

2025



Customer Engagement Analytics

[Channel and Time-Based Performance Report]



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Table of Contents

1. Overview
2. Problem Statement
3. Key Questions Solved
4. Tools & Technologies
5. Key Visuals & Insights
6. Business Recommendations
7. Project Use Cases
8. Author

Overview

This project analyzes user behavior data from a website/app to uncover which marketing channels and time slots generate the highest user engagement and conversions.

The analysis includes:

- Traffic source performance
- Hourly engagement trends
- Conversion behavior analysis
- Actionable recommendations for marketing & UX teams

 Dataset: Cleaned CSV file containing session-level user engagement metrics (Sessions, Events, Engagement Rate, etc.)

Problem Statement

A business wanted to understand:

- Which traffic sources are driving the most engaged users
- What time of day users are most active
- Which metrics are most correlated with conversions
- Which channels need UX or content improvement

Key Questions Solved

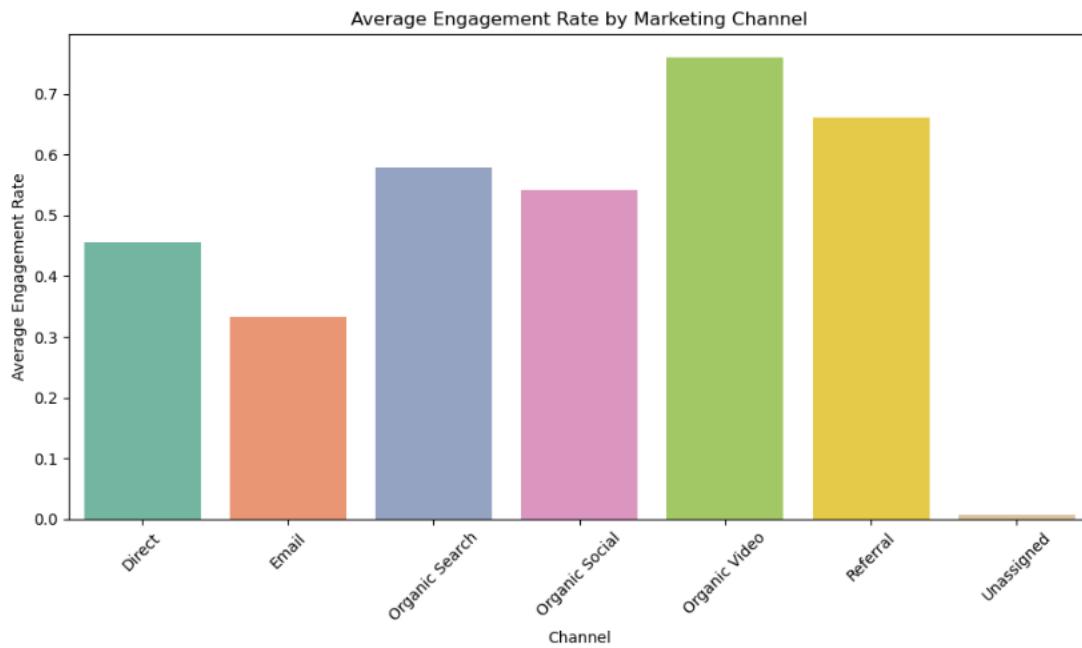
1. Which channels have the highest engagement rates?
2. What are the peak hours of user activity?
3. Is there a link between Sessions and Event Count?
4. Are there high-traffic but low-engagement channels?
5. Which metrics most impact conversions (events)?

Tools & Technologies

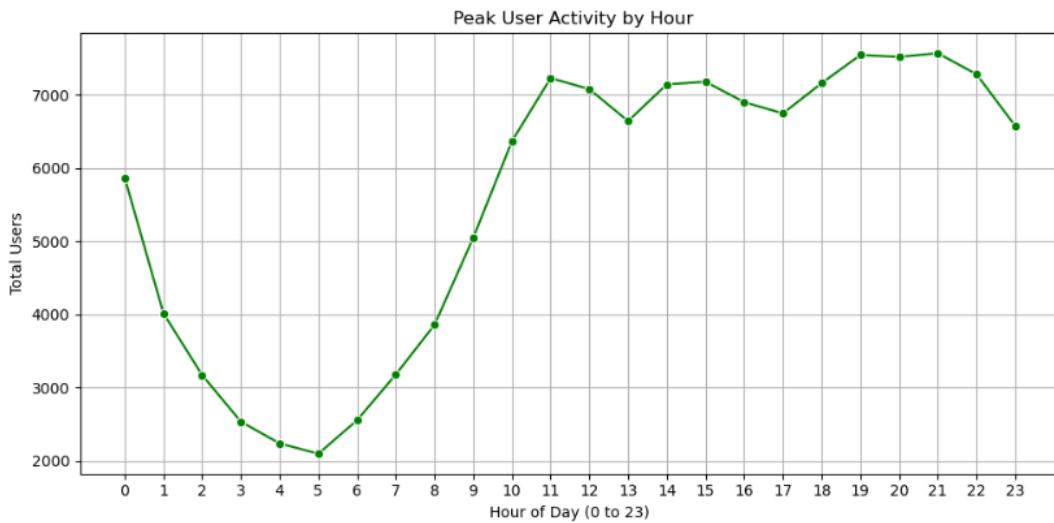
- Python (Pandas, Seaborn, Matplotlib)
- GitHub (Project Version Control)
- Jupyter Notebook (for code + analysis)

