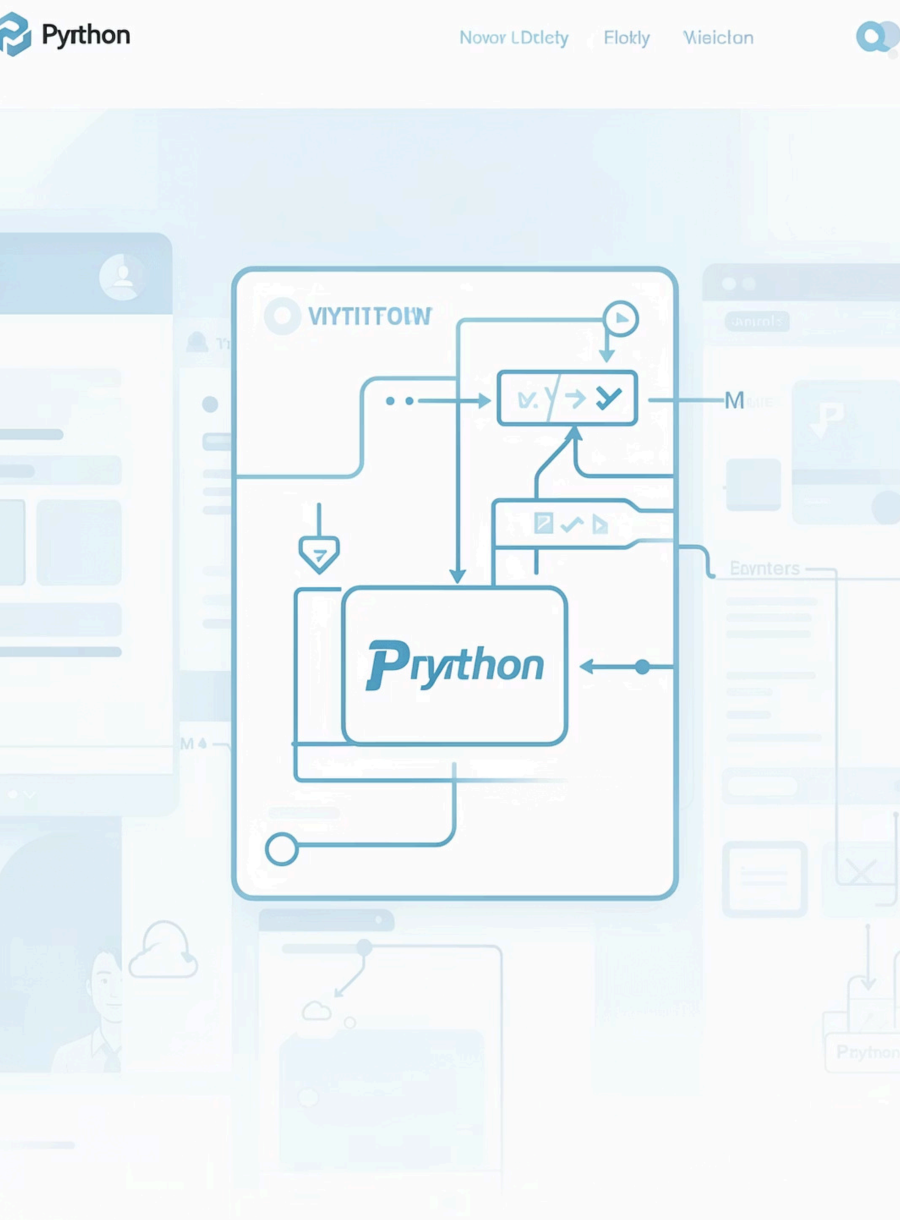


Website Performance & Engagement Analysis Using Python

Unlocking insights from website performance data.

Project Overview

1

Analyze Performance

Understand user traffic, engagement, and session quality.

2

Identify Key Patterns

Pinpoint high-performing channels and peak activity hours.

3

Optimize & Improve

Enhance user engagement and overall website performance.

Dataset Summary

- **Source:** Website analytics dataset (CSV)
- **Key Columns:** Channel, DateHour, Users, Sessions, Engagement Rate, Avg. Engagement Time
- **Data Type:** Time-series & categorical

Tools & Libraries

Python

Core programming language.

Pandas

Data manipulation & analysis.

NumPy

Numerical computations.

