

A/B Testing Analysis Report

Objective: Evaluate performance difference between Variant A (Control) & Variant B (Experiment) to determine which UI drives better conversion.

Experiment Overview

This A/B testing study compares two user interface versions used in an e-commerce website to analyze how interface changes impact user engagement and conversion behaviour.

Dataset Details

Total Users	2000
Variant A Users	~50%
Variant B Users	~50%
Metrics Observed	CTR, Add to Cart, Purchase Conversion

Key Metrics Comparing Variant A & B

Metric	Click-Through	Variant A	Variant B	Outcome
Rate Add-to-Cart		8.4%	11.2%	Variant B Higher
Rate Purchase		6.3%	9.1%	Variant B Higher
Conversion		2.9%	4.5%	Variant B Higher(55%)

Statistical Validation

A T-test was run to check whether Variant B improvements are statistically reliable or random. Result showed p-value < 0.05 meaning the behaviour difference is significant — Variant B is performing better not by chance but due to actual UI improvement.

Interpretation & Business Impact

✓ Variant B drove higher engagement and conversion consistently. ✓ UI changes positively affected sales funnel stages. ✓ Estimated uplift → ~55% improvement in purchase conversion.
Recommendation: Rollout Variant B across platform for higher revenue & user engagement.

■ Tools Used

•Python (Pandas, NumPy, Matplotlib, SciPy) • A/B Testing Statistical Validation • Conversion Funnel Analysis • CSV based experiment dataset

■ Final Summary

Variant B significantly outperformed Variant A in CTR, cart addition and purchase conversion. Results are statistically valid with strong business impact — rollout of Variant B UI is recommended for improved revenue outcomes.