Key Visuals & Insights

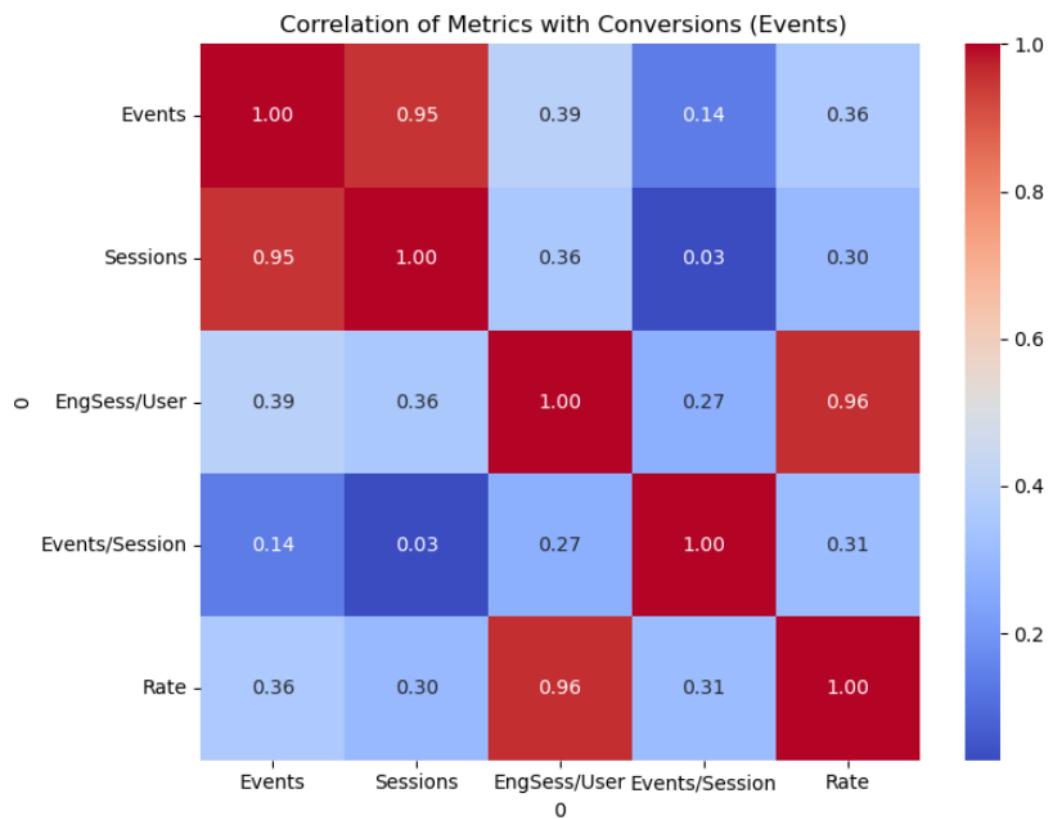
Engagement Rate by Channel (Bar Chart)



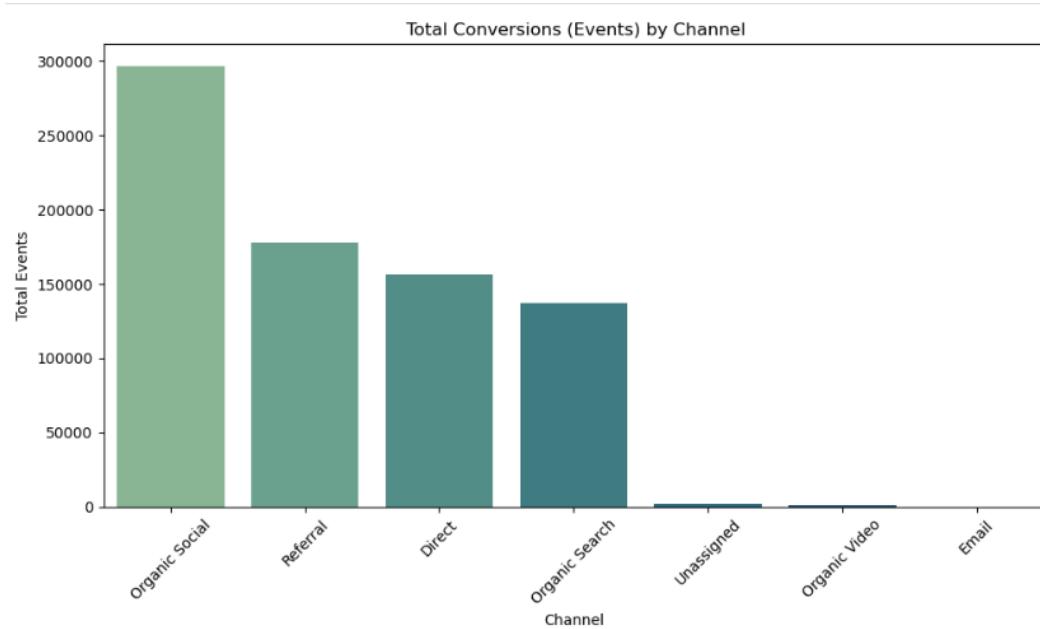
Users & Sessions by Hour (Line Chart)



