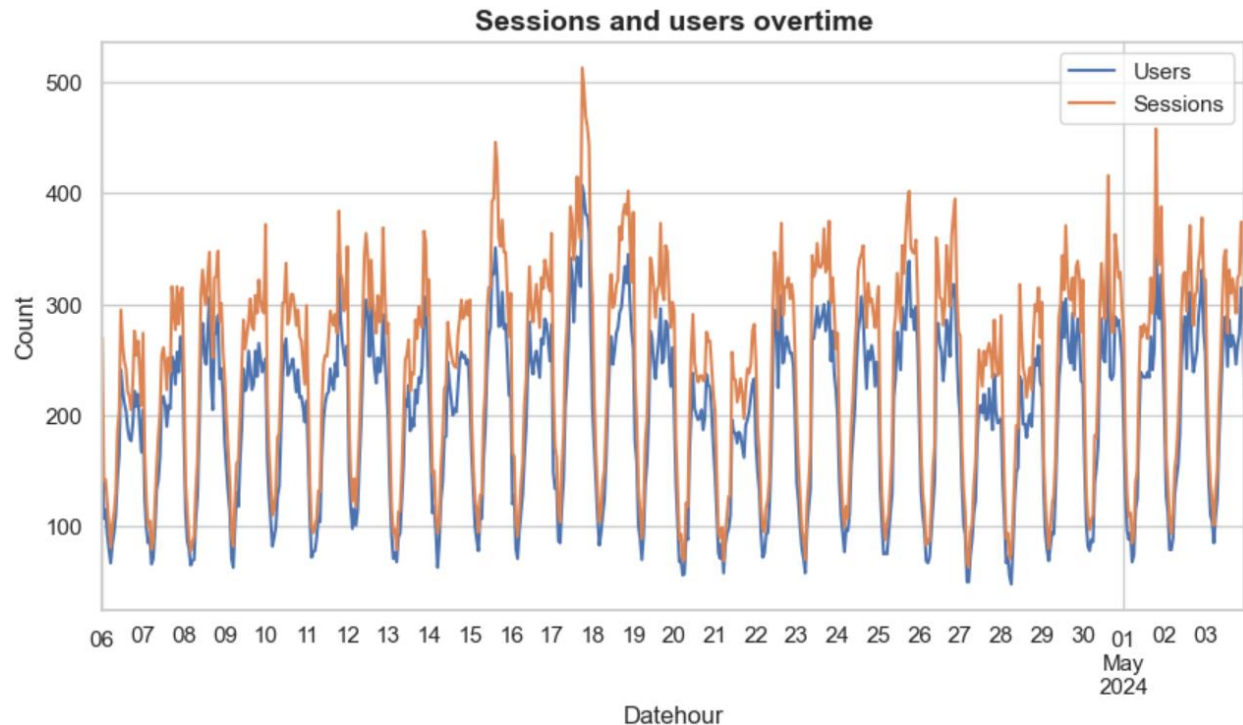


Website Performance Analysis

Questions

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

Output:



➤ Key Observations:

