Website Traffic & Engagement Analysis

📖 Project Overview:

This Python project analyzes web traffic and user engagement data from a single website to uncover behavioral insights and optimize performance across marketing channels and time periods. It covers the full data analysis pipeline from cleaning to advanced visualization.

🖊 Workflow Summary:

1. Data Cleaning & Preprocessing:

   o Renamed columns for clarity

   o Converted data types to correct formats (e.g., datetime)

   o Handled missing values and inconsistencies

2. Key Analyses Performed:

   o Sessions & Users Over Time: Trend analysis of how traffic fluctuates

   o User Distribution by Channel: Breakdown of total users per marketing channel

   o Average Engagement Time by Channel: Highlights channel effectiveness

   o Engagement Rate Distribution: Channel-wise spread of engagement efficiency

   o Engaged vs. Non-Engaged Sessions: Comparison of visitor quality

   o Traffic by Hour & Channel: Time-slot vs. channel effectiveness visualized via heatmap

   o Engagement Rate vs. Sessions Over Time: Correlation between interest and traffic

📦 Tools & Libraries Used:

- Python

- pandas, numpy – Data wrangling and manipulation

- matplotlib, seaborn – Custom visualizations

🎯 Objective:

To derive actionable insights from website analytics data that inform marketing decisions, user engagement strategies, and optimal content timing.