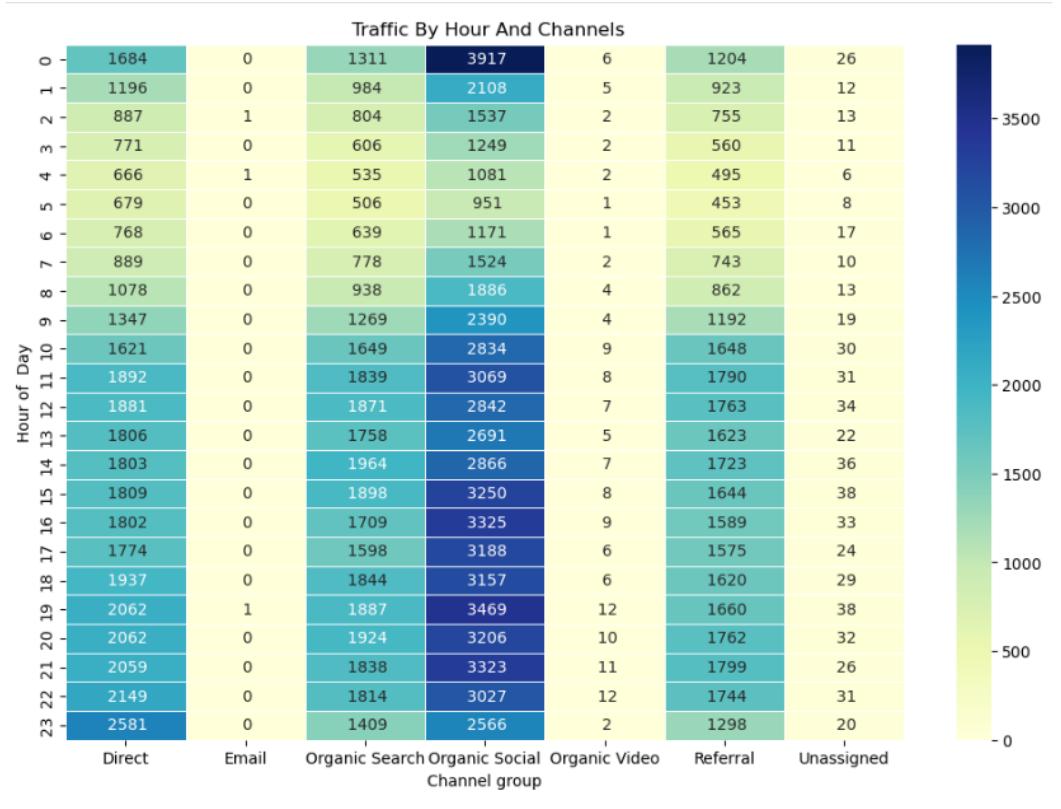
📌 Correlation Heatmap of Metrics



📌 Conversion Drivers (Bar Plot)



📌 Traffic By Hour and Channels.



Key Insights:

- Organic Search and Direct channels had the highest engagement rates
- Users were most active between 8–10 PM
- Sessions & Events had strong correlation ($r \approx 0.85$)
- Some channels had high traffic but low engagement
- Engagement Rate & Events per Session most impact conversions

☑ Business Recommendations

- Focus campaign budget on top-performing channels
- Schedule posts or ads during high-engagement hours
- Optimize low-engagement traffic sources
- Improve interactivity to increase events per session

Project Use Cases

- Data Analyst or BI Analyst portfolios
- Marketing & Web UX analytics
- Interview case study demos
- Power BI dashboard presentations

Author

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 Aspiring Data Analyst | Python | Power BI | Business Insights

 Thank you for reviewing this project.