

Stats 140XP Project Poster

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Introduction

- Social Media becoming integral part of modern society
- Popularity of TikTok, YouTube, and Instagram contributing to popular culture and popular music
- Our goal is to explore the link between social media and music in the modern age

Literature Review

- Using track metadata to predict track popularity (Middlebrook & Sheik, 2019; Dawson et al., 2021; Li, 2024)
- Social media as means of music marketing (MediaTech, 2023)
- Synthesizing previous research, we're interested in how social media affects popularity (Matos et al., 2024; Jorgenson, 2022)

Methods

Given that we wanted to analyze different factors contributing to a song's popularity, we needed a comprehensive dataset containing streams from a number of different platforms. The dataset we chose has exactly this: track name, artist, release date, explicitness and its presence on YouTube, Shazam, Spotify, Amazon, Deezer, Pandora, Soundcloud, and Apple music.

1. Does the release month of a song impact its popularity?

Release Month vs. Popularity (Kruskal-Wallis Test)
Independent: Month of release (12 levels: Jan – Dec)
Dependent: Average total streams per month
Post-Hoc Test: Pairwise Wilcoxon Rank-Sum Test with Bonferroni Correction

2. Are certain genres of songs more popular on certain platforms?

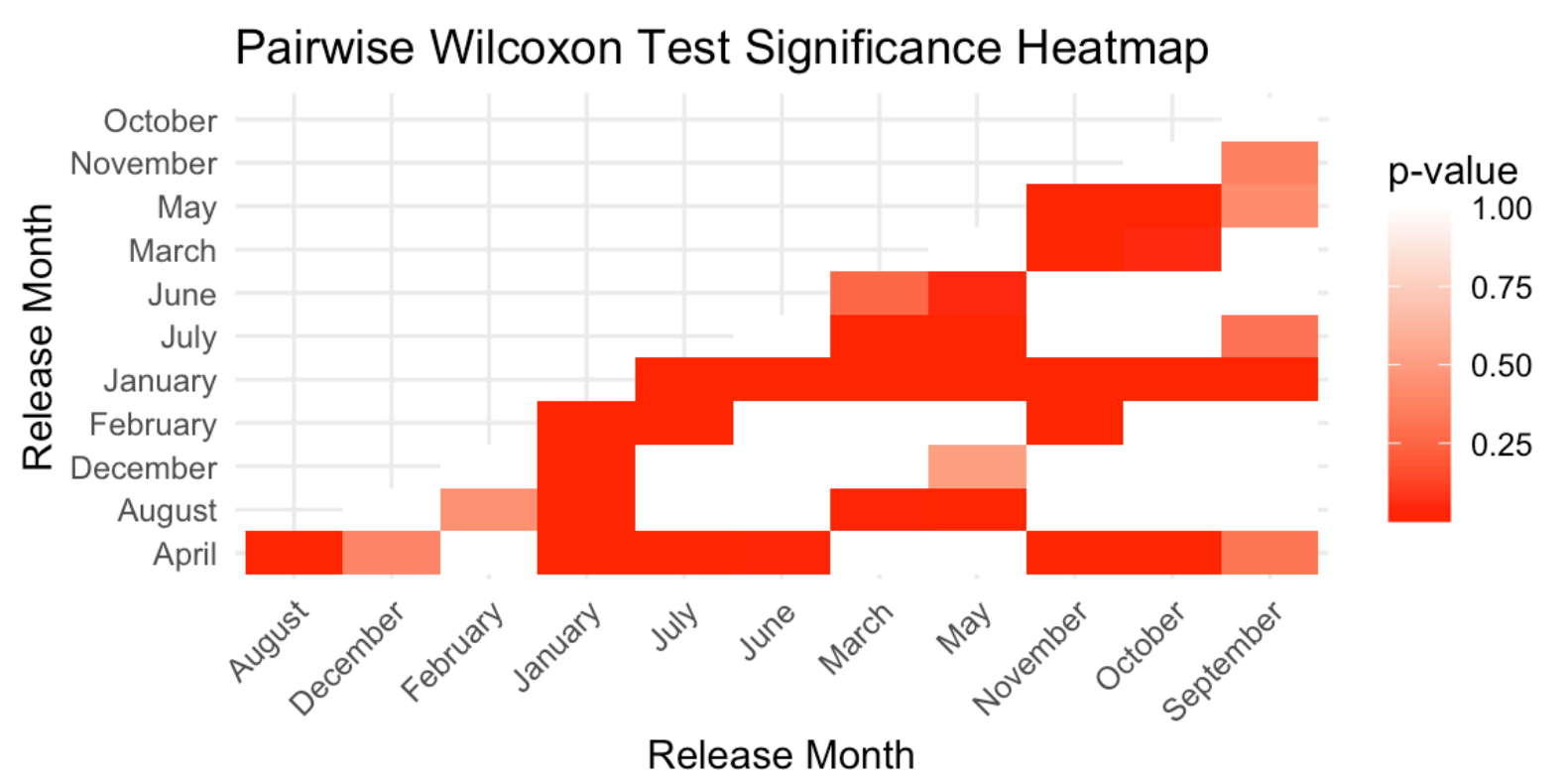
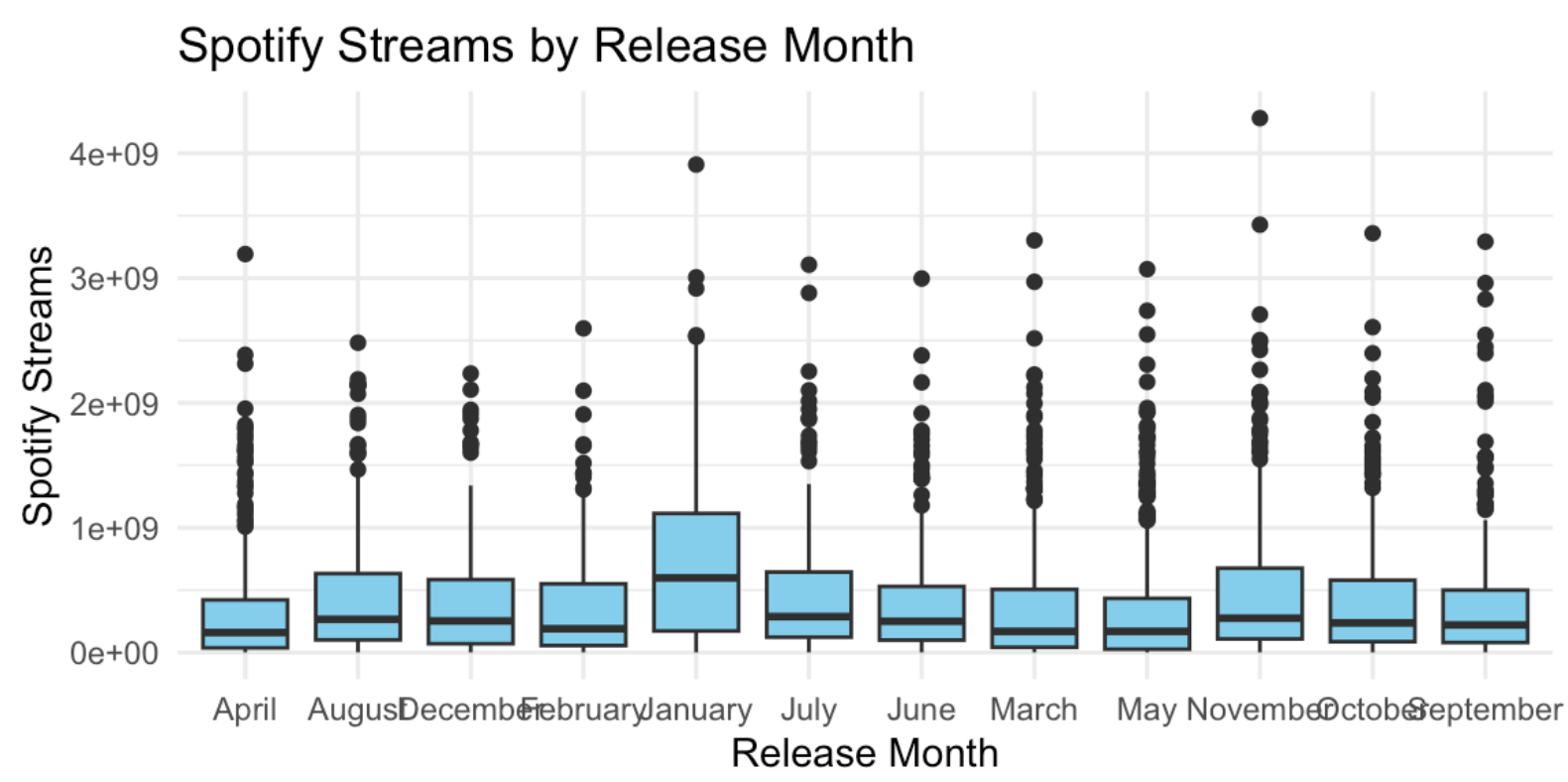
Genre vs. Streaming Platforms (Two-Way ANOVA)
Independent: Genre (5 levels: Indie/Rock, Pop, Hip-Hop/Rap, Country, EDM); Platform (4 levels: Spotify, Apple Music, Amazon, YouTube)
Dependent: Proportion of total streams on each platform
Post-Hoc Test: Bonferroni

3. Is there a correlation between a song's popularity on TikTok vs. Spotify?

TikTok Posts vs. Spotify Streams (Simple Linear Regression)
Independent: TikTok Posts
Dependent: Spotify Streams
Post-Hoc Test: Bonferroni

Does the release month of a song impact its popularity?

