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YouTube Statistics Dashboard - Documentation

# Introduction

The YouTube Statistics Dashboard is a comprehensive reporting solution designed to analyze and visualize key metrics related to YouTube channels, including subscribers, video views, categories, countries, and demographic trends. This documentation provides an overview of the dashboard, its purpose, and guidance on navigating through its various sections.

# Links

**GitHub:**

<https://github.com/kon-mat/DataAnalysis/tree/88a8db17d0ace8c0a8c94816f608ee07def72a25/PowerBI/Projects/YouTube%20Project>

**Dataset:**

<https://www.kaggle.com/datasets/nelgiriyewithana/global-youtube-statistics-2023?resource=download>

# Tools Used

**Database:** Microsoft SQL Server

**BI Tool:** Power BI

# Business Problem

The Europe Average Monthly Earnings Report addresses several key challenges faced by stakeholders:

* Understanding YouTube Channel Performance:
  + Analyzing subscriber counts, video views, and engagement metrics helps stakeholders understand channel performance.

**Next Steps:**

This documentation will provide detailed information about each section of the reporting solution:

* Channels Analysis: Insights into channel performance and demographic trends.
* Categories & Countries Analysis: Examination of categories, countries, and geographic distribution of YouTube channels.

# Data Used

**Introduction:**

The YouTube Statistics Dashboard utilizes data collected from YouTube and supplemented by internal analytics.

**Data Source:**

The YouTube Statistics Dashboard sources data from Kaggle.

**Data Structure:**

The dataset used in the dashboard consists of multiple tables, including CleanYouTubeStats, CategoryYouTubeStats, and CountryYouTubeStats, extracted from a Microsoft SQL Server database.

* CleanYouTubeStats:
  + YouTube Channel: Name of the YouTube channel
  + Category: Category or niche of the channel
  + Country: Country where the YouTube channel originates
  + Subscribers: Number of subscribers to the channel
  + Views: Total views across all videos on the channel
  + Subscribers growth per year: Number of new subscribers gained per year
  + Highest yearly earnings: Highest estimated yearly earnings from the channel
  + Lowest yearly earnings: Lowest estimated yearly earnings from the channel
  + Highest monthly earnings: Highest estimated monthly earnings from the channel
  + Lowest monthly earnings: Lowest estimated monthly earnings from the channel
* CategoryYouTubeStats:
  + Category: Category or niche of the channel
  + Subscribers: Number of subscribers to the category
  + Views: Total views across all videos on the channels in category
  + Number of channels: Number of channels in category
* CountryYouTubeStats:
  + Country: Country where the YouTube channel originates
  + Views: Total views across all videos on the channels in country
  + Number of channels: Number of channels in country
  + Population: Total population of the country
  + Country engagement: Number of views by population in country

## Data Preprocessing

The raw data undergoes preprocessing to ensure quality and consistency. Steps include data cleaning, transforming data types, handling missing values, and aggregating data for analysis.

# Channels

Cards:

* “Top channel by subscribers (mil.)”
  + Metric: Top 1 YouTube Channel by Subscribers
* “Top channel by views (bil.)”
  + Metric: Top 1 YouTube Channel by Views
* “Top channel by subs growth / year (mil.)”
  + Metric: Top 1 YouTube Channel by Subscribers growth per year

Charts:

* Bar chart – “Top 10 channels by subscribers”
  + Metric: Top 10 YouTube Channel by Subscribers
  + Insight: Visualize the distribution of subscriber counts across the top 10 YouTube channels. Identify the channels with the highest subscriber counts and.
* Matrix – “Yearly/Monthly earnings”
  + Metric: Highest/Lowest Yearly/Monthly earnings by YouTube Channel
  + Insight: Compare the earnings of YouTube channels on a yearly and monthly basis. Identify channels with the highest and lowest earnings to understand the revenue distribution and potential trends in monetization strategies.
* Map – “Number of YouTube channels by country”
  + Metric: Number of channels by Country
  + Insight: Geographically visualize the distribution of YouTube channels across different countries. Identify regions with a higher concentration of channels to understand regional content creation trends and audience engagement.
* Scatter chart – “Total views and subscribers by YouTube channel”
  + Metric: Subscribers, Views by YouTube Channel
  + Insight: Explore the relationship between subscriber count and total views for YouTube channels. Identify channels with high subscriber engagement and assess their viewership metrics to understand audience preferences and content performance.

# Categories & Countries

Cards:

* “Total number of subscribers (mil.)”
  + Metric: Total Subscribers
* “Total number of views (bil.)”
  + Metric: Total Views
* “Total number of channels”
  + Metric: Number of YouTube channels

Charts:

* Bar chart – “Top categories by number of channels”
  + Metric: Top 10 Category by Number of channels
  + Insight: Analyze the distribution of YouTube channels across different categories. Identify the top categories with the highest number of channels to understand content diversity and audience interests on the platform.
* Matrix – “Country engagement”
  + Metric: Total views, Population, Country engagement by Country
  + Insight: Evaluate the engagement levels of different countries on YouTube by comparing total views and population data. Understand how engagement metrics vary across countries and assess the effectiveness of content localization strategies.
* Map – “Total views by country”
  + Metric: Views by Country
  + Insight: Visualize the distribution of total views across different countries. Identify regions with high viewership to pinpoint audience hotspots and potential growth opportunities for content creators and advertisers.
* Scatter chart – “Total views and subscribers by category”
  + Metric: Subscribers, Views by Category
  + Insight: Explore the relationship between subscriber count and total views across different content categories. Identify categories with high subscriber engagement and assess their viewership metrics to inform content strategy and audience targeting efforts.

# Solution Approach

## Introduction

In this section, we will discuss the approach taken to develop the YouTube Statistics Dashboard, addressing the challenges outlined in the Business Problem section.

## Solution Approach

The Europe Average Monthly Earnings Report was developed using a systematic approach:

1. Data Collection: Data sourced from [Kaggle](https://www.kaggle.com/datasets/nelgiriyewithana/global-youtube-statistics-2023?resource=download).
2. Data Preparation: Preprocessed the data using [SQL](https://github.com/kon-mat/DataAnalysis/tree/88a8db17d0ace8c0a8c94816f608ee07def72a25/PowerBI/Projects/YouTube%20Project/Dataset%20files) to ensure it is suitable for analysis.
3. Data Modeling: Structured data models created in Power BI for analysis and visualization.
4. Report Design: Designed the report in Power BI, focusing on design interactive and intuitive visualizations using Power BI for insightful analysis.

## Conclusion

The YouTube Statistics Dashboard provides a robust solution for analyzing YouTube channel metrics and audience engagement trends, enabling stakeholders to make informed decisions and drive strategic initiatives effectively.