

📊 Statistical Analysis Report

1. Objective

The goal of this analysis is to evaluate and compare the performance of two business strategies (e.g., Group A vs Group B) using hypothesis testing and probability-based statistical methods.

2. Dataset Description

Number of observations: N

Groups:

Group A: Control group (existing strategy).

Group B: Treatment group (new strategy).

Key metric: Revenue per user.

3. Exploratory Data Analysis (EDA)

Unique Users per Group

Group A: XXX users

Group B: XXX users

Revenue Statistics

Group	Mean Revenue		Std. Dev.	Count
A	XX.XX	XX.XX	XXX	
B	XX.XX	XX.XX	XXX	

Boxplot Analysis

The revenue distributions for Group A and Group B were visualized using boxplots. This revealed potential outliers and differences in median values.

4. Assumption Testing

Before applying statistical tests:

Normality Test (Shapiro-Wilk):

Group A: $p = XX.XX \rightarrow$ (Normal / Not Normal)

Group B: $p = XX.XX \rightarrow$ (Normal / Not Normal)

Variance Homogeneity (Levene's Test):

$p = XX.XX \rightarrow$ (Equal variance / Not equal variance)

5. Hypothesis Testing

Null Hypothesis (H_0): There is no significant difference in mean revenue between Group A and Group B.

Alternative Hypothesis (H_1): There is a significant difference in mean revenue between Group A and Group B.

Test Applied:

If both groups are normal with equal variance → Independent t-test.

If assumptions not met → Mann-Whitney U test.

Result:

Test statistic = XX.XX

p-value = XX.XX

6. Interpretation

If $p < 0.05$ → Reject H_0 → Significant difference between strategies.

If $p \geq 0.05$ → Fail to reject H_0 → No significant difference detected.

7. Conclusion

Based on the statistical analysis, [new strategy performs significantly better / no significant difference observed].

Recommendation: [Adopt new strategy / Retain current strategy / Conduct further testing with larger sample size].