Investigating The Foremost Factors Determining Artists' Success

Om Fale
ofale1@binghamton.edu
Binghamton University
Binghamton, NY, USA

Disha Shetty
dshetty3@binghamton.edu
Binghamton University
Binghamton, NY, USA

Yashaswi Hasarali
yhasara1@binghamton.edu
Binghamton University
Binghamton, NY, USA

Harshitha Guru Raj
hgurura1@binghamton.edu
Binghamton University
Binghamton, NY, USA

Shubham Patil
spatil36@binghamton.edu
Binghamton University
Binghamton, NY, USA

ABSTRACT

In today's dynamic and ever-evolving music industry, understanding the factors that contribute to an artist's success is of paramount importance. This interdisciplinary project combines the power of social media and data science through the utilisation of two prominent APIs, Reddit and Spotify, to explore the key determinants behind artists' achievements. This project aims to analyse vast datasets from these platforms to uncover patterns, trends, and insights that shed light on the factors influencing an artist's trajectory in the music industry. Within this virtual sea of text data, including posts, comments, and discussions in subreddits like 'r/spotify,' 'r/MusicRecommendations,' 'r/musician,' 'r/singer,' and more, there is a valuable subset of content that revolves around Spotify music, tracks, albums, and artists. We will leverage Reddit data to gain a deep understanding of fan engagement, sentiment analysis, and emerging trends within the online music community. Additionally, we will tap into Spotify's extensive music streaming data to assess metrics such as play counts, follower growth, and playlist placements.

KEYWORDS

Reddit API, Spotify API, MongoDB, Data Collection, Python, REST, Flask

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1 INTRODUCTION

The contemporary music industry stands at a crossroads of unprecedented change, driven by technological advancements, digital platforms, and evolving consumer preferences. In this era of rapid transformation, understanding the intricate factors that determine an artist's success has never been more crucial. Artists, both emerging and established, navigate a complex web of variables that shape their careers. From crafting captivating melodies to cultivating a devoted fan base and securing lucrative partnerships, the road to success is as diverse as it is challenging. To gain insights into this intricate web, we employ a fusion of social media analysis and data science methodologies, harnessing the capabilities of two prominent APIs: Reddit and Spotify. Reddit, as one of the largest and most diverse online communities, provides a treasure trove of fan discussions, reviews, and opinions. We delve into this wealth of data to discern patterns in fan engagement, sentiment analysis, and emerging trends within the music community. In parallel, we leverage Spotify's vast music streaming data, which encompasses play counts, follower growth, and playlist placements, offering a window into an artist's performance in the digital realm. In this project, we'll be gathering real-time music-related data to determine what musical style or performer is popular and trending when - we'll combine all this information from these sources within a certain time frame.

2 DATA SOURCE

Here, in this project we will be using Reddit data from Reddit Stream API and with selected subreddits we will be doing an analysis of the daily top hits from Spotify API. With the information retrieved from the playlist API such as artist name, id and album name we will use this id and also use artist details api to get genre and the artist popularity, This will be the Spotify Data Source. Moving on to the Reddit data Source, from the response of first 30 trending artists from playlist api , we will pass the Artist name to the subreddit for e.g. r/artist_name and get the top posts and discussion's from their official subreddit page and get the number of comments. Additionally we will also be having dataset from following subreddits such as r/Music, r/popheads and r/Spotify to plot down which artists is currently trending in Reddit or what genre people are now-a-days into.

3 METHODOLOGY

In the realm of creating live data dashboards, a myriad of tools, library packages, web applications, and software options are at our disposal. Our data analysis project has successfully addressed and visually presented findings for all the research questions posed:

(1) Is there a correlation between the level of activity on artist specific subreddits (e.g., official subreddits) and the artist's

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success on Spotify, measured by metrics such as number of top hits and overall popularity?

Analysis:

We have extracted data from artists-posts and artists-details and from artists-posts we have plotted the graph as to which artists get how many number of posts per day. Additionally, from Spotify API, we get the corresponding artists details and plot the graph and check the correlation coefficient for Artists: Popularity vs Number of Posts and study what will be the factors and whether does the spotify data goes hand in hand with the engaging number of posts related to the artists. If the coefficient is positive, it suggests a positive correlation (as the number of posts increases, popularity tends to increase). If the p-value is less than 0.05, you can reject the null hypothesis that there is no correlation.

(2) To what extent can the engagement metrics from Reddit (e.g., post popularity, comments, sentiment) and Spotify (e.g., daily top hits, artist details, popularity index) predict the commercial success and overall popularity of artists, and are there specific patterns or trends that indicate a higher likelihood of success within the music industry (sentiment analysis on the comments) ?

Analysis:

Extensive analysis, encompassing data understanding, cleaning, and plotting, was conducted to address the research question. Utilizing sentiment analysis of comments and employing word clouds played a pivotal role in comprehending the patterns that underlie the phenomenon in question. Through thorough examination, it has become evident that established artists such as Taylor Swift, Travis Scott, The Weeknd, Drake, and SZA are poised to emerge as the top trending artists on Spotify by the end of the year, considering all the factors taken into consideration.

3.1 DASHBOARD

In this project, our primary objective is to construct an interactive dashboard capable of dynamically presenting the outcomes associated with our research inquiries mentioned earlier. This dynamic platform will facilitate real-time exploration and representation of correlations between artist subreddit engagement, Spotify metrics, and their resonance within Reddit communities. To achieve this, we plan to leverage the Flask framework as the backbone for constructing the interactive dashboard. The dashboard's functionality and visual representations will be powered by a versatile range of Python libraries, including Plotly, Matplotlib, WordCloud, and Pandas. These libraries will collaboratively generate various plots, charts, and visual elements necessary for showcasing the study's insights.Furthermore, the dashboard will encompass additional features designed to empower users in filtering and customizing displayed results based on their specific queries or preferences. This usercentric approach aims to enhance the dashboard's usability and ensure that users can easily navigate through the data representations, facilitating a more personalized and insightful experience.This initiative to develop an interactive dashboard not only aims to visualize the research findings but also to offer an intuitive and engaging platform for users to explore and comprehend the intricate correlations between artist-specific subreddit engagements and Spotify metrics in real time.

4 CONCLUSION

Our project delved into music trends, merging Spotify data and Reddit discussions to identify top artists and albums capturing public attention. Tracking these trends over time showcased the music industry's constant evolution. Comparing trending artists on Reddit with Spotify data unveiled connections between online discussions and streaming trends, illuminating how artists garner digital popularity. The integration of real-time social media data with extensive music information unearthed new research paths and applications in academia and the music industry. The inclusion of interactive visual elements enhanced comprehension, providing user-centric insights into music trends. This visualization emphasized the vital role of merging diverse datasets and visualization tools, amplifying our grasp of music trends and cultural phenomena. It showcased the value of comprehensive data collection in understanding the musical landscape.

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