

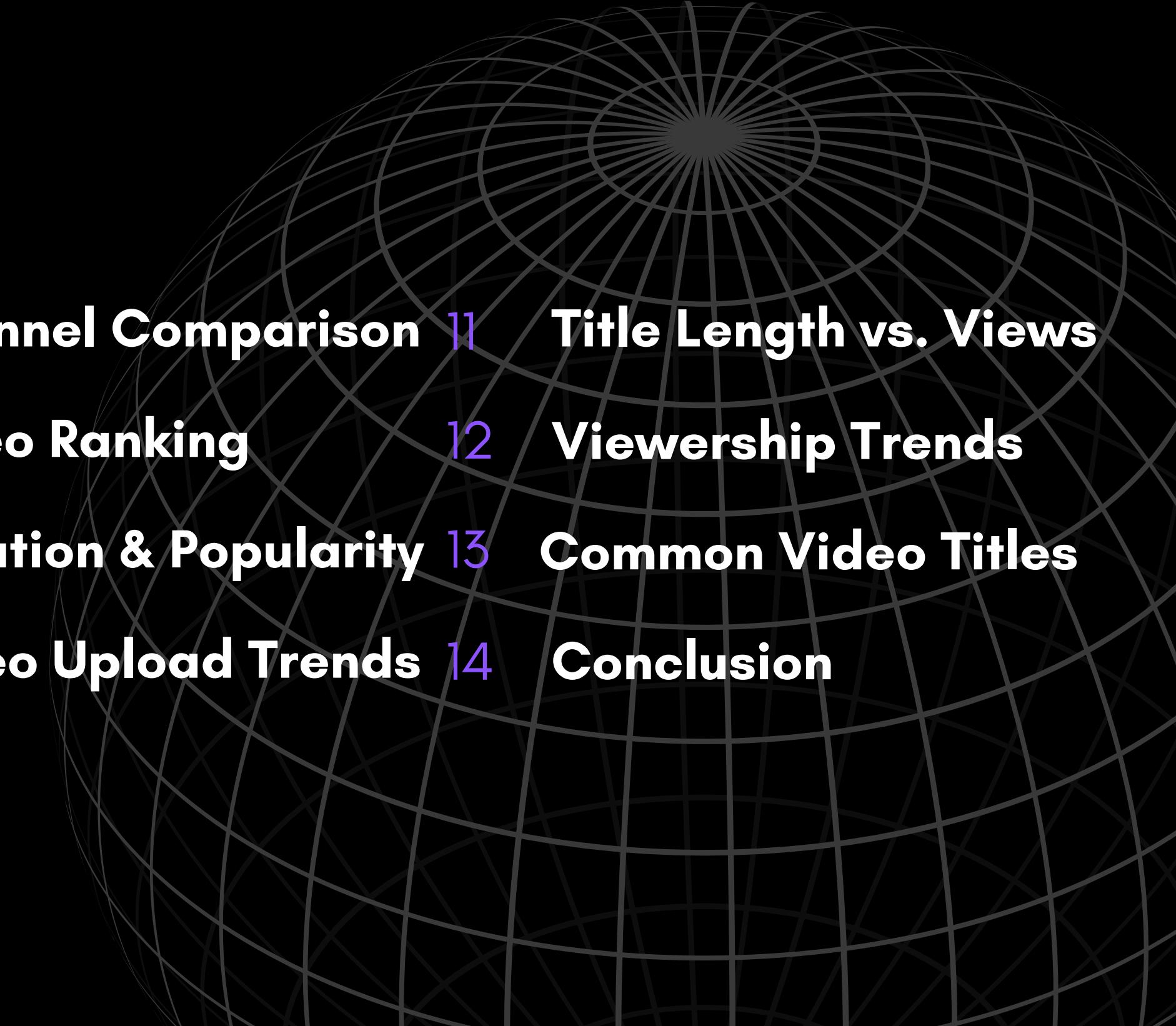
A photograph of a mountain range with a white grid overlay, transitioning from a blue-tinted sky at the top to a green-tinted base. A large globe graphic is positioned in the upper right corner.

Presentation by **Vanessa Dailey**

Earth Science Channels Analysis with YouTube API

An in-depth analysis on earth science
YouTube video data

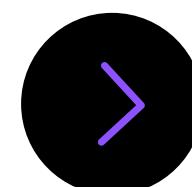
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Introduction

YouTube is a globally renowned platform with 2+ billion users, ranking second in user traffic and reaching 42.9% of global internet users monthly. Prominent media companies aspire to tap into YouTube's vast audience by prioritizing viewer engagement, retention, regional relevance, and personalized recommendations. This study analyzes the top five earth science YouTube channels (BBC Earth, National Geographic, Discovery, Animal Planet, and Smithsonian Channel) to understand their success factors.



Objectives of the Analysis

- **Channel Comparison:** Compare top 5 earth science channels to similar channels in subscribers and viewership.
- **Viewership Range:** Identify most and least viewed videos.
- **Engagement Analysis:** Explore correlation between comments, likes, and views.
- **Popularity Factors:** Investigate video length impact and prevalent keywords.

Presentation by **Vanessa Dailey**

Approach & Analysis

01

Retrieved video metadata from the top 5 earth science channels using the YouTube API, involving key generation, API requests, and data transformation for analysis.