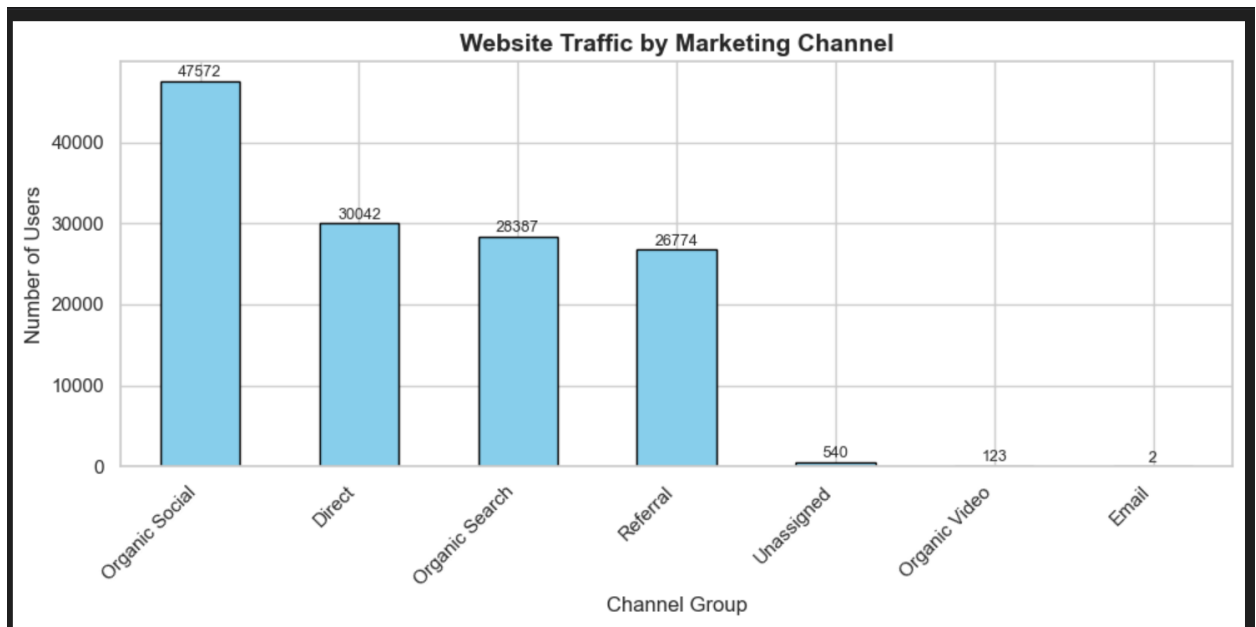
- **Daily cycles:** Both sessions and users show recurring peaks and troughs, suggesting strong daily activity patterns. Traffic rises during certain hours (likely daytime/evening) and dips during off-hours (late night/early morning).
- **Sessions consistently higher than users:** The orange line (sessions) is always above the blue line (users). This means individual users often generate multiple sessions, indicating repeat visits or extended browsing behavior.
- **Fluctuating peaks:** Some days show significantly higher spikes in both sessions and users compared to others. These peaks may align with marketing campaigns, social media posts, or content releases.
- **Parallel movement:** The two lines move together—when sessions rise, users rise too. This correlation suggests that traffic growth is driven by new users rather than just existing users returning more often.
- **Engagement consistency:** While the magnitude of peaks varies, the overall pattern remains consistent across days, showing a stable audience with predictable engagement cycles.

➤ **Business Insights:**

- **Daily cycles** → Optimize posting schedules and ad campaigns during peak hours.
- **Sessions > Users** → Indicates loyalty; users return multiple times. You can leverage this by improving retention strategies (e.g., personalized content).
- **Fluctuating peaks** → Investigate what caused traffic surges (campaigns, referrals, trending topics) and replicate those strategies.
- **Parallel movement** → Growth is user-driven, so expanding acquisition channels (SEO, social, referrals) will directly boost sessions.
- **Stable cycles** → Predictable traffic allows better resource allocation (server load, customer support, ad spend).

2. Which marketing channel brought the highest number of users to the website, and how can we use this insight to improve traffic from other sources?

Output:



Key Findings:

The highest number of users came from Organic Social (47,572 users).

Other channels contributed fewer users:

- Direct: 30,042
- Organic Search: 28,387
- Referral: 26,774
- Unassigned: 540
- Organic Video: 123
- Email: 2

This clearly shows that **Organic Social is the dominant traffic driver**, far outperforming all other channels.

Why Organic Social Works:

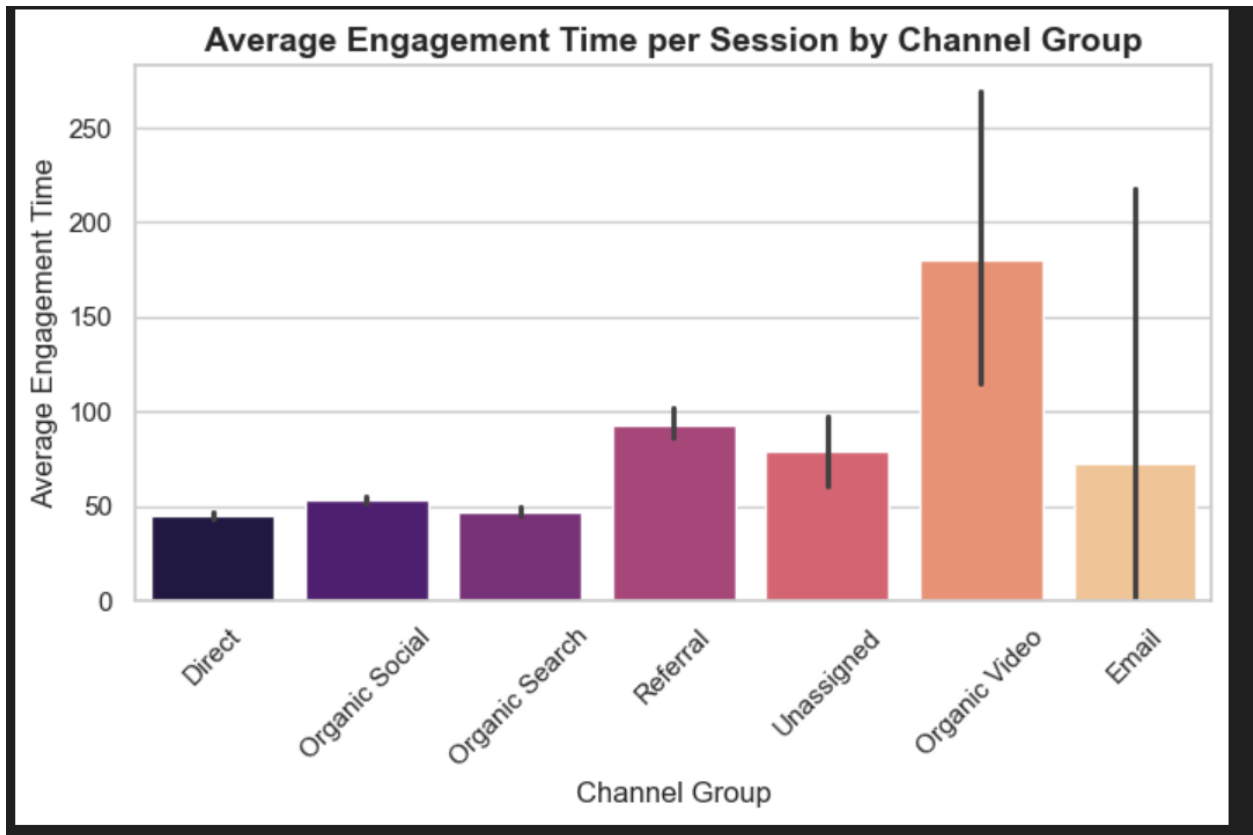
- **High reach & visibility:** Social platforms amplify content quickly to large audiences.
- **Engagement-driven:** Likes, shares, and comments boost organic reach.
- **Community effect:** Users trust peer recommendations and shared content more than ads.

How to Use This Insight to Improve Other Channels:

1. **Direct Traffic**
 - Encourage repeat visits by improving **user experience** and **bookmarking prompts**.
 - Use personalized landing pages to convert one-time visitors into loyal users.
2. **Organic Search**
 - Apply SEO best practices: optimize keywords, meta tags, and site speed.
 - Repurpose high-performing social content into blog posts/articles to rank in search.
3. **Referral Traffic**
 - Build partnerships with niche websites, blogs, and influencers.
 - Guest posting and backlinks can replicate the visibility effect of social shares.
4. **Email Marketing**
 - Extremely underutilized (only 2 users).
 - Create engaging newsletters, segment audiences, and promote exclusive content.
 - Use insights from social campaigns (popular posts) to craft email topics.
5. **Organic Video**
 - Expand presence on YouTube/short-form video platforms.
 - Repurpose social content into video format to capture new audiences.

3. Which channel has the highest average engagement time, and what does that tell us about user behavior and content effectiveness?

Output:



Key Findings:

- The channel with the highest average engagement time is Organic Video.
- This is followed by Referral and Unassigned, while Direct, Organic Social, and Organic Search show lower engagement times.
- Email has moderate engagement time but with high variability (large error bar), meaning results are inconsistent.

