



# Website Performance Analysis

Leveraging data-driven insights to understand user behavior, optimize channel performance, and enhance engagement patterns across digital touchpoints.

# Our Analytical Journey

01

## Import Libraries

Set up essential Python tools for data analysis and visualization

02

## Exploratory Analysis

Clean, transform, and engineer features from raw data

03

## Visualize Insights

Create compelling visualizations to reveal business patterns

04

## Drive Action

Deliver recommendations to enhance engagement and marketing

# Building the Foundation

## Essential Libraries

We imported powerful Python libraries to enable comprehensive analysis:

- **NumPy** for numerical computations
- **Pandas** for data manipulation
- **Matplotlib & Seaborn** for visualization



# Exploratory Data Analysis



## Data Cleaning

Removed unnamed and redundant rows to ensure data consistency and accuracy



## Type Conversion

Converted columns to appropriate data types for proper analysis



## Feature Engineering

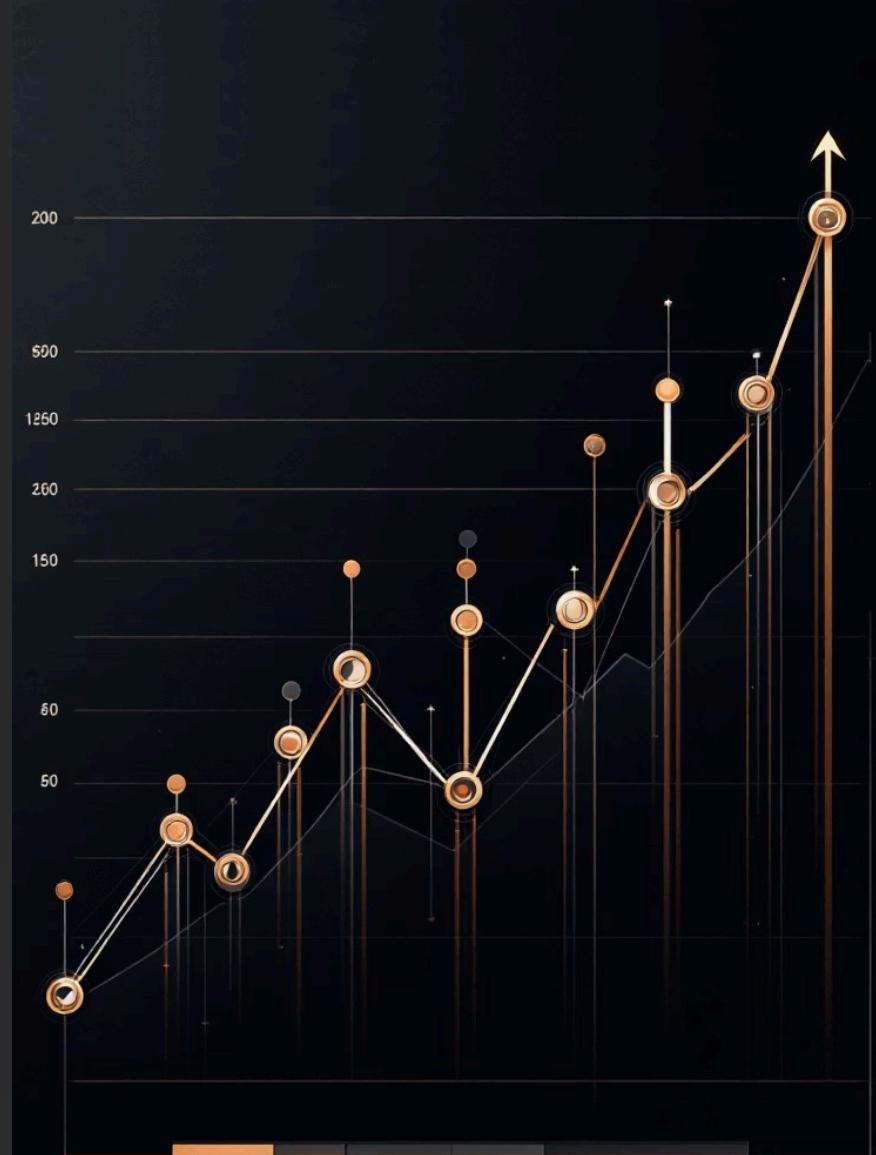
Created 'DateHour' column to separate date and hour components for granular insights



# Traffic Patterns Over Time

Analyzing sessions and users over time reveals critical patterns in website traffic, helping us understand how visitor behavior fluctuates across different periods.

