Project Report: YouTube Trend Analysis

Abstract

This project focuses on analyzing YouTube trending video data to uncover key insights into viewer preferences, popular categories, and performance metrics such as views, likes, and comments. The data was collected, cleaned, and transformed using Power Query, followed by insightful calculations built with DAX (Data Analysis Expressions). The final outcome is an interactive Power BI dashboard that visually represents the trends through charts and graphs, helping users understand what drives engagement and popularity on YouTube.

Introduction

With millions of videos uploaded to YouTube every day, understanding what makes certain videos trend is essential for content creators, marketers, and media analysts. This project aims to explore patterns and trends in YouTube data using business intelligence tools. By leveraging Power Query for data preparation, DAX for analytical calculations, and Power BI for visualization, this project provides a comprehensive overview of what contributes to a video's success on the platform.

Tools Used

- Microsoft Power Query: Used for data cleaning, transformation, and preparation before loading into Power BI.
- DAX (Data Analysis Expressions): Used to create calculated columns, measures, and dynamic metrics for deeper analysis.
- Microsoft Power BI: Used for data visualization and dashboard creation to represent insights interactively.

Steps Involved in Building the Project

1. Data Collection:
   The dataset containing YouTube trending videos was downloaded from a public source containing details such as title, category, views, likes, dislikes, comments, and publish time.
2. Data Cleaning and Transformation (Power Query):
   Using Power Query, unnecessary columns were removed, missing or inconsistent

values were handled, and data types were appropriately converted. New columns were added where necessary (for example, extracting dates from timestamps or categorizing videos).

3. Data Modeling and Calculations (DAX):
   In Power BI, relationships among tables were defined. Measures were created using DAX—for instance, total views, average likes, and engagement rate—to allow for dynamic analytics and comparisons.
4. Dashboard Development (Power BI):
   Multiple Power BI visuals were used, such as clustered column charts, pie charts, and card visuals, to represent different performance metrics. The dashboard provides a clear, interactive view where users can filter data by category or country to identify top-performing content.
5. Insight Generation:
   The dashboard helps highlight the most popular video categories, the correlation between likes and views, and which countries contribute most to trending content.

Conclusion

The YouTube Trend Analysis project successfully demonstrates how data cleaning, transformation, and business intelligence tools can turn raw data into meaningful insights. By combining Power Query, DAX, and Power BI, the project provides a structured and visual way to analyze YouTube trends. The interactive dashboard not only simplifies complex data but also makes trend analysis accessible to non-technical users, supporting data-driven decision-making for content creators and marketers.