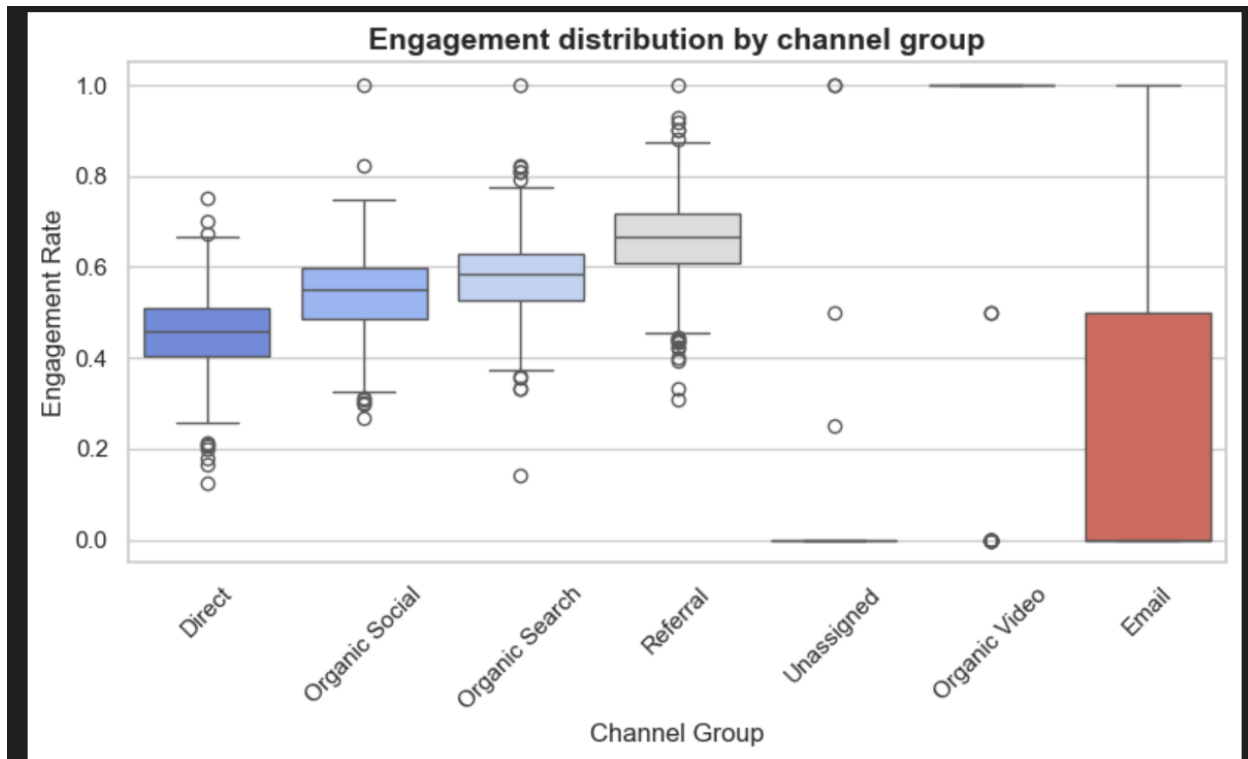
What This Tells Us About User Behavior?

1. Organic Video (highest engagement)
 - Users who arrive via video content spend significantly more time per session.
 - This suggests video is highly effective at capturing attention and encouraging deeper exploration.
 - Video content often provides richer storytelling, tutorials, or entertainment, which naturally keeps users engaged longer.
2. Referral traffic (second highest)
 - Visitors coming from partner sites or blogs are more intentional.
 - They likely clicked through with a specific interest, leading to longer sessions.
3. Direct, Organic Social, and Search (lower engagement)
 - These channels drive large volumes of users but with shorter average engagement.

- Direct visitors may be checking something quickly.
 - Social traffic often skims content before moving on.
 - Search traffic may bounce if the landing page doesn't fully match intent.
4. Email (variable engagement)
- While few users come from email, those who do sometimes spend a lot of time.
 - This variability suggests email campaigns need better targeting and personalization.

