Conclusion and Recommendations

Overall Insights

Through our analysis of the marketing campaign data, several key insights have emerged:

**1. Ad Exposure and Effectiveness**:

* **AD vs. PSA**: The analysis shows that the advertisements (AD) were more effective in driving conversions than the public service announcements (PSA). This indicates that the ads had a more substantial impact on getting users to make purchases. However, since the majority of users saw the ads, this imbalance could influence the results, so the differences should be interpreted with some caution.
* **Increased Ad Exposure Correlates with Higher Conversions**: Users who viewed more ads were generally more likely to convert. This suggests that repeated exposure to ads plays an important role in encouraging users to buy.
* **Optimal Ad Exposure Range**: On the other hand, showing users between 250 and 749 ads seems to be the sweet spot for prompting purchases without overwhelming them.

**2. Optimal Campaign Timing**:

* **Best Day for Campaigns**: Monday consistently outperformed other days, showing the highest conversion rates across multiple analyses. This suggests that users are more likely to engage and convert at the beginning of the week, possibly due to feeling refreshed or motivated after the weekend.
* **Best Hour for Campaigns**: The analysis identified 16:00 as a particularly strong hour for conversions. However, other hours in the late afternoon and early evening (14:00-20:00) also demonstrated solid performance, providing some flexibility in campaign scheduling.
* **Day-Hour Interaction Reveals Nuanced Insights**: While Monday at 16:00 is an effective time for campaigns, Saturday at 05:00 also showed a surprisingly high conversion rate. However, when comparing day-hour combinations, no single pair stood out as statistically significantly better than others.

### Addressing the Key Questions

* **1. Will the campaign be successful?**
* The findings suggest that the campaign is likely to be successful if it is carefully planned. By focusing ads on the right days and times and ensuring that users see an optimal number of ads, the campaign can achieve significant results.
* **2. If successful, how much of that success can be attributed to the ads?**
* The analysis indicates that the ads significantly contributed to the campaign's success. Ads were more effective at driving purchases compared to PSAs, especially when shown at the right times and in the right quantities.

### Actionable Recommendations

**1. Focus Campaigns on Mondays**: Concentrate a significant portion of the ad budget on Mondays, particularly during the late afternoon. This day has consistently shown higher conversion rates, making it the most effective day for campaigns.

**2. Leverage Late Afternoon and Early Evening Hours**: Prioritize running ads during the 14:00-20:00 time window, with a particular emphasis on 16:00. This period consistently showed high conversion rates.

### Limitations

1. Data Constraints: The analysis was limited to the variables available in the dataset. Factors like user demographics, ad content quality, and external influences (e.g., seasonality or promotions) are missing, potentially limiting the depth of the analysis.

2. Imbalance in Group Sizes: Most users were shown ads, while only a few saw the PSAs. This imbalance could influence the results and suggests that the findings should be interpreted with care.

3. Assumption of Consistency: The analysis assumes consistent user behavior and campaign effectiveness throughout the dataset. Changes in user behavior over time, or differences in ad content quality, may have introduced variability not accounted for.

4. Variation in User Engagement: Some users saw significantly more ads than others, which could skew the results. While this was accounted for as much as possible, it’s still important to be cautious when drawing conclusions.

### Final Thoughts

This study provides clear insights into the timing and exposure strategies that can make a marketing campaign more effective. Ads are likely to play a crucial role in driving success, particularly when they are well-timed and shown in optimal quantities.

Further analysis with more diverse data could help deepen the understanding of other factors that influence campaign success and refine these recommendations even further.