Analysis Report: Relationship Between Instagram and WhatsApp Usage

1. Motivation
In daily life, the amount of time spent on social media platforms reflects digital behavior. Among the most popular platforms, Instagram and WhatsApp serve distinct purposes: content consumption and communication, respectively. This study aims to analyze personal social media usage habits to uncover the correlation between Instagram and WhatsApp usage times.

2. Hypothesis Formulation and Testing
Null Hypothesis (H_0):
There is no significant relationship between Instagram and WhatsApp usage times (r=0r=0).
Alternative Hypothesis (H_1):
There is a significant relationship between Instagram and WhatsApp usage times (r≠0r?=0).
Test Results:
Using linear regression:
- pp-value = 6.5993×10−1=0.659936.5993×10−1=0.65993
- α=0.05α=0.05

Since p>αp>α, we fail to reject the null hypothesis.
Conclusion:
There is no significant relationship between Instagram and WhatsApp usage times. The observed data does not provide sufficient evidence to conclude that the usage of one platform influences the other.

3. Linear Regression Analysis
- Slope: -0.0524
- Intercept: 127.7266
- Correlation Coefficient (r): -0.0838
- P-value: 6.5993e-01
- Standard Error: 0.1179

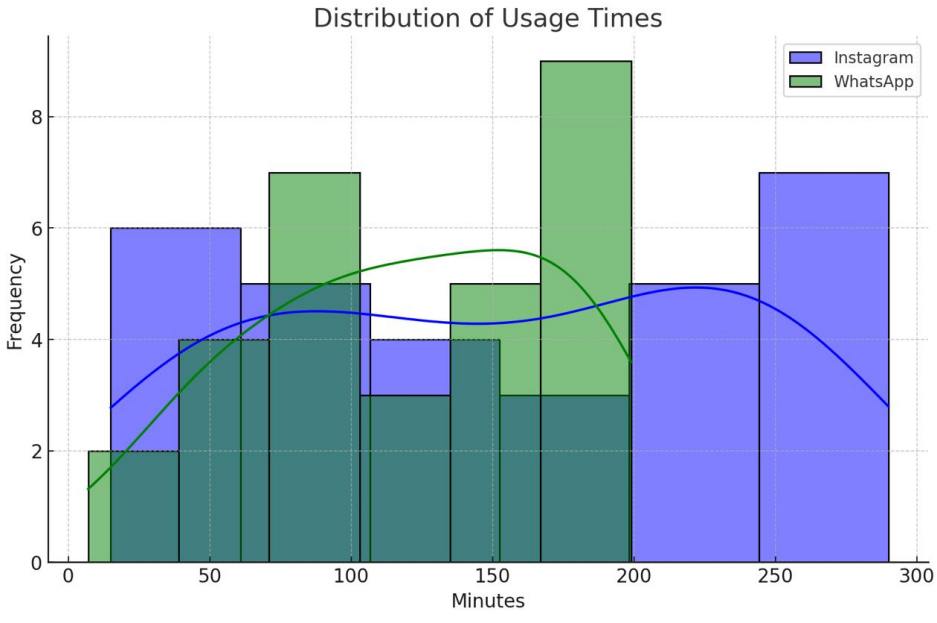
The weak correlation coefficient and high p-value support the lack of a significant relationship.

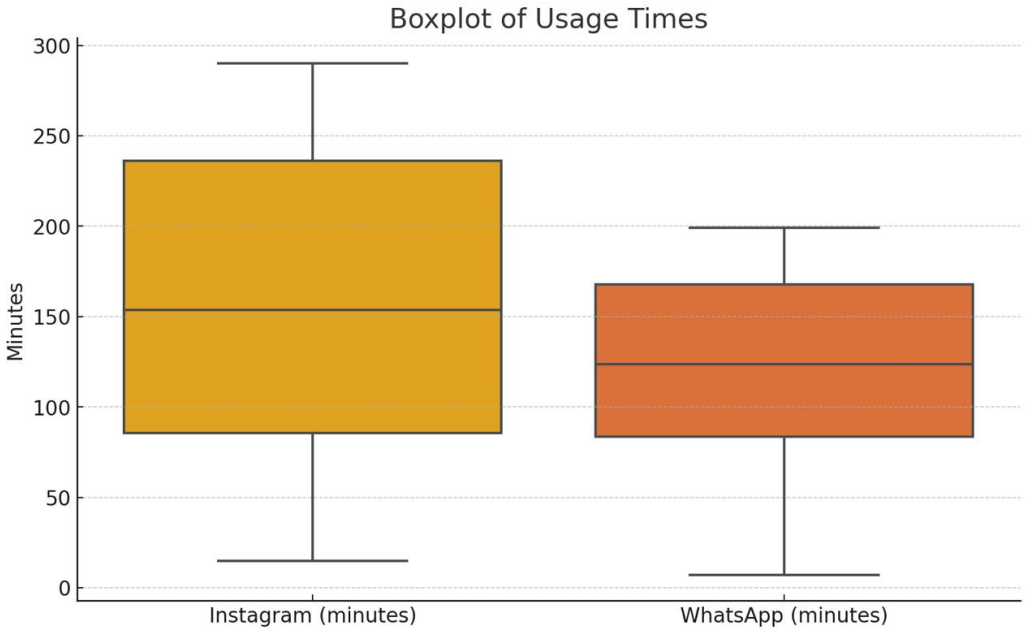
4. Analysis of Visualizations
- Histogram Analysis:

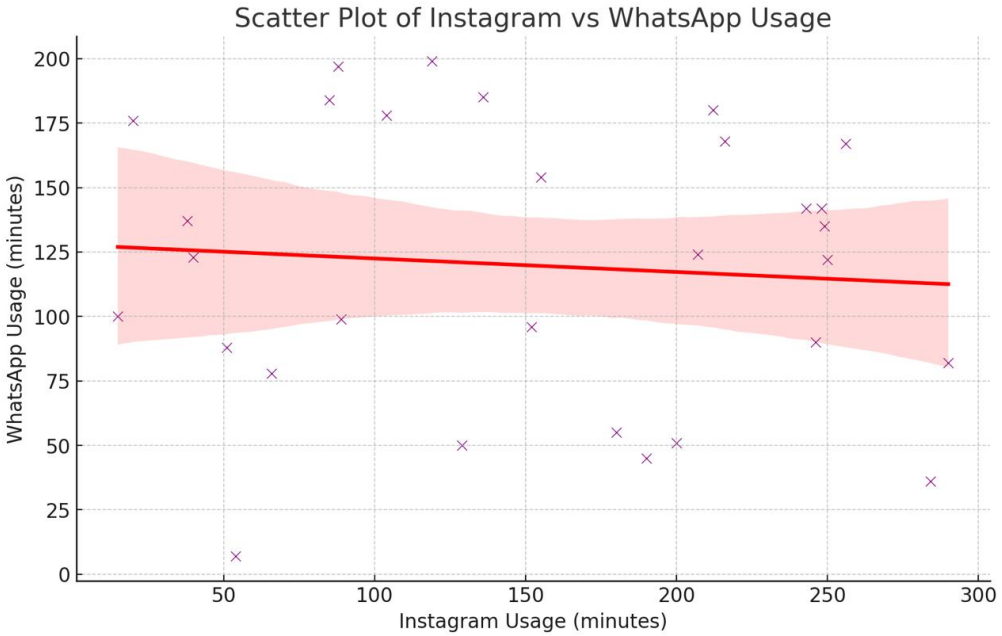
Instagram usage shows a wider spread compared to WhatsApp, indicating greater variability. Both distributions have peaks, suggesting consistent patterns on certain days.
- Box Plot Analysis:

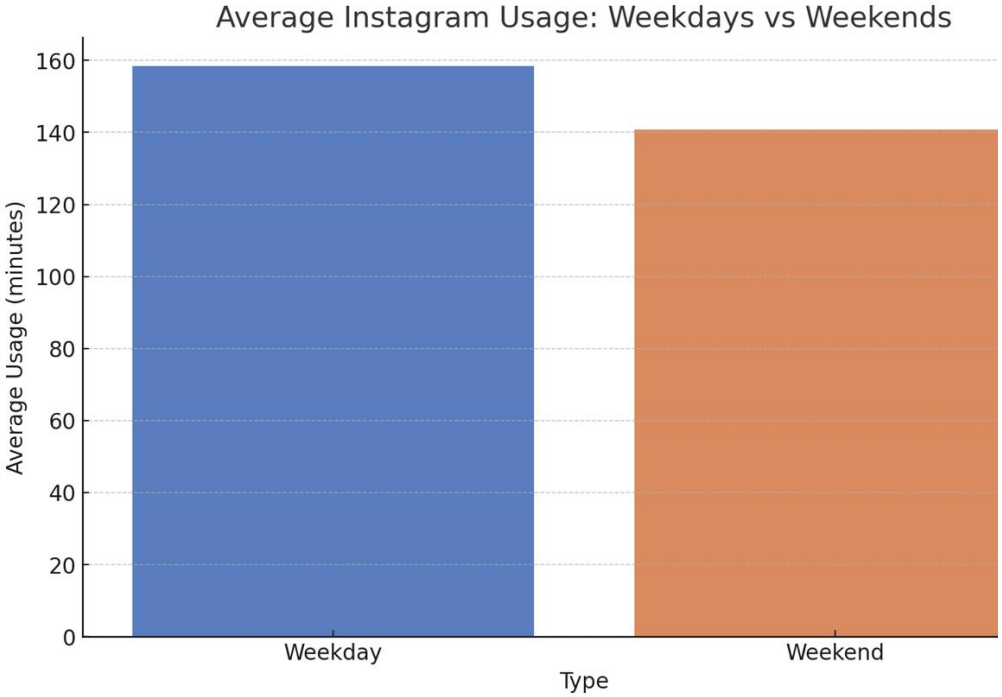
Instagram usage has a higher median and more outliers than WhatsApp, reflecting occasional high-usage days.
- Scatter Plot Analysis:

The scatter plot and regression line suggest a negative slope. However, this trend is not statistically significant.




Boxplot of Usage Times
Minutes
300
250
200
150
100
50
0
Instagram (minutes)
WhatsApp (minutes)


Scatter Plot of Instagram vs WhatsApp Usage
WhatsApp Usage (minutes)
200
175
150
125
100
75
50
25
0
50
100
150
200
250
300
Instagram Usage (minutes)


Average Instagram Usage: Weekdays vs Weekends
Average Usage (minutes)
160
140
120
100
80
60
40
20
0
Weekday
Weekend
Type

Additionaly, when i was processing data i realized that average instagram usage is higher on weekdays, potentially due to increased workdays.

5. Insights and Recommendations
- The correlation coefficient of -0.0838 indicates a weak relationship between Instagram and WhatsApp usage times.
- The analysis highlights the need for further studies with larger datasets and additional context-specific variables.
- For balanced digital behavior, consider incorporating other metrics like total screen time and engagement quality into future studies.

6. Conclusion
The analysis finds no significant correlation between Instagram and WhatsApp usage times. This suggests that the usage of one platform does not strongly predict the usage of the other. These findings serve as a foundation for understanding personal digital behavior and encourage broader investigations into social media habits.

This integrated report summarizes the analysis, hypothesis testing, and findings, providing a comprehensive view of the relationship between Instagram and WhatsApp usage.