalized “revival playlists.”
* Push similar artists/moods from peak discovery phases.
* Weekly music recaps or throwbacks can boost dormant users.

**C. Device-Specific UX Optimization**

* Differentiate UI for mobile and Cast to enhance relevance.
* Tailor shuffle and autoplay behavior per platform.

**D. User Retention Initiatives**

* Decline in music discovery post-2021 flags churn potential.
* Introduce gamification (listening streaks, genre badges) to sustain engagement.

1. **Next Steps & Future Scope**

**A. Predictive Modeling**

* Train ML models to forecast user churn and track fatigue.
* Explore emotional profiling of playlists using tempo and sentiment.

**B. Ecosystem Integration**

* Link Spotify history with platforms like YouTube and Apple Music.
* Expand household-level analytics for shared sessions.

**C. User Experience Innovation**

* Launch challenges, quizzes, and dynamic recommendations to maintain freshness.
* Consider A/B testing UI features based on listening behavior segments.

1. **Conclusion**  
   This project uncovered rich, multidimensional user listening behaviors across nine years. Device usage trends, mood-linked time preferences, and genre loyalty patterns offer actionable insights for personalization and user retention. These findings create a solid foundation for enhancing music discovery engines, behavioral segmentation, and engagement strategy design.