02

Preprocessed the data and enhanced it by engineering additional features required for analysis.

03

Performed exploratory data analysis to gain insights and uncover patterns, relationships, and trends within the dataset.

04

Drew meaningful conclusions based on the findings from the data analysis, summarizing the key insights and implications of the study.

Data Limitations

API Quota

YouTube's free API imposes a daily quota of 10,000 units to ensure fair usage, prevent negative impact on other developers, and consumption is method-dependent, not affected by result size, with listing videos costing 1 unit, making the allocation generally sufficient and fair.

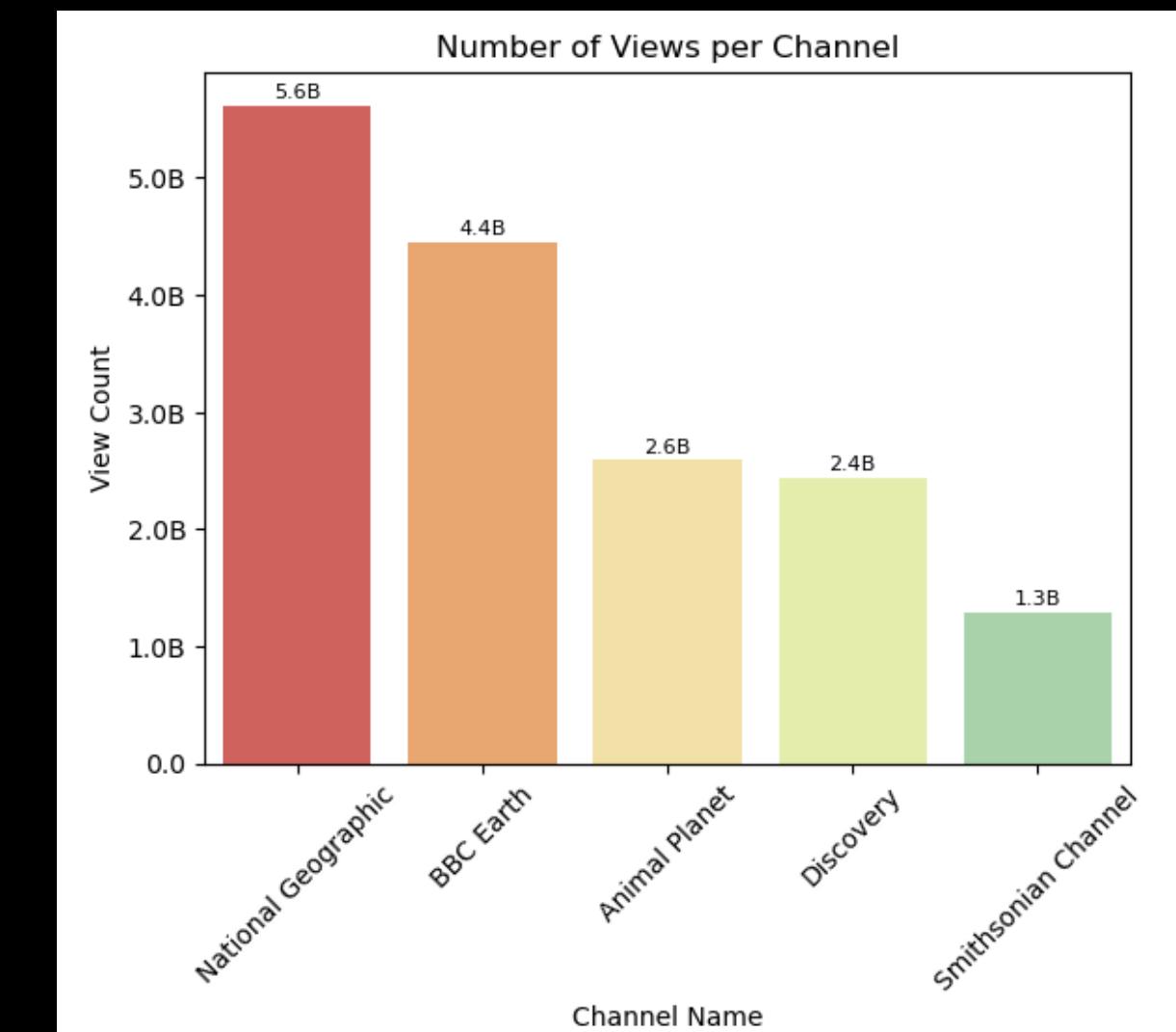
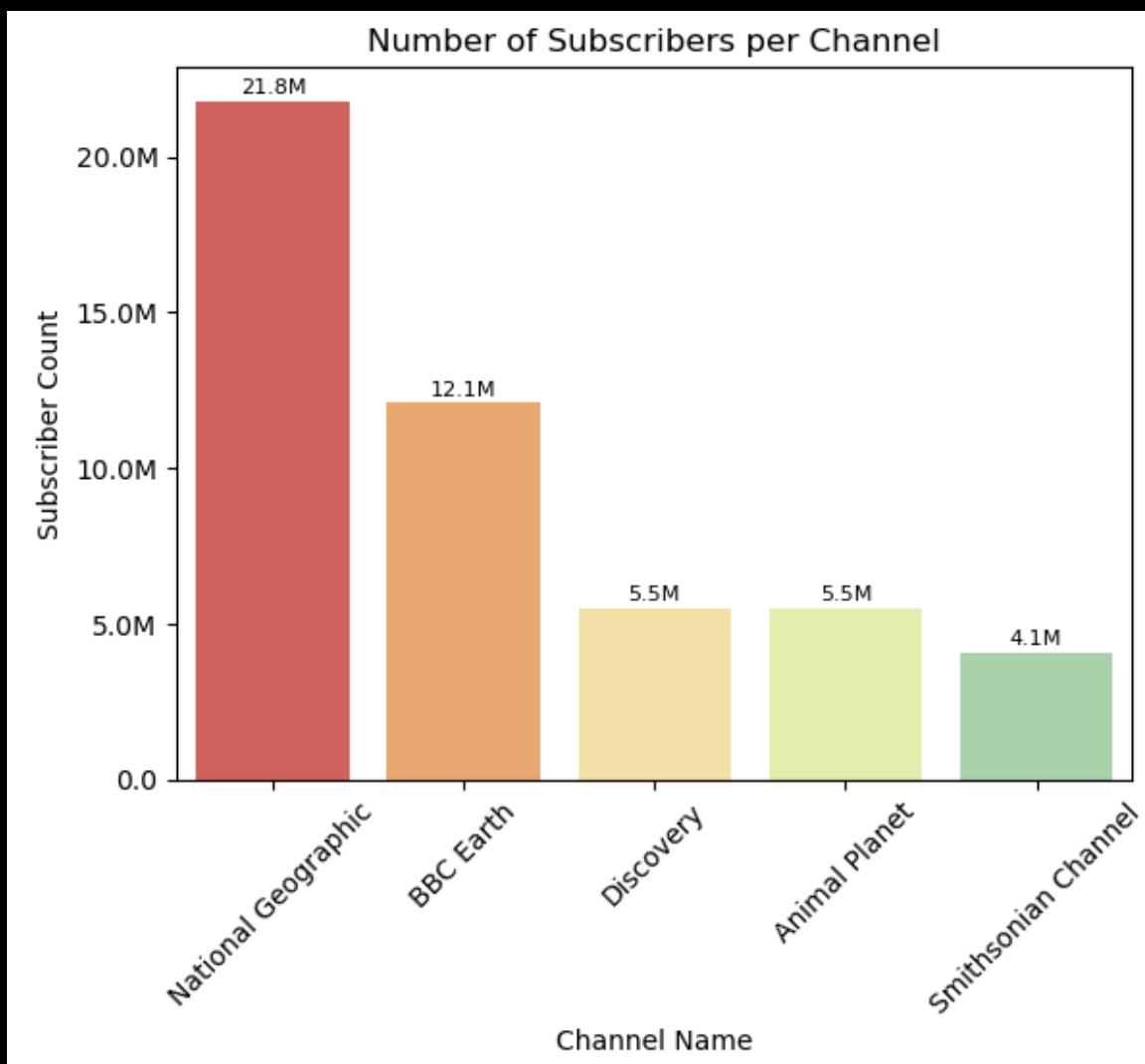
Missing Data

