Project Report

YouTube Trending Video Analytics

Abstract

The rise of digital media has transformed YouTube into one of the most influential platforms for content consumption. With millions of videos uploaded daily, analyzing trending videos provides valuable insights into user preferences, engagement metrics, and category popularity. This project focuses on analyzing YouTube trending video datasets to identify key patterns such as most popular categories, engagement ratios (likes, comments, shares), and geographical differences. The analysis was conducted using Power BI and SQL, enabling interactive dashboards and clear visualizations.

Introduction

YouTube is one of the largest online video-sharing platforms globally, with over 2 billion monthly active users. Videos that trend gain massive visibility and drive higher user engagement. Businesses, content creators, and marketers can benefit from understanding what makes a video trend.

This project explores trending YouTube videos using real-world datasets, highlighting factors that contribute to popularity such as video category, publication time, and audience engagement metrics. The goal is to draw actionable insights from data analytics that can help creators and organizations enhance their content strategies.

Tools Used

- **Power BI** – For data visualization and dashboard creation.
- **SQL** – For querying, filtering, and ranking categories by metrics such as average views, likes, and comments.
- **Excel/CSV Dataset** – To store and clean raw data.

Steps Involved in Building the Project

1. **Data Collection** – Collected YouTube trending dataset (CSV/Excel files from Kaggle).
2. **Data Cleaning & Preprocessing** – Handled missing values, standardized category names, and removed duplicates.
3. **Data Modeling** – Structured dataset into tables for categories, views, likes, and regions.
4. **SQL Analysis** – Wrote queries to rank categories by average views, identify top trending categories, and calculate engagement ratios.
5. **Visualization in Power BI** – ○ Created dashboards showing top trending categories. ○ Built charts for engagement comparison (likes vs comments vs dislikes). ○ Analyzed geographic trends across countries.
6. **Insights & Interpretation** – Highlighted factors that lead to trending content (e.g., music videos gaining higher engagement, weekends having more views, etc.).

Conclusion

This project demonstrated how YouTube trending video analytics can uncover meaningful insights into content popularity. By leveraging SQL and Power BI, we identified the most engaging categories, measured audience interaction, and visualized global differences. These findings can help content creators optimize their publishing strategy, businesses understand digital engagement trends, and researchers study audience behavior.