Matplotlib

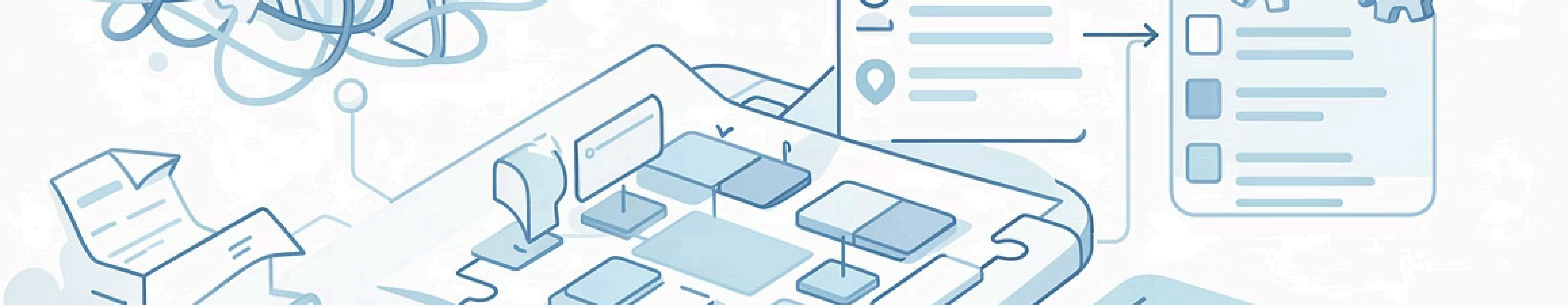
Basic visualizations.

Seaborn

Advanced visualizations.

Jupyter Notebook

Development environment.



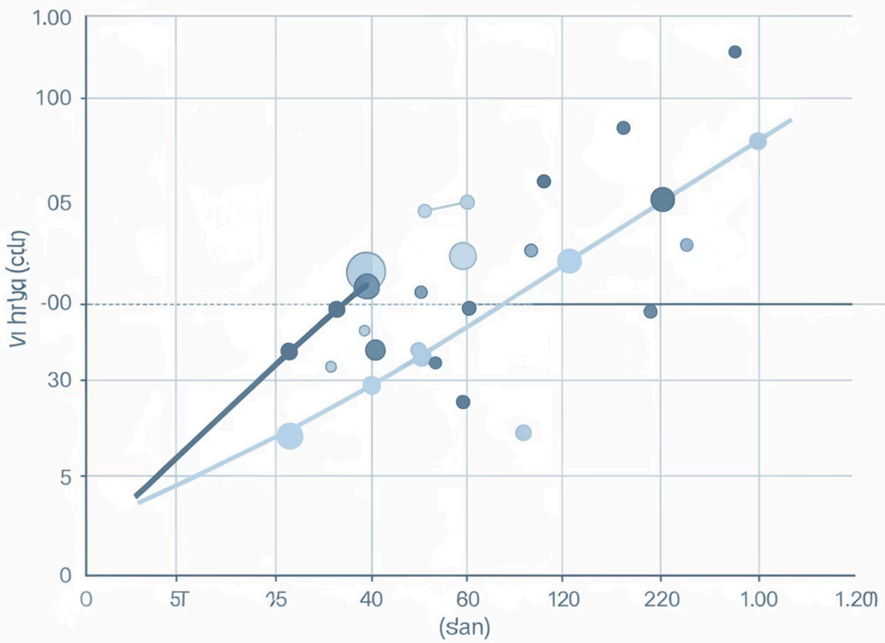
Data Cleaning & Preparation

- Standardized column headers.
- Converted DateHour to datetime format.
- Handled missing/invalid values.
- Extracted 'Hour' feature for hourly analysis.

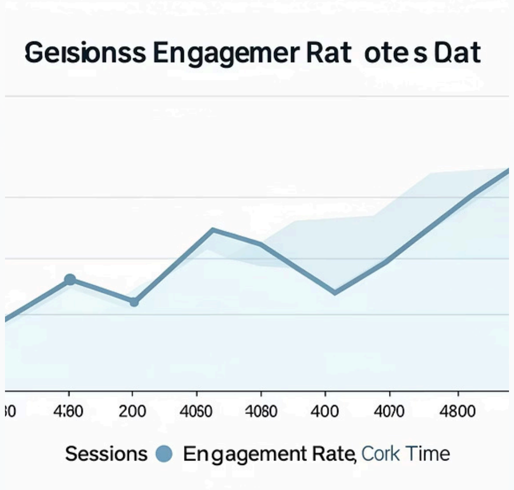
Exploratory Data Analysis (EDA)

Understanding data structure and distribution:

- **df.info():** Inspected data types, missing values.
- **df.describe():** Provided statistical summaries.
- **Initial Visualizations:** Identified trends & anomalies.