Some data points, like dislikes, are not available anymore because of policy changes. This limits analysis on the likes/dislikes ratio for the videos on each channel.



Channel Comparison

Q: Does subscriber count impact view count?



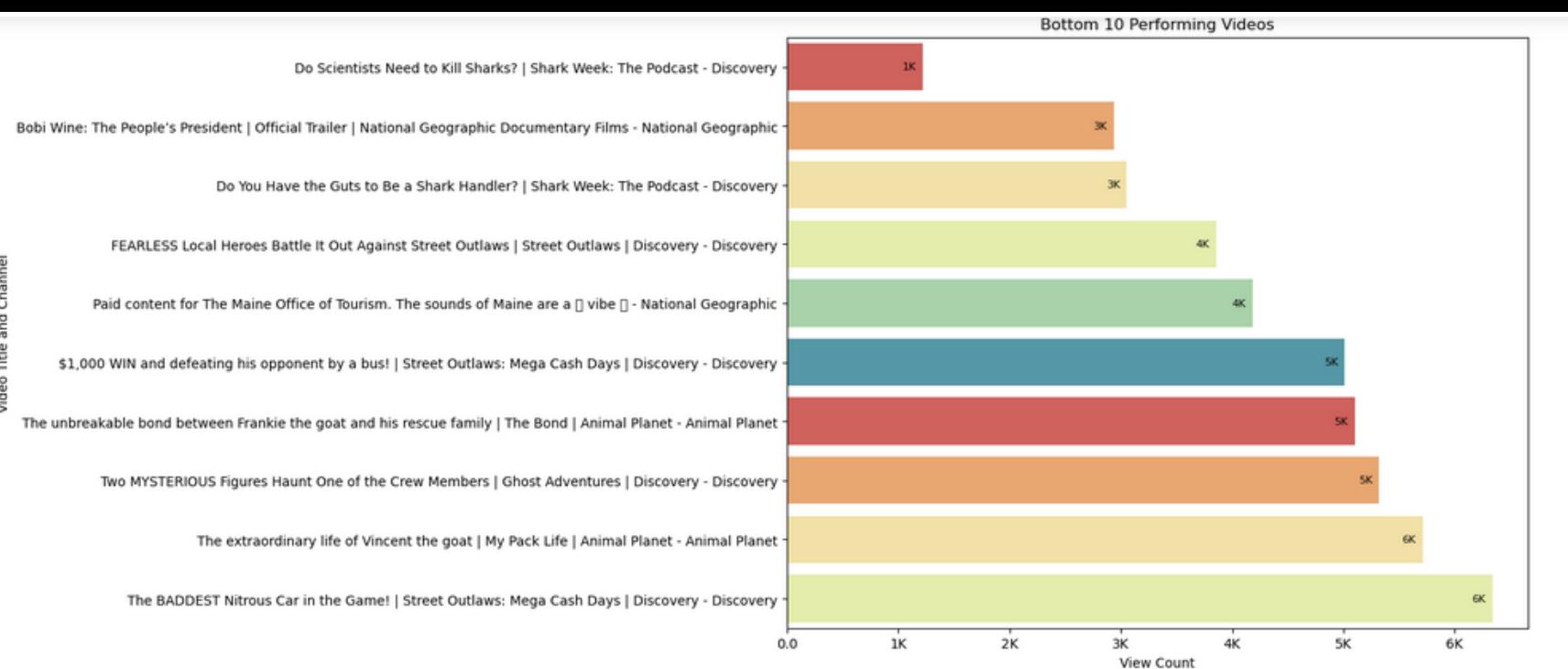
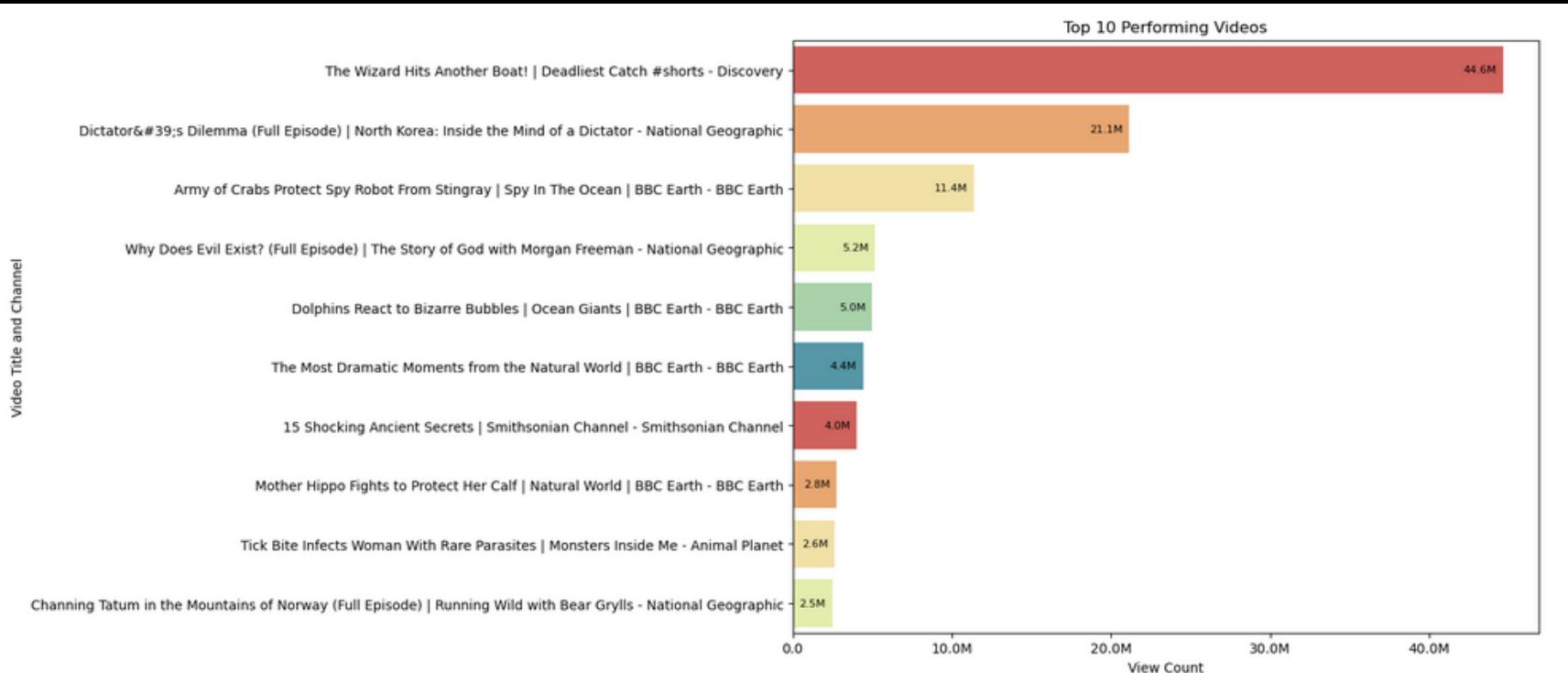
Findings:

Subscriber count doesn't always directly correlate with higher view counts as there are other factors influencing video viewership.