4. How does engagement rate vary across different traffic channels?

Output:



Key Observations:

- ✓ **Email channel:** Shows the **highest and most consistent engagement rate**. The box plot is tight with fewer outliers, meaning users who come via email are highly engaged and behave predictably.
- ✓ **Direct, Organic Social, Organic Search, Referral:** These channels have **moderate engagement rates** with wider variability. Some sessions are highly engaged, while others drop off quickly.
- ✓ **Unassigned & Organic Video:** Both shows **very low engagement rates** with minimal variation. This suggests that while these channels may bring users, they don't sustain meaningful interaction.

What This Means About User Behavior?

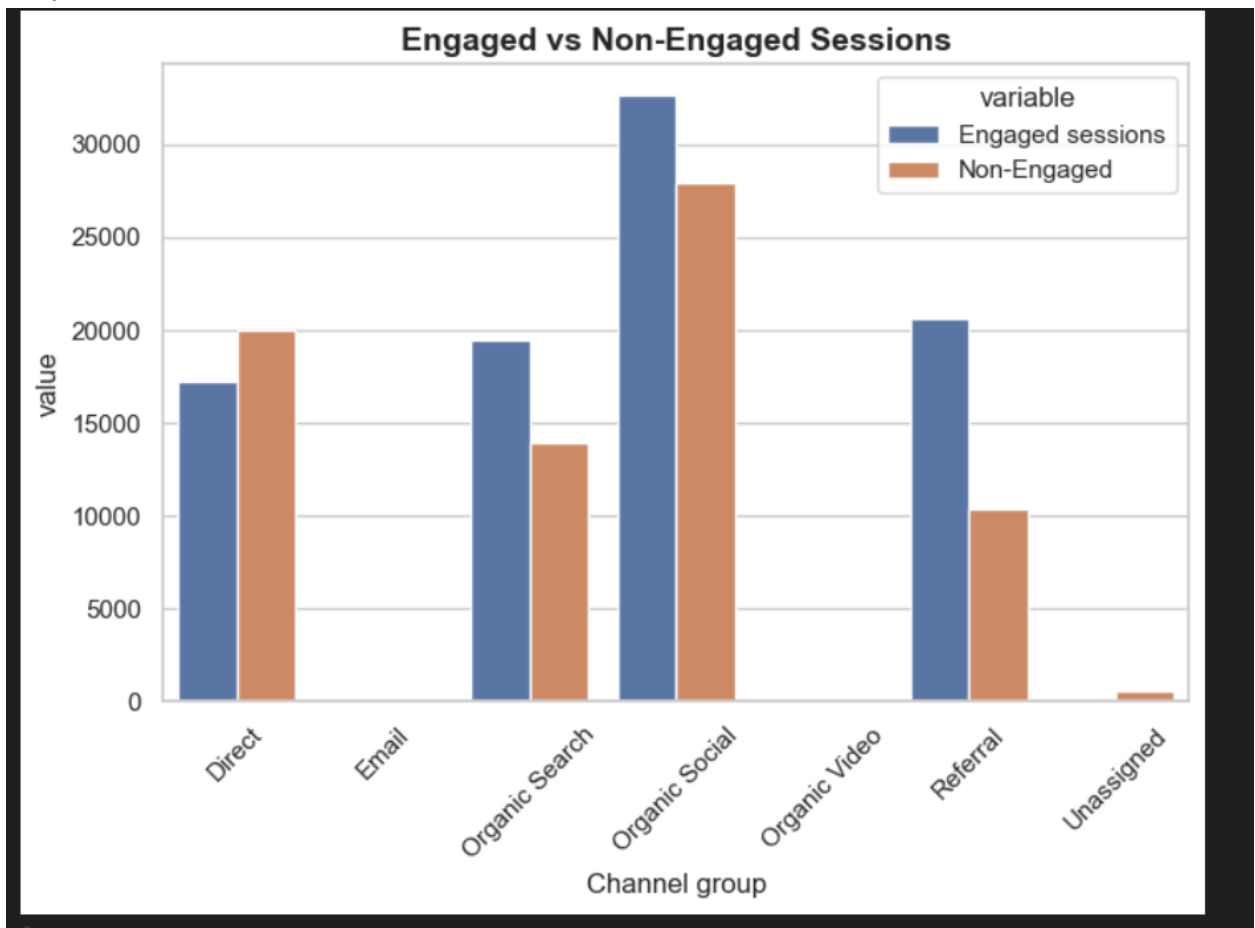
- ✓ **Email (high engagement)** → Even though email drives very few users, those who do arrive are loyal and attentive. This highlights the **quality-over-quantity effect** of email campaigns.
- ✓ **Direct & Organic Social/Search (variable engagement)** → These channels bring large traffic volumes, but engagement depends heavily on content relevance and user intent.
- ✓ **Referral (moderate engagement)** → Visitors from partner sites or blogs are somewhat engaged, but not as consistently as email-driven users.
- ✓ **Unassigned & Organic Video (low engagement)** → These channels may not be optimized or may lack compelling content to keep users engaged.

