

Website Data Analysis: Key Insights & Summary Report

1. Overall Data Snapshot:

- The dataset contains **3,182 records** of website traffic from January 1, 2024, to January 30, 2024.
- Key metrics tracked include Users, Sessions, Engaged Sessions, Engagement Rate, and Event Count, segmented by Channel Group and hourly timestamps.

2. Channel Group Performance:

- **Top Acquisition Channels:**
 - **Direct** traffic and **Organic Social** are the dominant channels, consistently driving the highest number of users and sessions.
 - **Organic Search** and **Referral** also contribute significant traffic.
- **User Engagement Quality:**
 - **Direct** traffic leads in total volume but shows a middling engagement rate.
 - **Organic Video** and **Email** channels, while lower in total volume, show promisingly **high average engagement times per session**, indicating high-quality, interested users.
 - The **Engagement Rate** is most stable and highest for channels like **Organic Search** and **Email**, as seen in the box plot, suggesting consistent user intent.

3. User Behavior Over Time:

- **Peak Traffic Hours:** Website traffic (sessions) follows a clear daily pattern, ramping up in the late morning (~**10:00-11:00 AM**), peaking in the afternoon (~**12:00-2:00 PM**), and remaining high until the evening (~**8:00-10:00 PM**). The heatmap visually confirms this pattern across major channels.
- **Sessions vs. Engagement Rate:** The over-time plot reveals an **inverse relationship** between the number of sessions and the engagement rate. Periods with very high session volume often correspond to a dip in the average engagement rate, and vice-versa. This could indicate that peak traffic times attract more, but less focused, users.

4. Session Engagement Analysis:

- **Engaged vs. Non-Engaged Sessions:** A significant portion of sessions across all channels are **Non-Engaged**. For example, while **Direct** traffic has the highest number of engaged sessions, it also has a very high number of non-engaged sessions.
- This highlights a key area for improvement: **converting passive visits into engaged interactions**, especially on high-volume channels like **Direct** and **Organic Social**.

5. Data Quality Note:

- The "Unassigned" channel contains sessions with 0 users, which may represent bot traffic, tracking errors, or technical issues. This data should be filtered or investigated further for a clean marketing analysis.