YouTube Trending Video Analytics Report

Introduction

YouTube, as the largest video-sharing platform globally, provides a dynamic insight into audience preferences and digital content trends. Understanding what drives a video to trend can offer valuable strategic advantages to creators, brands, and marketers. This project aims to analyze YouTube trending datasets across different countries to uncover key patterns, differences in regional content preferences, the role of sentiments, and the longevity of trending videos.

Abstract

The core objective of this analysis is to extract actionable insights from trending video datasets gathered from multiple countries. The process involved cleaning and standardizing diverse datasets, conducting sentiment analysis on video titles and tags, ranking content categories based on average views, and visualizing the temporal behavior of trending content. We developed interactive dashboards and comparative visuals to present findings. Results show that genres such as music, entertainment, and lifestyle consistently dominate trends, while positive sentiment in video titles and tags tends to correlate with higher engagement rates. Differences in regional tastes and trending durations reveal deeper cultural and audience behavior insights, providing a solid foundation for content strategy optimization.

Tools Used

- Python: For data preprocessing, cleaning inconsistent formats across regional datasets, and performing sentiment analysis (libraries: Pandas, Seaborn, Matplotlib, TextBlob).
- SQL: For analytical querying, including calculating category-wise average views, ranking top-performing categories, and aggregating engagement metrics.
- Tableau: For creating dynamic, interactive dashboards focusing on genre popularity, sentiment analysis, and regional comparisons.
- Power BI: To enhance visual storytelling through a global overview dashboard consolidating multiple data points.

Steps Involved in Building the Project

1. Data Cleaning and Standardization

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The initial step involved importing datasets from different countries (e.g., US, Canada, Germany, India) and ensuring uniformity across all key attributes: video titles, tags, views, likes, publish time, trending date, and category IDs. Missing or inconsistent data entries were handled through imputation or removal based on context.

2. Sentiment Analysis on Titles and Tags

Using Python's TextBlob library, sentiment polarity scores were calculated for each video's title and tags. Videos were then classified into three sentiment groups: positive, neutral, and negative. This analysis helped to correlate viewer engagement with the emotional tone of content.

3. SQL-Based Analytical Queries

Structured queries were used to:

- Calculate the average view count per video category.
- Identify top-ranking categories based on views, likes, and comments.
- Analyze trending durations by measuring the gap between publishing and trending dates.

4. Time-Series Visualization and Regional Analysis

Using Tableau, time-series plots were developed to observe:

- The average time videos take to start trending after publishing.
- Duration for which videos remain in trending lists.

Visuals were also created to compare the performance of various content types across countries, highlighting differences and similarities in user engagement.

5. Dashboard Creation

Final dashboards were built in Tableau and Power BI, featuring:

- Most popular video categories.
- Sentiment distribution charts.
- Region-wise trending comparisons.
- Trending time vs engagement visualizations.

Conclusion

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Our analysis concludes that content belonging to music, entertainment, and lifestyle categories consistently performs well across different countries, albeit with subtle regional differences. Positive sentiment in titles and tags generally drives better engagement, suggesting that emotional tone plays a key role in video virality. Moreover, time-series analysis revealed that most trending videos achieve peak visibility within the first 48 hours post-publishing, emphasizing the importance of initial engagement strategies.

The dashboards developed allow for dynamic exploration of these trends, offering stakeholders the ability to drill down into region-specific insights and adapt their content strategies accordingly.