Business Insights:

- ✓ **Email campaigns are powerful for engagement** → Even with low volume, they deliver high-quality sessions. Scaling email marketing with better targeting could yield strong ROI.
- ✓ **Social & search need content optimization** → Improve landing page relevance, CTAs, and personalized experiences to convert variable engagement into consistent loyalty.
- ✓ **Referral partnerships should be strengthened** → Collaborations with sites that send more engaged traffic can improve overall performance.
- ✓ **Video strategy needs refinement** → While video drives long session times (as seen earlier), its engagement rate is low. This means users may watch but not interact. Adding CTAs, interactive elements, or follow-up prompts could improve this.

5. Which channels are driving more engaged sessions compared to non-engaged ones, and what strategies can improve engagement in underperforming channels?

Output:



Key Findings:

Channels with more engaged sessions than non-engaged:

- **Organic Social** → Highest overall traffic, with a large number of engaged sessions.
- **Referral** → More engaged sessions than non-engaged, showing strong quality traffic.
- **Organic Search** → Slightly more engaged sessions, indicating users find relevant content.
- **Organic Video** → More engaged sessions, though total volume is low.

Channels with more non-engaged sessions than engaged:

- **Direct** → Many users visit directly but don't stay engaged.
- **Email** → Very few sessions overall, but most are non-engaged.
- **Unassigned** → Very low traffic, with non-engaged slightly higher.