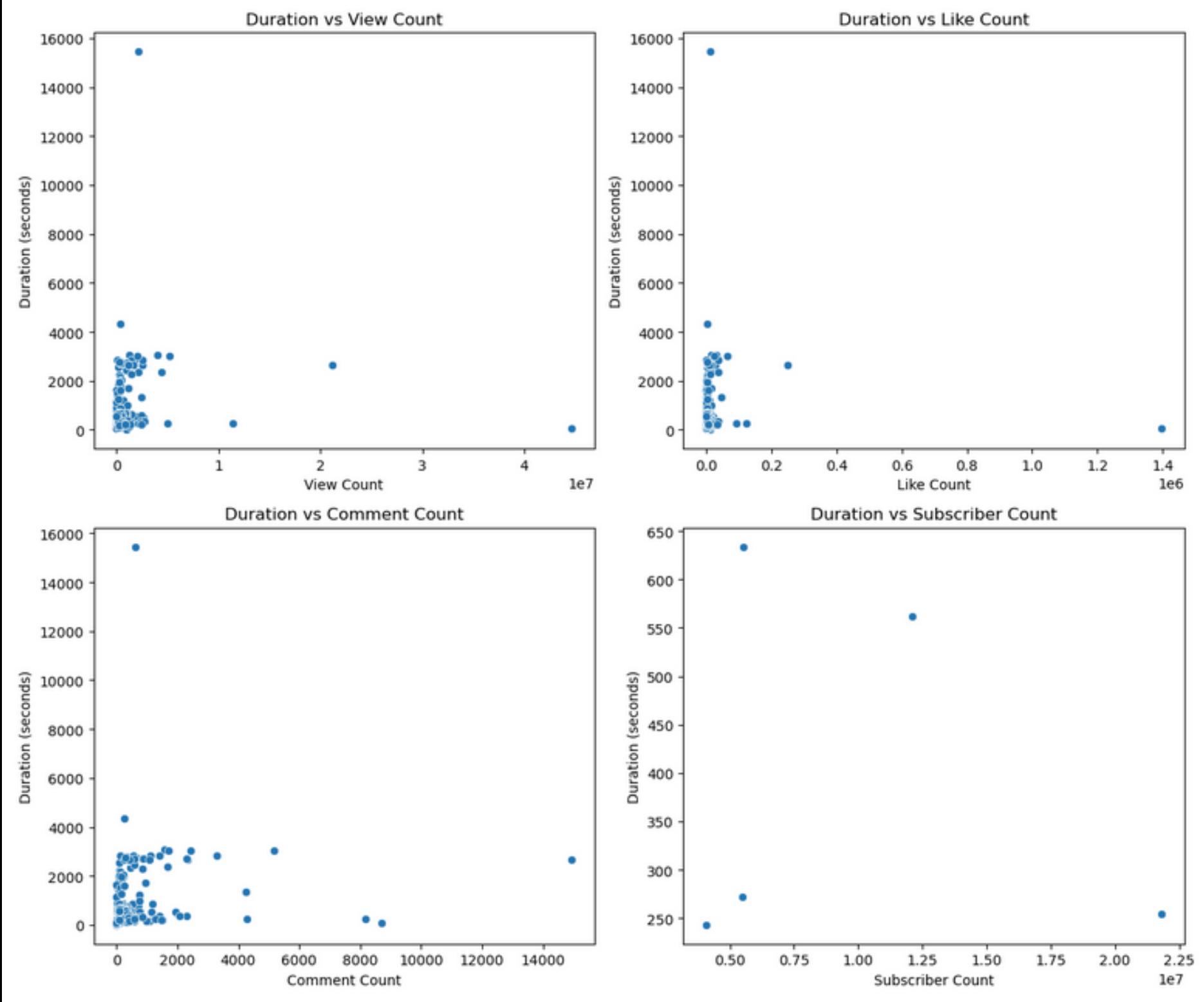
Video Ranking

Q: What are the top 10 and bottom 10 performing videos among the channels, and which topics and channels attract the most viewer interest?

Findings: Discovery's video stands out as the top performer, while BBC Earth leads in highly rated videos. Topics related to the ocean receive attention, but no clear trend emerges. Discovery dominates both the best and worst videos, while rescue/saving videos appear frequently in the least performing category.



Analyzing Video Duration's Impact on Popularity



Q:

How does the duration of a channel's videos impact metrics such as view count, like count, comment count, and subscriber count?

Findings:

Shorter videos generally exhibit lower view, comment, like, and subscriber counts, indicating reduced engagement. This suggests that shorter video durations may attract fewer viewers and have less overall appeal compared to longer videos.

