📈 Website Traffic and Engagement Analysis

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**🔍 Objective**

Analyze website user traffic, engagement, and channel-wise performance using hourly data from analytics tools (e.g., Google Analytics 4). This report answers key business questions to help optimize user acquisition and content strategy.

**📁 Dataset Description**

|  |  |
| --- | --- |
| Column Name | Description |
| Session primary channel group | Traffic source (e.g., Direct, Organic Social) |
| Date + hour (YYYYMMDDHH) | Timestamp of traffic in hourly granularity |
| Users | Unique users in that hour |
| Sessions | Total sessions started |
| Engaged sessions | Meaningful sessions (time spent, clicks etc.) |
| Average engagement time per session | Time (in seconds) spent actively in each session |
| Engaged sessions per user | Engaged sessions per unique user |
| Events per session | Interactions per session |
| Engagement rate | % of sessions that were engaged |
| Event count | Total number of events triggered |

**1️⃣ What patterns or trends can you observe in website sessions and users over time?**

✅ Conclusion:

Analysis of the time-series data reveals clear and actionable patterns in website traffic:  
  
• Peak Traffic Windows:  
 - The highest user activity occurs between 3 PM – 8 PM and 12 AM – 3 AM.  
 - These hours show consistent spikes in both sessions and users.  
  
• Consistent Alignment:  
 - Trends for sessions and users are highly correlated.  
 - Suggests stable behavior and one session per visit on average.  
  
• Low Activity Periods:  
 - Early morning (6 AM – 11 AM) shows low traffic.  
  
📌 Business Implication:  
 - Schedule content/ad campaigns during peak windows.  
 - Use low-traffic times for updates or testing.

**2️⃣ Which marketing channel brought the highest number of users to the website?**

📊 Insight:

• Organic Social is the top contributor (~47,000 users).  
• Others include:  
 - Direct: ~30,000  
 - Organic Search: ~28,000  
 - Referral: ~26,000  
• Email, Organic Video, Unassigned show negligible traffic.  
  
💡 Action:  
 - Strengthen underperforming channels.  
 - Analyze what works in Organic Social for replication.

**3️⃣ Which channel has the highest average engagement time?**

⏱️ Insight:

• Organic Video: ~175 seconds/session (most engaging)  
• Followed by:  
 - Referral: ~90s  
 - Unassigned: ~75s  
 - Email: ~70s  
 - Organic Social: ~60s  
 - Organic Search: ~47s  
 - Direct: ~45s  
  
📌 Interpretation:  
 - Video content retains users longer.  
 - Focus on enhancing multimedia strategy.