## **Social Media Engagement Report**

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### **Executive Summary**

This analysis of social media engagement data reveals critical insights for optimizing content strategy. Instagram leads in average likes, while Facebook shows strong performance in comments and shares. Polls and videos consistently generate the highest engagement among post types. Posts with a negative sentiment surprisingly achieve the highest engagement. Engagement also varies significantly by day and hour, with Sundays and specific early morning/late evening hours showing peak activity.

**Key Recommendations:**

* **Prioritize Instagram and Facebook:** Focus content efforts on these platforms, tailoring content to their strengths (Instagram for likes, Facebook for comments and shares).
* **Leverage Polls and Videos:** Increase the production and promotion of poll and video content across platforms, as they consistently drive higher engagement.
* **Strategize Negative Sentiment Content:** Explore the strategic use of content with a negative sentiment, given its high engagement, perhaps for thought-provoking or problem-solution oriented posts.
* **Optimize Posting Schedule:** Schedule posts for Sundays and during peak engagement hours (e.g., 1 AM, 9 AM, and 9 PM) to maximize reach and interaction.

### **Introduction/Objective**

The objective of this analysis is to provide a comprehensive understanding of social media engagement patterns within the provided dataset. By examining various factors such as platform, content type, posting time, and sentiment, this report aims to uncover actionable insights that can inform future social media strategies and enhance audience interaction.

### **Data Overview**

#### **Cleaning Summary Report**

* Processed Rows and Columns: The dataset was processed with an initial 100 rows and 9 columns, and the cleaned dataset also contains 100 rows and 9 columns.
* Missing Values Handled: No missing values were detected in the dataset.
* Duplicates: 0 duplicate rows were removed.
* Data Type Conversions:
  + The post\_time column was successfully converted to datetime format.
  + The likes, comments, and shares columns were converted to numeric types.
* Formatting Standardized: The platform column had its leading/trailing whitespace removed and casing standardized to title case.
* Outliers Handled: Outliers in the likes, comments, and shares columns were identified and capped using the 5th and 95th percentiles to mitigate extreme values.

The dataset contains 100 entries and 9 columns: post\_id, platform, post\_type, post\_time, likes, comments, shares, post\_day, and sentiment\_score. All columns are complete with no missing values, ensuring a robust basis for analysis.

**Numerical Columns:**

* + likes: Average of 2381.81
  + comments: Average of 202.66
  + shares: Average of 415.65

### **Methodology**

The analysis involved descriptive statistics and grouping data by various categorical variables to calculate average engagement metrics (likes, comments, shares). Visualizations were created using PowerBI to illustrate trends and comparisons. Specific analytical tasks included:

* Calculating overall average engagement.
* Analyzing engagement by social media platform (platform).
* Analyzing engagement by post content type (post\_type).
* Analyzing engagement by day of the week (post\_day).
* Analyzing the sentiment score (sentiment\_score).
* Analyzing engagement by hour of the day (post\_hour), extracted from post\_time.

### **Key Findings & Analysis**

1. Overall Average Engagement Metrics:

* **Likes**: 2381.81
* **Comments**: 202.66
* **Shares**: 415.65

2. Average Engagement by Platform:

Instagram leads in average likes, while Facebook performs well in comments and shares. Twitter consistently shows lower engagement across all metrics.

* **Instagram**: Highest average likes (2999.83)
* **Facebook**: Strong performance in comments (248.91) and shares (474.38)
* **Twitter**: Lowest engagement across all metrics (1368.59 likes, 122.91 comments, 233.72 shares)

3. Average Engagement by Post Type:

Polls and videos are the most engaging content types, while text posts have the lowest engagement.

* **Polls**: Highest average likes (3061.08) and strong shares (470.77)
* **Videos**: High average likes (2906.78) and comments (221.00)
* **Carousel**: Highest average shares (531.15)
* **Text**: Lowest engagement across all metrics (1815.29 likes, 138.38 comments, 274.95 shares)

4. Average Engagement by Day of the Week:

Engagement varies by day, with Sundays showing the highest average engagement, particularly in likes and shares. Mondays tend to have the lowest engagement.

* **Sunday**: Highest average likes (2694.00), comments (244.36) and shares (539.79)
* **Friday**: Good performance across all metrics
* **Monday**: Lowest average engagement across all metrics (1666.00 likes, 154.45 comments, 388.00 shares)

5. Average Engagement by Sentiment Score:

Posts with a negative sentiment surprisingly show the highest average engagement, especially in likes and shares.

* **Negative Sentiment**: Highest average likes (2807.78) and shares (560.85)
* **Positive Sentiment**: Moderate engagement
* **Neutral Sentiment**: Lowest average likes (1801.78) but comparable comments/shares to positive sentiment posts.

6. Average Engagement by Hour of the Day:

Engagement fluctuates significantly throughout the day, with peaks observed at 1 AM, 9 AM, and 9 PM.

* **Peak Hours**: 1 AM, 9 AM, and 9 PM show significantly higher average likes and shares.
* **Low Engagement Hours**: Early morning hours around 3-5 AM and late evening hours around 6-8 PM show lower engagement.

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### **Actionable Insights & Recommendations**

Based on the detailed analysis, the following actionable insights and recommendations are provided:

* **Target Platform-Specific Content:** Given Instagram's lead in likes and Facebook's strength in comments and shares, develop platform-specific content strategies. For Instagram, focus on visually appealing content. For Facebook, encourage discussions and shareable content.
* **Prioritize Interactive and Visual Content:** Increase the creation and promotion of polls and videos. These content types are proven to generate higher engagement. Consider incorporating interactive elements in videos to boost comments and shares.
* **Strategize "Negative" Sentiment Posts:** Explore the underlying reasons for the high engagement of "negative" sentiment posts. This could be due to controversy, calls to action, or relatable problem statements. Strategically use this type of content to drive discussion and shares, but ensure it aligns with brand values.
* **Optimize Posting Schedule:** Schedule key content to be published on Sundays and during identified peak hours (1 AM, 9 AM, and 9 PM). Experiment with different content types during these peak times to maximize their impact. Avoid posting during low engagement hours, especially 3-5 AM.
* **Re-evaluate Twitter Strategy:** If Twitter is a crucial platform, review the current content strategy. Experiment with different post types, engagement tactics, and hashtag usage to improve performance.

### **Limitations**

The analysis is based solely on the provided dataset and does not account for external factors such as current events, broader social media trends, or specific campaign objectives which could influence engagement. The sample size of 100 posts is relatively small, and larger datasets would provide more statistically significant insights. The "sentiment\_score" is taken as given and its methodology is not assessed.

### **Conclusion**

By strategically leveraging the insights from this analysis regarding platform performance, content type effectiveness, sentiment impact, and optimal posting times, organizations can significantly enhance their social media engagement. Implementing the recommended actions will lead to more impactful content strategies, fostering stronger audience connections and achieving desired social media objectives.