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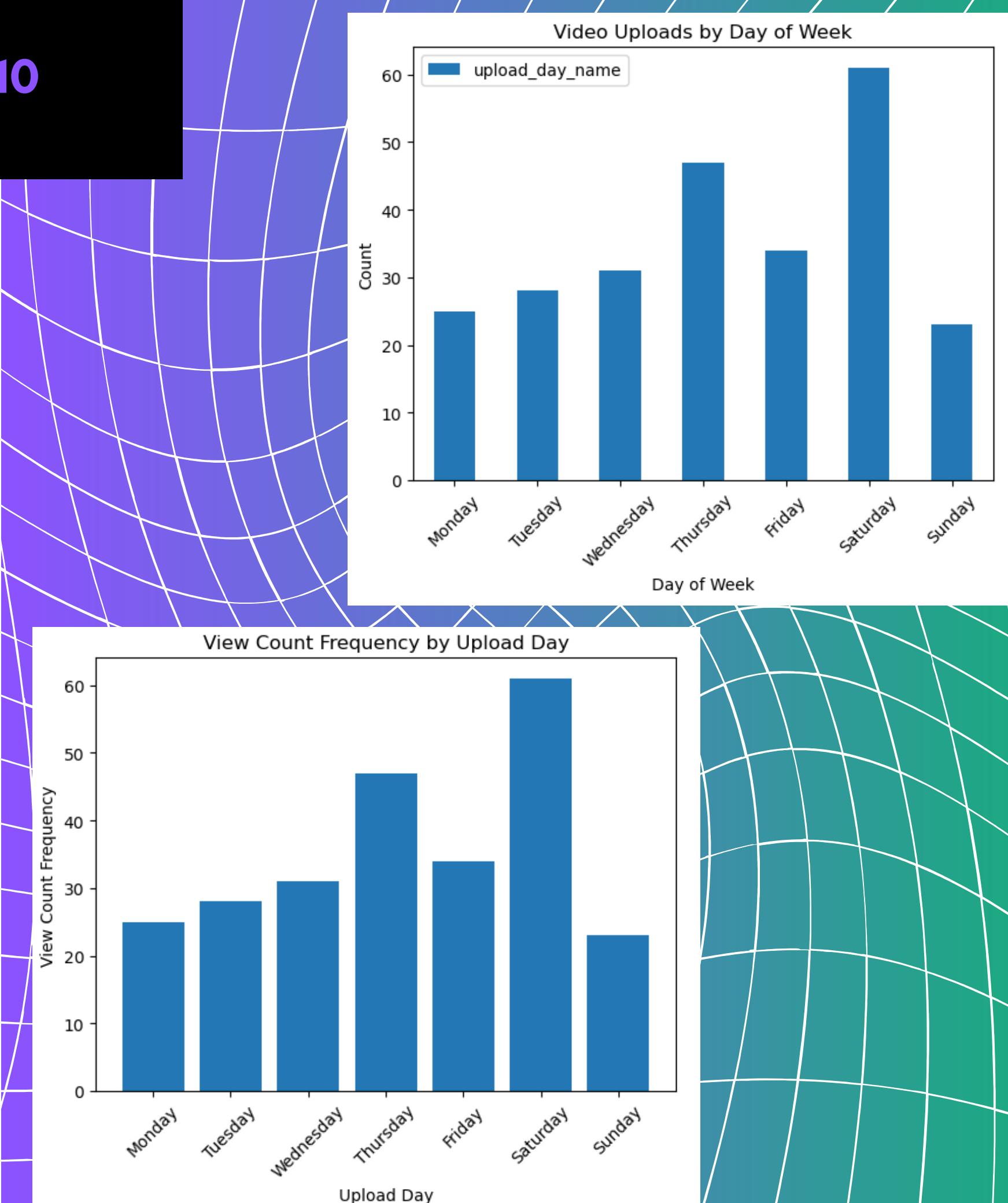
Daily Video Upload Trends and View Counts

Q:

What are the daily trends in video uploads and which day of the week has the highest view counts?

Findings:

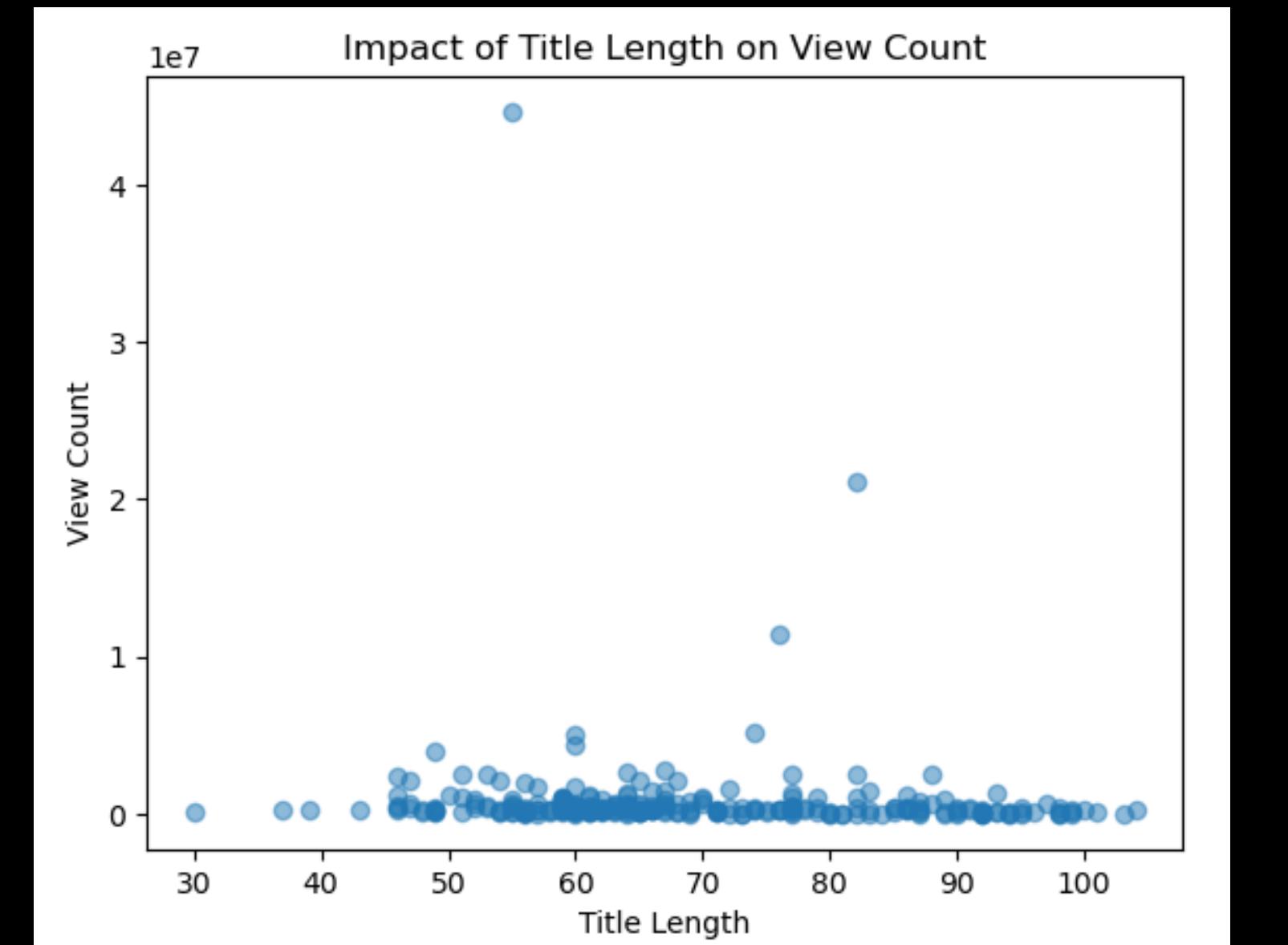
Videos are uploaded most frequently towards the end of the week, with higher view counts during that time. This suggests a strategic approach to capture audience attention and maximize views.



