PROJECT 4 - YOUTUBE TRENDING VIDEO ANALYTICS

INTRODUCTION:

YouTube trends provide valuable insights into the viewing habits of people throughout the world. Using data analytics and visualization, this project examines trending YouTube data from four nations (US, India, Great Britain, and Japan) to identify viewing trends, category popularity, sentiment tones, and trending duration.

ABSTRACT:

The US, IN, GB, and JP are the 4 countries that are the focus of this project's analysis, where the **YouTube Trending Video Dataset** was used. By determining trending duration and conducting sentiment analysis on video titles, I have cleaned, combined, and improved the data. I determined the best-performing categories, viewers sentiments, and region-specific viewing patterns using tools like Tableau, SQL queries, and Python (Pandas, Seaborn). An interactive Tableau dashboard with components for data storytelling is the end result.

TOOLS USED:

- **Python**: Used for data cleaning, transformation, sentiment analysis (TextBlob), SQL queries (SQLite)
- **Seaborn / Matplotlib**: Exploratory data visualization through charts
- **Tableau**: To create final dashboard and gain insights

STEPS INVOLVED IN BUILDING THE PROJECT:

Step 1: Data Collection - Loaded 4 regional CSV files and corresponding category JSON files.

Step 2: Data Cleaning - Removed nulls, duplicates, convert date to datetime formats, and standardized text fields.

Step 3: Data Enrichment -

- Calculated trending_duration as the difference between trending and publishedAt dates.
- Mapped category_id to category_name.
- Applied sentiment analysis to titles and tags using TextBlob.

Step 4: SQL Analysis - Used SQLite to rank categories by average view count and identify top genres per region.

Step 5: Visualization -

- Time series of trending durations per region
- Bar chart of most viewed categories by country
- Violin plot showing sentiment score distribution

Step 6: Dashboard - Created a multi-panel Tableau dashboard with filters, charts, and data storytelling.

CONCLUSION:

This project shows how to turn region-specific YouTube trending data into insightful information. On average, music was the most popular genre across all regions, while sentiment analysis showed largely neutral to positive tones. Effective storytelling was made possible by combining Tableau visualizations with Python analysis to support data-driven content strategy.
