YOUTUBE TRENDING VIDEO ANALYTICS

1. Introduction :

YouTube is the world's largest video platform, with millions of videos uploaded daily. However, only a small fraction reach the "Trending" section, which provides massive exposure to creators and channels. The goal of this project is to analyse the YouTube Trending Videos dataset (US) from Kaggle, uncover insights about which categories dominate, which channels trend most often, and what engagement factors drive trending success.

The project uses SQL to query patterns, Python (Pandas, Matplotlib) for cleaning and analysis, and Tableau for interactive visualizations and dashboards. This combination provides a complete workflow from raw data to actionable insights.

2. Data Preparation :

The dataset used is USvideos.csv (with 40,000+ trending records) along with US_category_id.json for category mapping.

Steps taken:

- Cleaned and normalized data in Python (converted dates, removed missing values, calculated like rate and comment rate).
- Ran SQL queries to identify top trending channels, longest-trending videos, and category counts.
- Exported processed CSVs (category_trend_counts.csv, metrics_by_category.csv, avg_days_to_trend.csv) for use in Tableau.
- Built Tableau dashboards to visualize category trends, engagement metrics, and trending durations.

3. Analysis & Visualizations :

Key analyses included:

- Trending Categories (Bar Chart): Entertainment and Music dominate the US trending list, together forming ~60% of all records.
- Top Channels (Bar Chart): Major music channels such as Vevo, along with late-night talk shows, appear consistently in the top 10.
- Engagement Metrics (Grouped Bars): Categories like Music and Comedy have the highest like and comment rates, showing stronger audience connection.
- Views vs Likes (Scatter Plot): Strong positive correlation between views and likes; videos with higher engagement ratios trend more reliably.

- Longest-Trending Videos (Table): A few videos manage to stay in the trending list for over 20 days, though most disappear quickly.

4. Findings :

- Entertainment & Music categories dominate trending content.
- Large, established channels (Vevo, TV talk shows) repeatedly achieve trending status.
- Engagement, not just views, drives trending—videos with high like/comment rates trend faster and stay longer.
- Trending life span is short—most videos last fewer than 5 days on the trending list.
- Certain content types trend repeatedly, while smaller creators find it difficult to break through.

5. Recommendations :

- For Creators: Focus on content that sparks engagement (likes, shares, comments) rather than only views. Posting in highly-consumed categories such as Music or Entertainment increases the chance of trending.
- For Brands & Marketers: Leverage collaborations with high-engagement channels to maximize visibility. Timing uploads for maximum early engagement is critical.
- For YouTube Platform: Consider boosting underrepresented categories (e.g., Education, Nonprofits) to increase diversity in trending content.

6. Conclusion :

This project demonstrates how data analytics can provide meaningful insights into digital platforms. Using SQL, Python, and Tableau, we identified patterns in US YouTube trending data and revealed the dominance of Entertainment and Music, the importance of engagement, and the short life cycle of trending videos.

By combining technical tools with analytical reasoning, this project highlights the role of data in shaping strategies for content creators, marketers, and platforms. The analysis confirms that engagement is the key to trending success, and future work could extend this study to multi-country datasets for global comparison.