Title: YouTube Trending Video Analytics

Introduction:

In today's digital age, YouTube is a dominant platform for video consumption, entertainment, and content marketing. Understanding what makes a video trend can help creators, marketers, and data analysts make informed decisions. This project analyzes global trending video data from YouTube to uncover patterns such as the most popular categories, country-wise performance, viewer engagement, and sentiment of video titles.

Abstract:

The purpose of this project is to explore the factors behind trending YouTube videos by performing exploratory data analysis (EDA), SQL querying, sentiment analysis, and interactive dashboarding. The dataset used contains trending video statistics from multiple countries, including metrics such as views, likes, comments, and categories.

The project involves cleaning the dataset using Python, deriving insights using SQL, performing sentiment analysis on video titles, and visualizing trends in Tableau. The insights help identify high-performing categories, understand viewer engagement by region, and evaluate sentiment trends associated with video popularity.

Tools Used:

Tool	Purpose
Google Colab (Python)	Data cleaning, EDA, sentiment analysis
SQLite (via Colab)	Running SQL queries for structured insights
Tableau	Interactive dashboard creation for storytelling

Steps Involved in Building the Project:

Step 1: Dataset Upload and Loading

- Used the `Global YouTube Statistics.csv` dataset.
- Loaded the dataset into Google Colab using Pandas.

Step 2: Data Cleaning

- Removed null records using `dropna()`.
- Converted `publishedAt` to datetime.
- Cleaned and standardized column formats (e.g., numerical columns for views, likes, comments).

Step 3: Exploratory Data Analysis (EDA)

- Plotted top video categories based on frequency.
- Analyzed average views by country.
- Created a correlation heatmap between views, likes, and comments.

Step 4: Sentiment Analysis

- Used the TextBlob library to calculate sentiment polarity from video titles.
- Visualized sentiment distribution using histograms.

Step 5: SQL Querying

- Loaded the DataFrame into an SQLite database in Colab.
- Executed SQL queries to:
    - Rank categories by average views.
    - Find most liked videos per country.
    - Identify videos with high like-to-view ratios.

Step 6: Exporting and Visualizing in Tableau

- Exported cleaned data as `cleaned_youtube_data.csv`.
- Built Tableau dashboards showing:
    - Top categories by views
    - Country-wise average views (map)
    - Pie chart of sentiment distribution
    - Filters by region and category

Conclusion:

The YouTube Trending Video Analytics project provided valuable insights into global content trends. The analysis revealed that entertainment and music were consistently top-performing categories. Countries like the US and India had high engagement in terms of average views. Sentiment analysis showed that titles with positive sentiment often received higher likes.

By combining Python, SQL, and Tableau, this project successfully transformed raw YouTube data into actionable insights, laying the foundation for deeper analytics in digital media and content strategy**.**