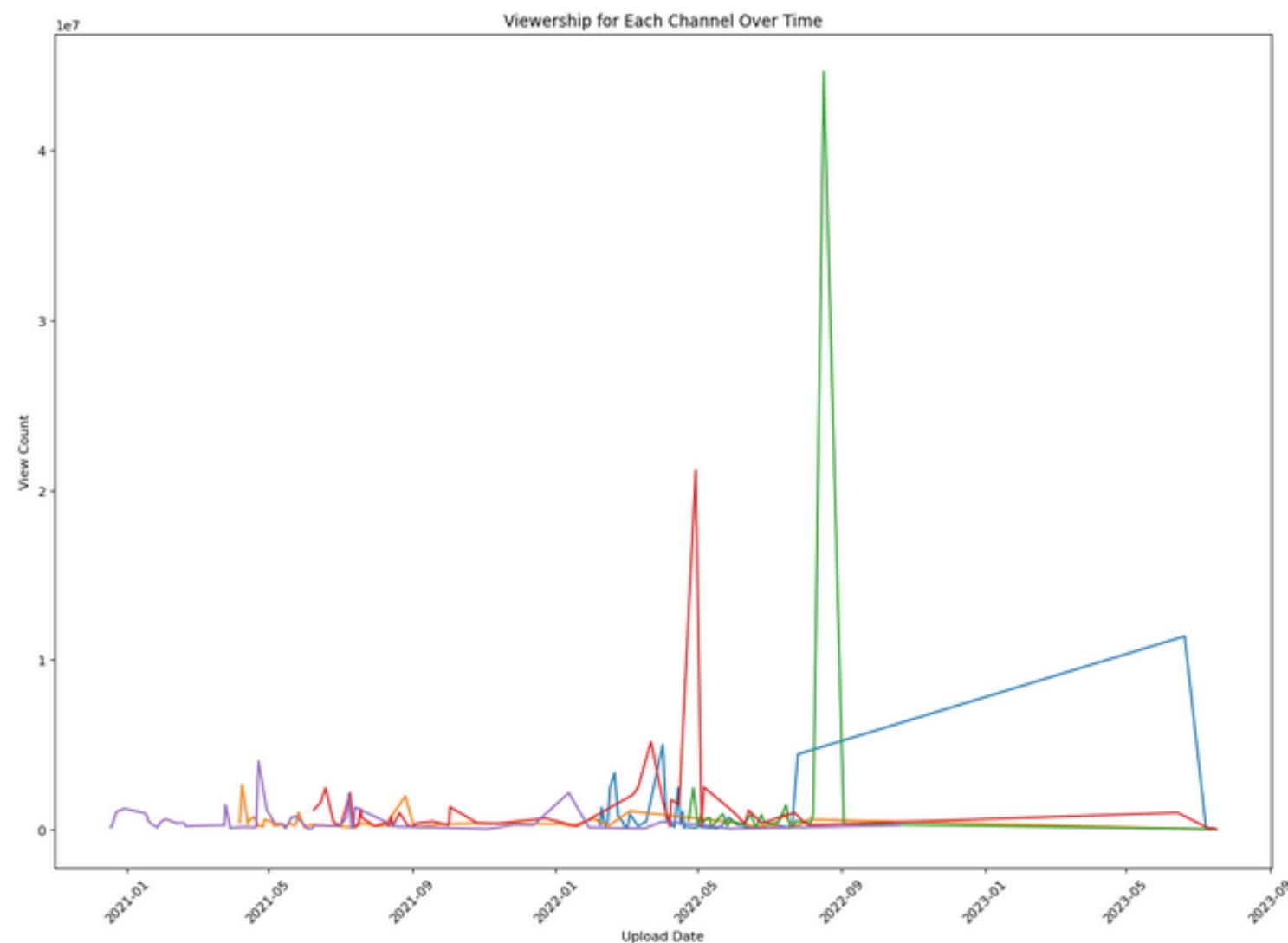
Title Length Impact on Viewership

Findings:

The scatter plot suggests that title length plays a role in viewership, with a concentration of viewers around the 50-70 character range. However, additional factors such as channel popularity and video content may also contribute to viewership trends.