- January sees significantly stronger performance compared to other months
- Streaming trends are stable and consistent from February to May
- Noticeable boost in streaming throughout the summer months from June to August
- Brief lull in performance until another small increase in November



The Social Soundscape

How Social Media Impacts Music Popularity?

Research Questions:

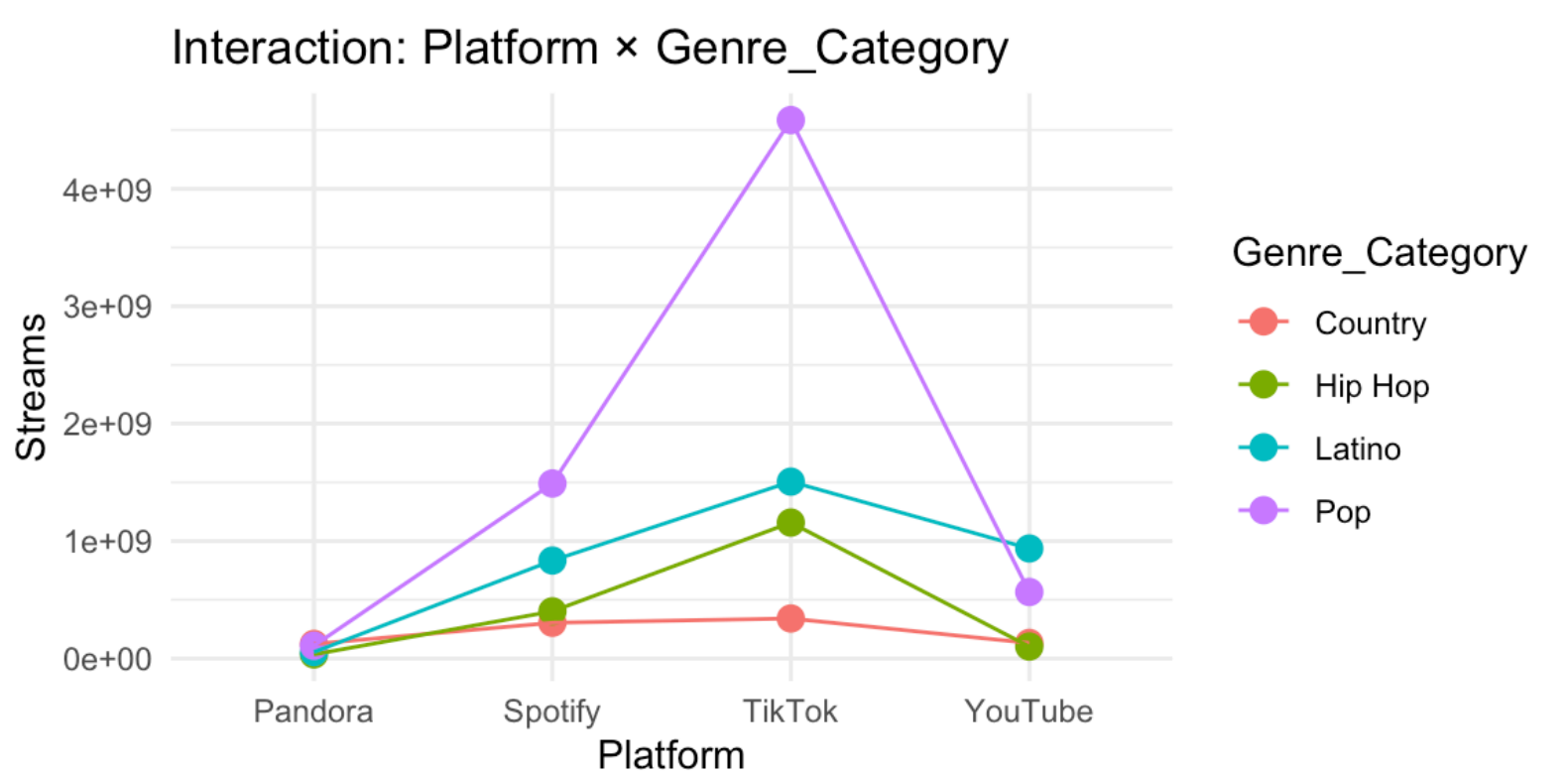
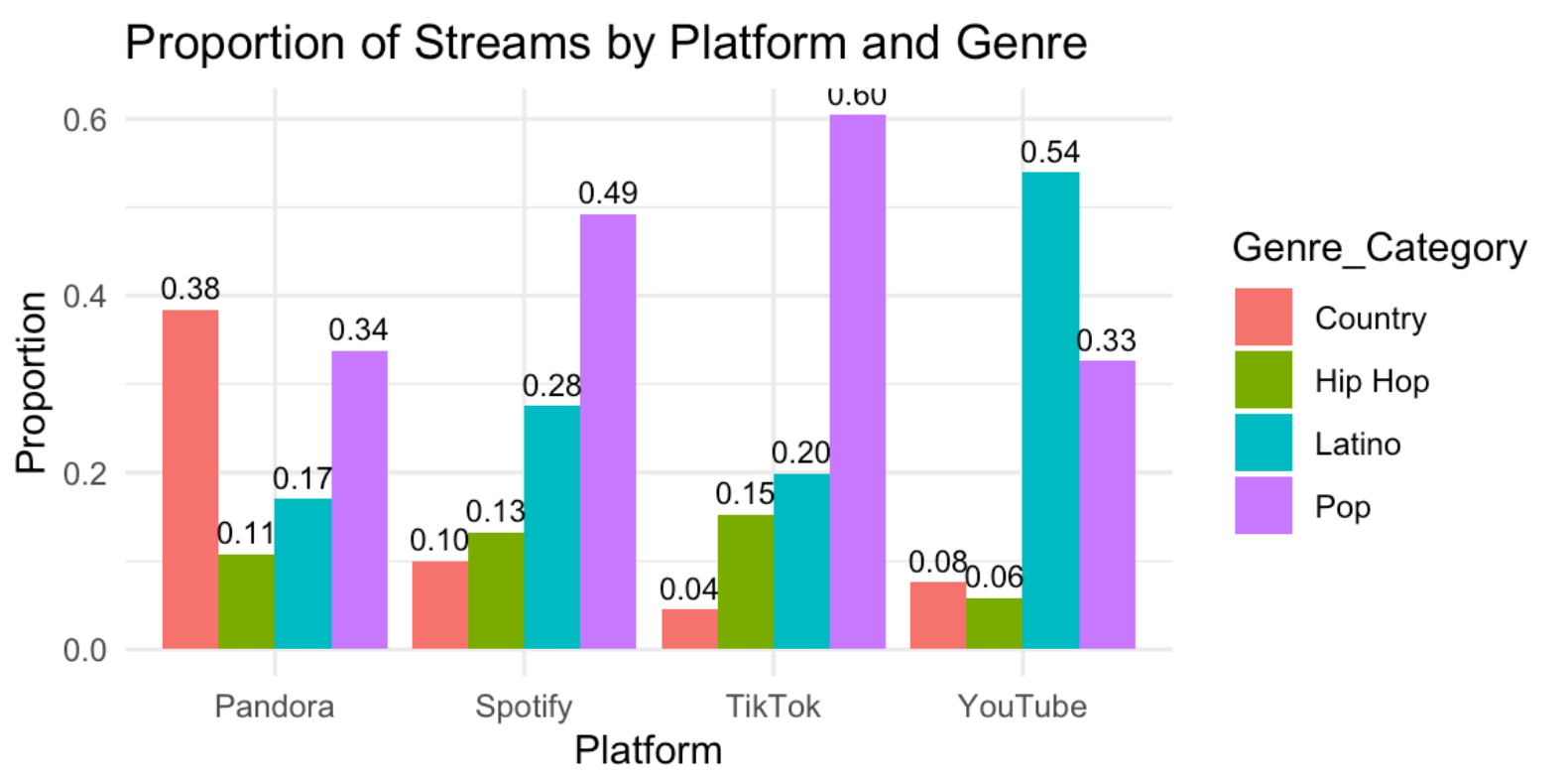
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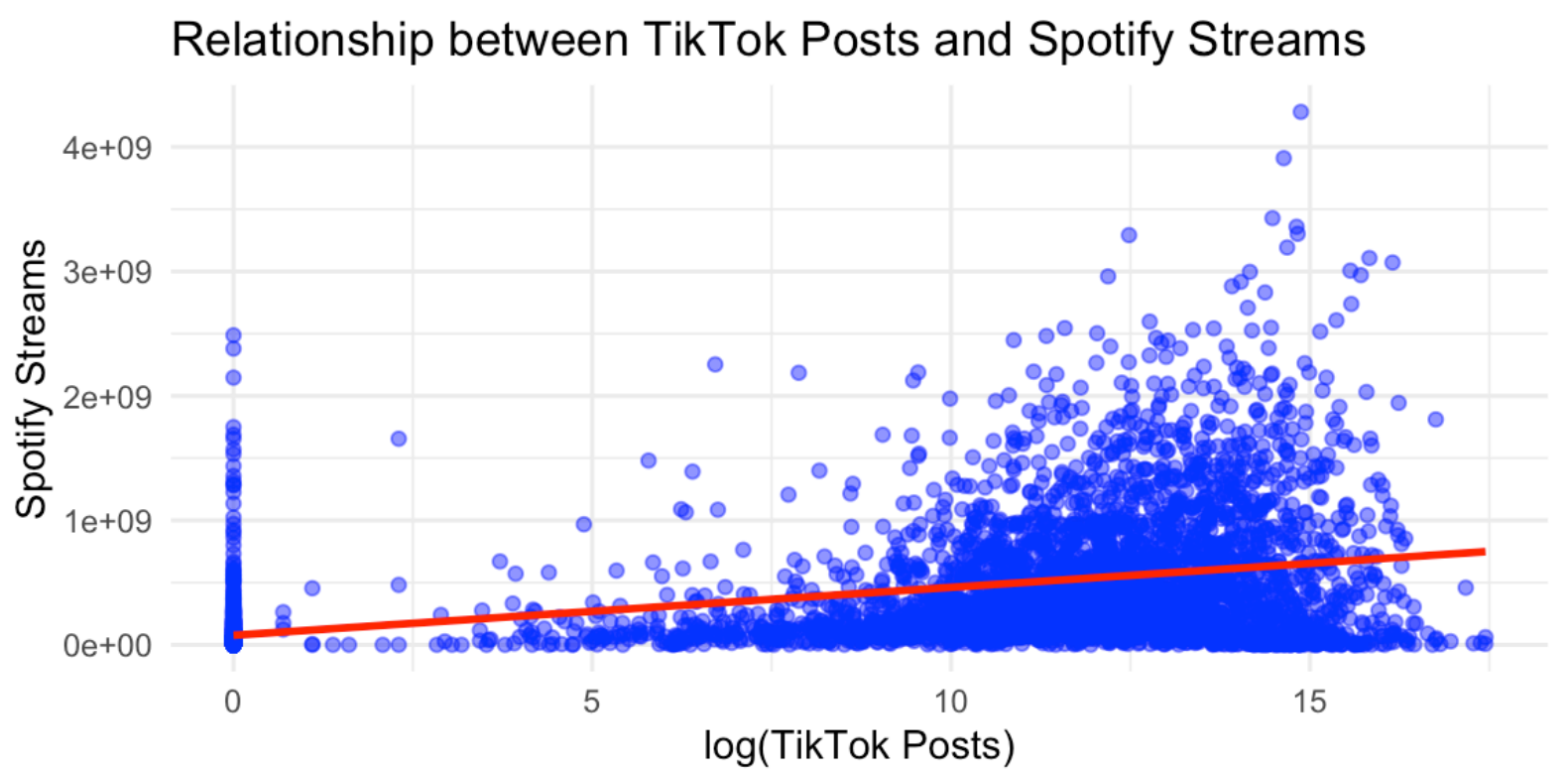
Are certain genres of songs more popular on certain platforms?

- There is a strong indication that there are interaction effects between Platform and Genre when looking at streaming popularity
- We find that Pandora dominates in the Country genre while YouTube leads for Latino music
- Overall, for Pop and Hip Hop music, there is a much more even distribution among the platforms.



Is there a correlation between a song's popularity on TikTok vs. Spotify?

- We initially attempted to fit a Simple Linear Regression for this research question
- We found both confounding variables as well as non-linearity in our model
- Implemented transformation and variable selection to construct best possible linear model
- Even with the best possible model, we find little evidence suggesting a song's popularity on TikTok and Spotify are correlated



Potential Impact

- Our research bridges the gap between metadata and social media in predicting song popularity
- The research is multidimensional, incorporating statistics from multiple platforms, offering new insights into listening habits
- Our findings could be useful to record labels and artists in marketing strategies
- Platforms could utilize our findings to fine-tune algorithms and appeal to creators and artists
- Our conclusions could be generalized and applied to greater topics in social media's effects on culture and society.

References

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