YOUTUBE TRENDING VIDEO ANALYTICS

Introduction

YouTube is one of the most used video platforms, with multiple number of video uploaded everyday. Some of these videos go viral and start to appear in trending section, capturing the attention of audiences across different countries. This project explores what makes a video trend by analyzing trending videos across multiple regions like the US and India.

The aim is to understand patterns in views, sentiments, categories (genres), and publish times. By studying how long videos remain trending, their categories, and how people respond to titles and tags, we can uncover what contributes to video popularity. This analysis can help content creators, marketers, and analysts make smarter decisions.

Abstract

This project uses a multi-tool approach to examine the dynamics of YouTube trending videos. To determine the impact of emotional tone on viewership, the data is cleaned and enhanced with sentiment features (using VADER). Exploratory analysis looks at the categories that trend the most, the relationship between sentiment and user interaction, and the impact of publish time on visibility. Tableau dashboards offer comprehensive visual insights into sentiment distributions, publish-day trends, and category-wise view counts. The ultimate objective is to give marketers and content producers useful information to increase the reach and virality of videos.

Tools Used

Tool	Purpose
Python (Pandas, Seaborn, Matplotlib)	Data cleaning, transformation, and exploratory analysis
VADER (NLTK)	Sentiment analysis of video titles and tags
SQLite / SQL	Querying and joining category data
Tableau	Building visual dashboards and extracting insights
Jupyter Notebook	Combining code, output, and commentary

Steps Involved

1. **Data Cleaning & Preparation**

    - Removed duplicates and null values.
    - Merged datasets with category labels using category.

- Standardized column formats and converted date-time columns.

2. **Feature Engineering**

    - Extracted date components (day, month, hour).
    - Performed **sentiment analysis** using VADER on titles and tags.

3. **Exploratory Data Analysis**

    - Identified top-performing categories and time slots.
    - Analyzed the relationship between sentiments and user engagement.
    - Grouped and compared metrics by region and category.

4. **Visualization in Tableau**

➢ Created dashboards displaying:

- Average Views by Category
- Views by Publish Day
- Sentiment Distribution by Category
- View Sentiment Boxplots
- Heatmap of Engagement by Weekday

Conclusion

This analysis reveals that category, sentiment, and timing are major influencers in determining whether a video trends on YouTube. Key takeaways include:

- Gaming and Entertainment dominate viewership.
- Saturday is the most optimal publishing day.
- Neutral sentiment is most common, but optimizing for positive sentiment may improve engagement.
- Tableau dashboards effectively highlight these insights for strategic decision-making.