Strategies to Improve Underperforming Channels

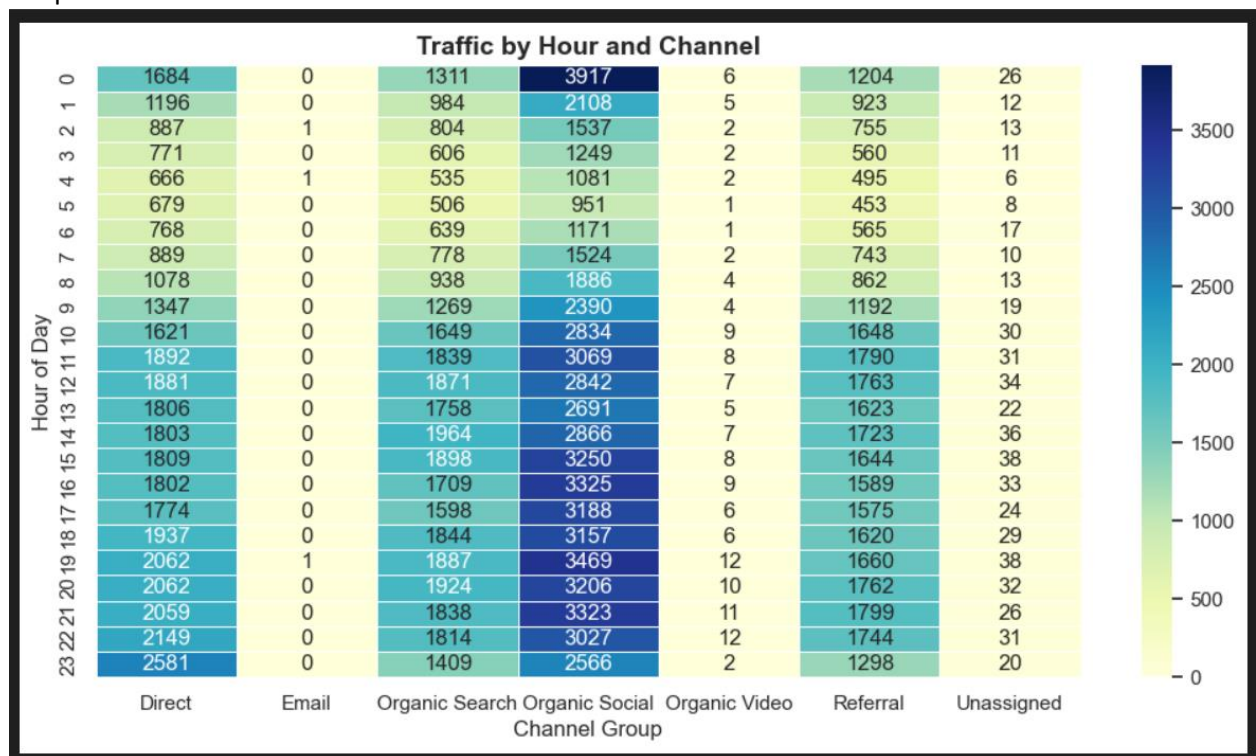
1. Direct Traffic

- Improve homepage and landing page design to encourage exploration.

- Add clear CTAs (calls-to-action) and personalized recommendations.
2. **Email**
 - Segment audiences and personalize campaigns.
 - Use engaging subject lines and content that mirrors high-performing social posts.
 - Include interactive elements (polls, offers, videos) to boost engagement.
 3. **Unassigned**
 - Fix tracking/attribution issues in analytics tools.
 - Properly tag campaigns to ensure traffic is categorized correctly.
 4. **Organic Video (scale opportunity)**
 - Invest in more video content (tutorials, product demos, storytelling).
 - Add CTAs within videos to convert passive viewers into active users.

6. At what hours of the day does each channel drive the most traffic?

Output:



Channel Group	Peak Hour(s)	Traffic Volume	Notes
Organic Social	19:00–21:00	3469–3323	Consistently highest traffic; strong evening engagement.
Direct	23:00	2581	Late-night peak; possibly returning users or direct access.

Organic Search	10:00–12:00	1649–1871	Morning search activity; users likely seeking information.
Referral	11:00–14:00	1790–1723	Midday peak; traffic from partner sites or blogs.
Email	2:00	1	Minimal traffic; no meaningful peak.
Organic Video	19:00–22:00	12	Slight evening bump; low overall volume.
Unassigned	15:00–19:00	38	Small peak; likely tracking issues or uncategorized traffic.

What This Tells Us:

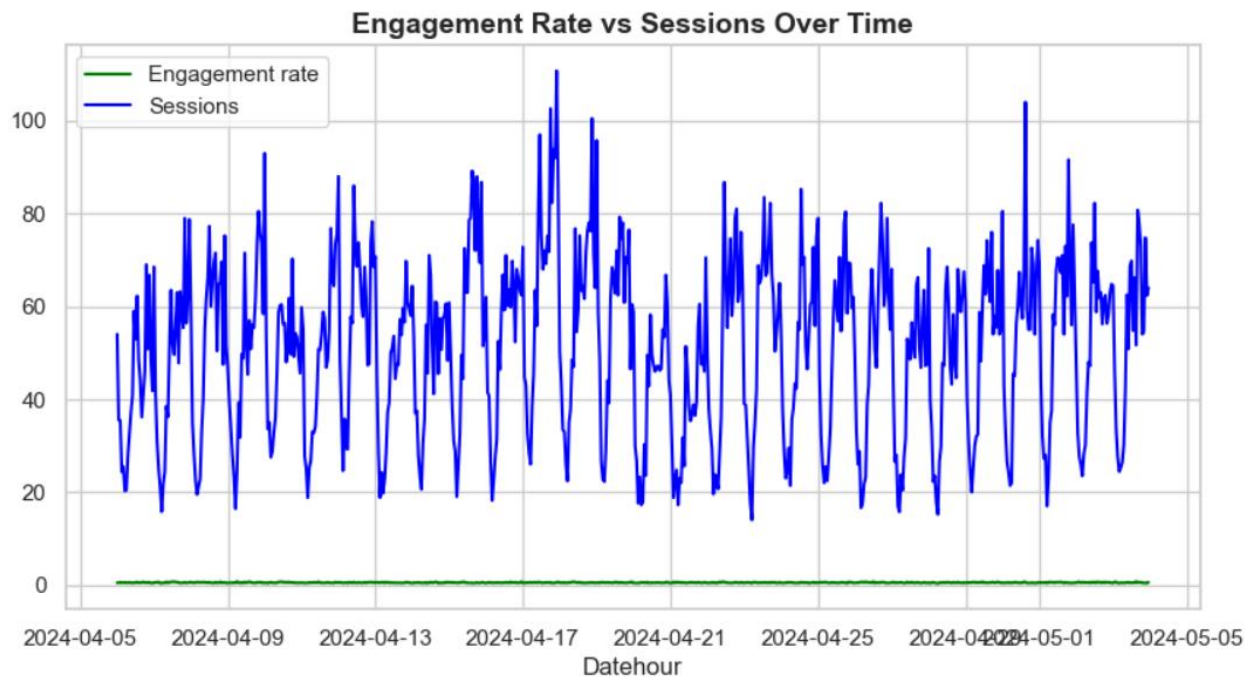
1. **Organic Social dominates evenings:** Users are most active on social platforms after work hours. This is ideal for posting content, running campaigns, and engaging audiences.
2. **Direct traffic peaks late night:** Indicates loyal users or habitual visitors checking in before bed. Optimize homepage and login flows for quick access.
3. **Search traffic is strong in the morning:** Users are task-oriented and looking for answers. SEO-optimized content should be published early in the day.
4. **Referral traffic peaks midday:** Suggests users browse partner sites or blogs during lunch breaks. Strengthen partnerships and cross-promotions during these hours.
5. **Email and video underperform:** These channels show minimal traffic and need strategic overhaul—better targeting, timing, and content formats.

Strategic Actions:

- **Schedule social posts between 18:00–21:00** for maximum visibility.
- **Publish blog and SEO content by 09:00–10:00** to capture morning searchers.
- **Coordinate referral campaigns around 11:00–14:00** when partner traffic is highest.
- **Test email sends at different times** (e.g., 08:00 or 18:00) to find better engagement windows.
- **Boost video content visibility in the evening** with teasers or social shares.

7. Is there are correlation between high traffic(sessions) and high engagement rate over time?

Output:



Key Observations

- **Sessions fluctuate heavily:** The blue line shows clear peaks and troughs, indicating varying traffic volume across days and hours.
- **Engagement rate remains nearly flat:** The green line stays close to zero throughout the period, showing little variation even when traffic spikes.
- **No visible correlation:** High traffic peaks (e.g., certain days with 400–500 sessions) do not correspond to higher engagement rates. Engagement rate does not rise or fall in tandem with session volume.

What This Means

- **Traffic ≠ Engagement:** Just because more users visit the site doesn't mean they interact more deeply.
- **Quality vs Quantity:** The site is attracting users, but the content or experience may not be compelling enough to increase engagement.
- **Flat engagement rate** suggests that user behavior is consistent regardless of traffic surges—new visitors behave similarly to existing ones.

Business Insights

1. **Content Optimization**
 - Improve landing pages and CTAs to convert high traffic into meaningful engagement.
 - Align content with user intent (especially for search and social traffic).
2. **Targeted Campaigns**
 - During traffic peaks (e.g., evenings for social, mornings for search), run campaigns designed to boost interaction (polls, offers, interactive features).
3. **Engagement Metrics Focus**

- Track micro-conversions (clicks, scroll depth, video plays) to identify why engagement rate is flat.
- Experiment with personalization to increase session quality.