These insights enable strategic planning for content releases and resource allocation during peak activity windows.



# Channel Performance Analysis

## Total Users by Channel

Identified which marketing channels drive the highest user volume for optimization

## Engagement Time

Compared average engagement across channels to evaluate content effectiveness

## Engagement Rate

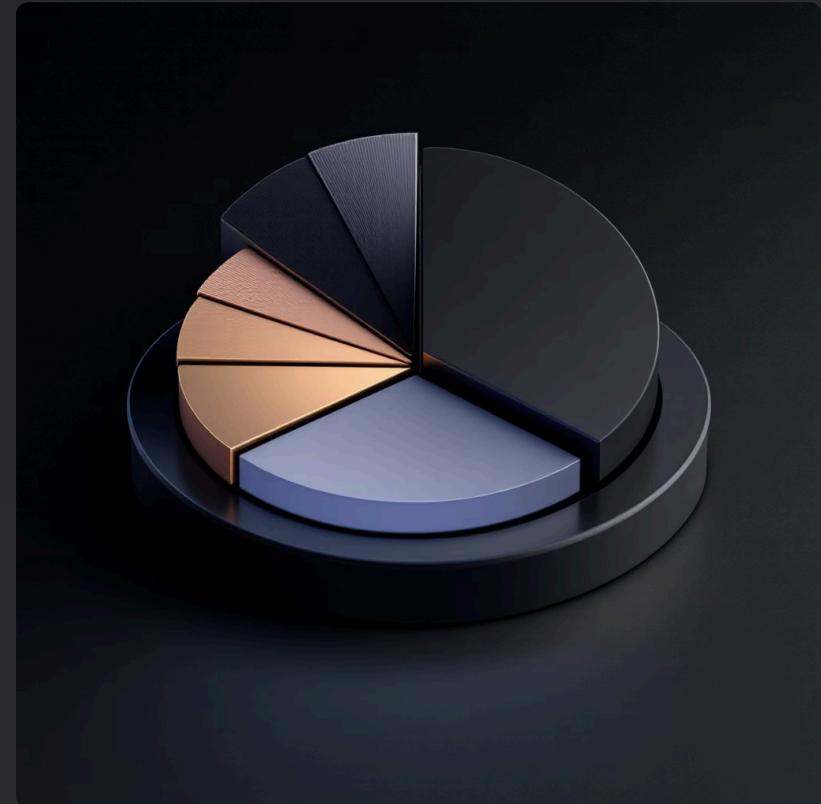
Visualized rate variations to identify high-performing traffic sources

# User Engagement Quality

## Engaged vs Non-Engaged Sessions

We compared the proportion of engaged sessions to non-engaged ones, revealing overall user interaction quality.

This metric serves as a critical indicator of content relevance and user experience effectiveness across the platform.





# Peak Activity Insights

Created a comprehensive heatmap visualizing traffic by hour and channel, revealing when different audience segments are most active.

This enables targeted content scheduling and optimized campaign timing for maximum reach and engagement.

# Key Takeaways

## Data-Driven Decisions

Comprehensive analysis reveals actionable patterns in user behavior and channel performance

## Channel Optimization

Clear insights into which marketing channels deliver the highest engagement and user volume

## Timing Matters

Peak activity hours identified across channels enable strategic content scheduling

## Engagement Quality

Understanding engaged versus non-engaged sessions guides UX improvements



# Driving Marketing Excellence

This Website Performance Analysis project delivered valuable insights into user behavior, channel performance, and engagement patterns.

By leveraging data-driven visualization and exploration, we can now derive actionable recommendations to enhance website engagement and marketing effectiveness across all channels.