Changing Viewership Trends



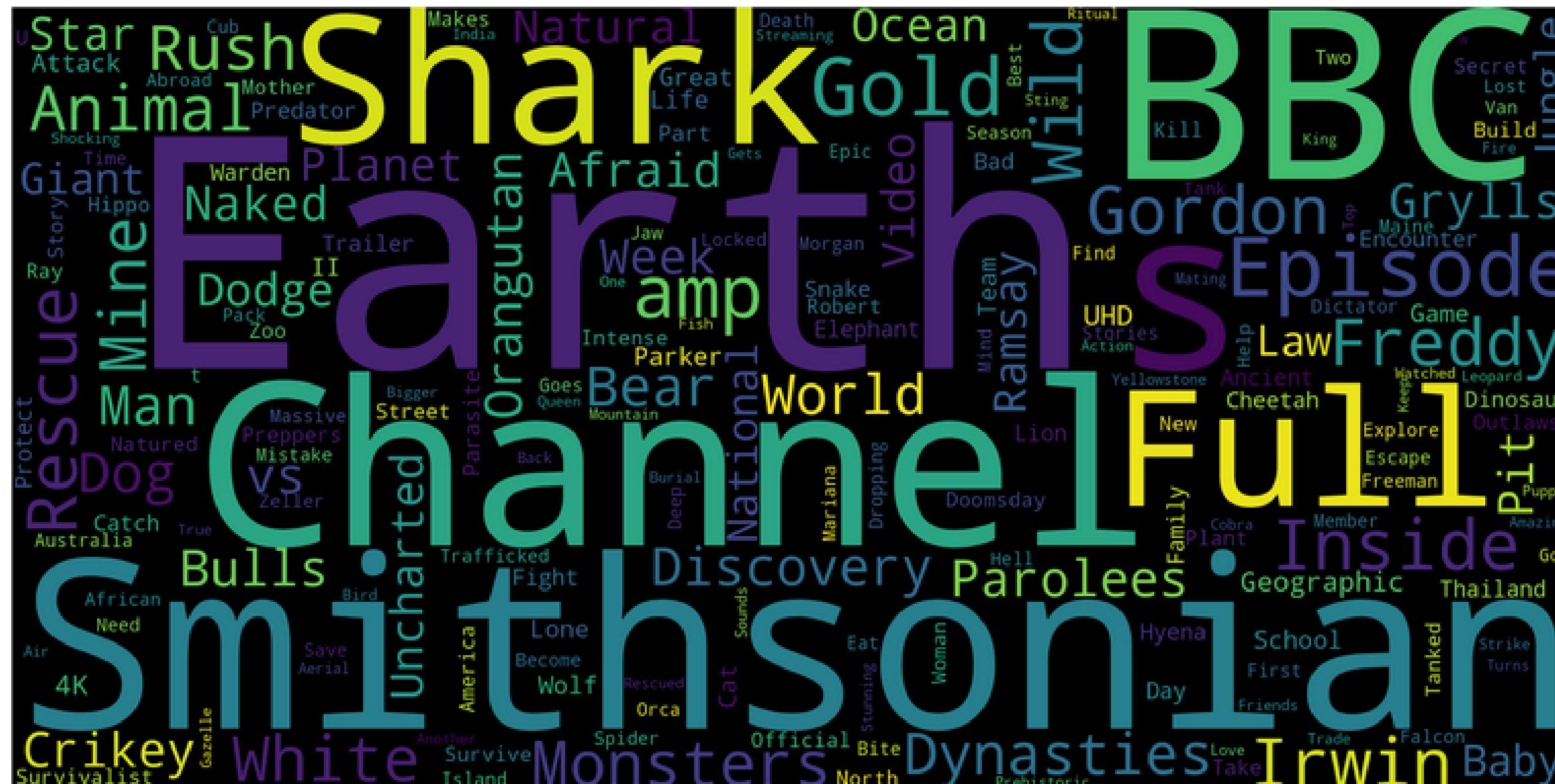
Q:

Is viewership increasing or decreasing over time for each channel, and are there any discrepancies in the data?

Findings:

Peaks in view counts for National Geographic, Discovery Channel, and BBC Earth show factors impacting viewership. Analyzing specific videos and external variables can provide insights into these trends.

Q: What are the main themes and interests of viewers based on the popular keywords and recurring words in video titles?



Findings: Common keywords in the video titles reflect diverse topics covered by the channels, including "Earth," "Gold," "Rescue," and "Wild."

Common Video Codes and Formats

Conclusion

Key Findings:

- Subscriber count does not directly correlate with view counts.
- Optimal video titles have an average length of 50-70 characters.
- BBC Channel has the highest number of highly viewed videos, while Discovery has the highest number of low-viewed videos.
- There is no strong relationship between video length and channel popularity.
- Most videos are published from Thursday to Saturday, corresponding with higher view counts during this period.