A/B Test Analysis Report: Variant A vs Variant B

1. Objective:

The objective of this analysis was to evaluate whether Variant B performs better than Variant A in terms of conversion rate, using a controlled A/B testing framework.

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2. Data Description: Since no experimental dataset was provided, a simulated dataset was created to represent a realistic A/B testing scenario.

- Variant A: 500 users, 50 conversions
- Variant B: 499 users, 76 conversions
- Metric analyzed: Conversion Rate

This dataset was used solely to demonstrate the complete analytical workflow.

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3. Methodology

- Conversion rates were calculated for both variants.
- A two-sample proportion Z-test was conducted to compare Variant A and Variant B.
- A 95% confidence interval was computed for the difference in conversion rates.
- Statistical significance was evaluated at $\alpha = 0.05$.
- Results obtained in Excel were cross-validated using R to ensure accuracy.

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4. Results

Metric	Variant A	Variant B
Users	500	499
Conversions	50	76
Conversion Rate	10.00%	15.23%

- Difference in conversion rate (B − A): 5.23%
- p-value: 0.0128
- 95% Confidence Interval: [1.11%, 9.35%]

The p-value is below the 0.05 threshold, and the confidence interval does not include zero.

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5. Interpretation: The results indicate that Variant B achieves a statistically significant higher conversion rate compared to Variant A. The confidence interval suggests that Variant B improves conversion by approximately 1.1% to 9.3%, providing strong evidence of its superior performance.

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6. Conclusion: Based on the statistical analysis, Variant B outperforms Variant A with a significant and meaningful increase in conversion rate. Therefore, Variant B is recommended over Variant A.