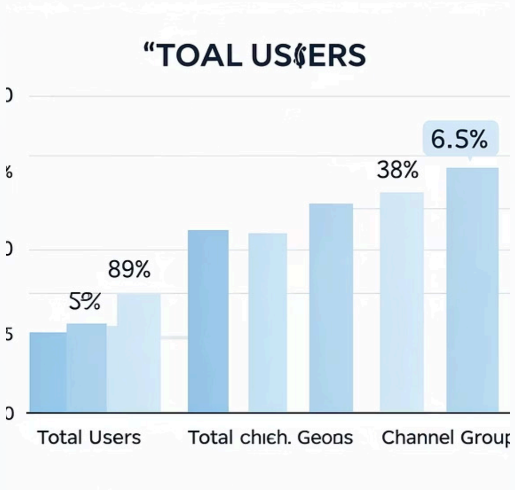


Visual Analysis & Insights



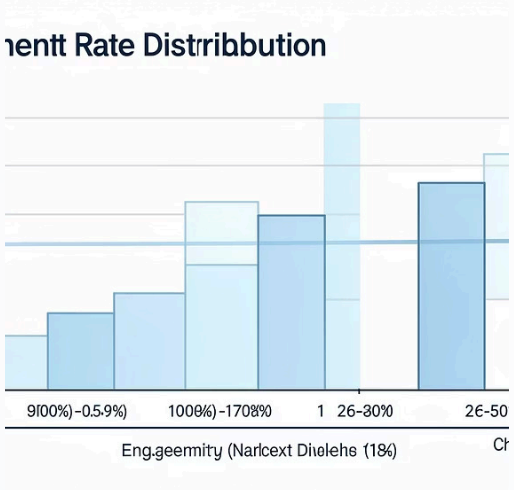
Line Chart

Sessions vs. Engagement Rate Over Time.



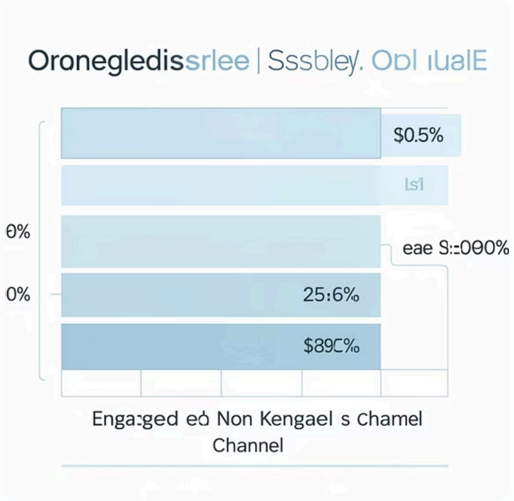
Bar Charts

Users & Avg. Engagement Time by Channel.



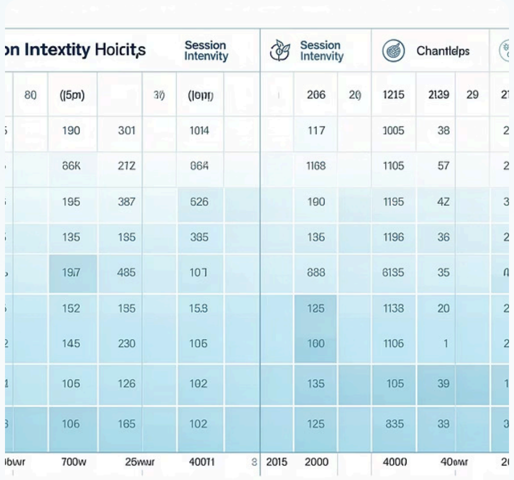
Box Plot

Engagement Rate Distribution.



Stacked Bar

Engaged vs. Non-Engaged Sessions.



Heatmap

Session Intensity by Hour & Channel.

Key Findings

Traffic vs. Engagement

High traffic channels may have lower engagement.

User Quality

Fewer users can mean higher engagement.

Peak Hours

Vary across different channels.

Non-Engaged Sessions

Significant portion, ripe for optimization.

Business Insights

- **Focus:** Prioritize high-engagement channels.
- **Optimize:** Improve content for low-engagement channels.
- **Timing:** Schedule campaigns during peak engagement.
- **Experience:** Reduce non-engaged sessions via UX improvements.

Conclusion

Python is powerful for website analytics:

- Data cleaning & feature engineering.
- Meaningful insights from raw data.
- Supports data-driven decision-making.
- Improves user engagement & website performance.