A/B Test Analysis for Foodtech Company

Compety Hackathon Submission

Presented by: Bharatheesh Lakkani Sathyanarayana

Date: 12 March 2025

A/B Test Design Evaluation

- **Objective:**
  - Evaluate the A/B test design.
  - Analyze user behavior and test results.
  - Provide data-driven business recommendations.
- **Dataset Overview:**
  - 326,921 entries.
  - Columns: event_id, session_id, user_id, variation, platform, datetime_event, event_type, final_order_status, shop_id.
- **Key Metrics:**
  - Conversion rates.
  - Order status distribution.
  - Platform-based analysis.

A/B Test Design Evaluation

- **Current Methodology:**
  - Two variations: Control (1) and Test (2).
  - Metrics: Conversion rates, order status, and platform-based performance.
- **Strengths:**
  - Large dataset with diverse user interactions.
  - Clear distinction between control and test groups.
- **Weaknesses:**
  - Missing data in **final_order_status** and **shop_id**.
  - No clear randomization or balance check between groups.
- **Suggestions for Improvement:**
  - Ensure randomization and balance between control and test groups.
  - Include more metrics (e.g., time spent, user engagement).
  - Address missing data for more accurate analysis.

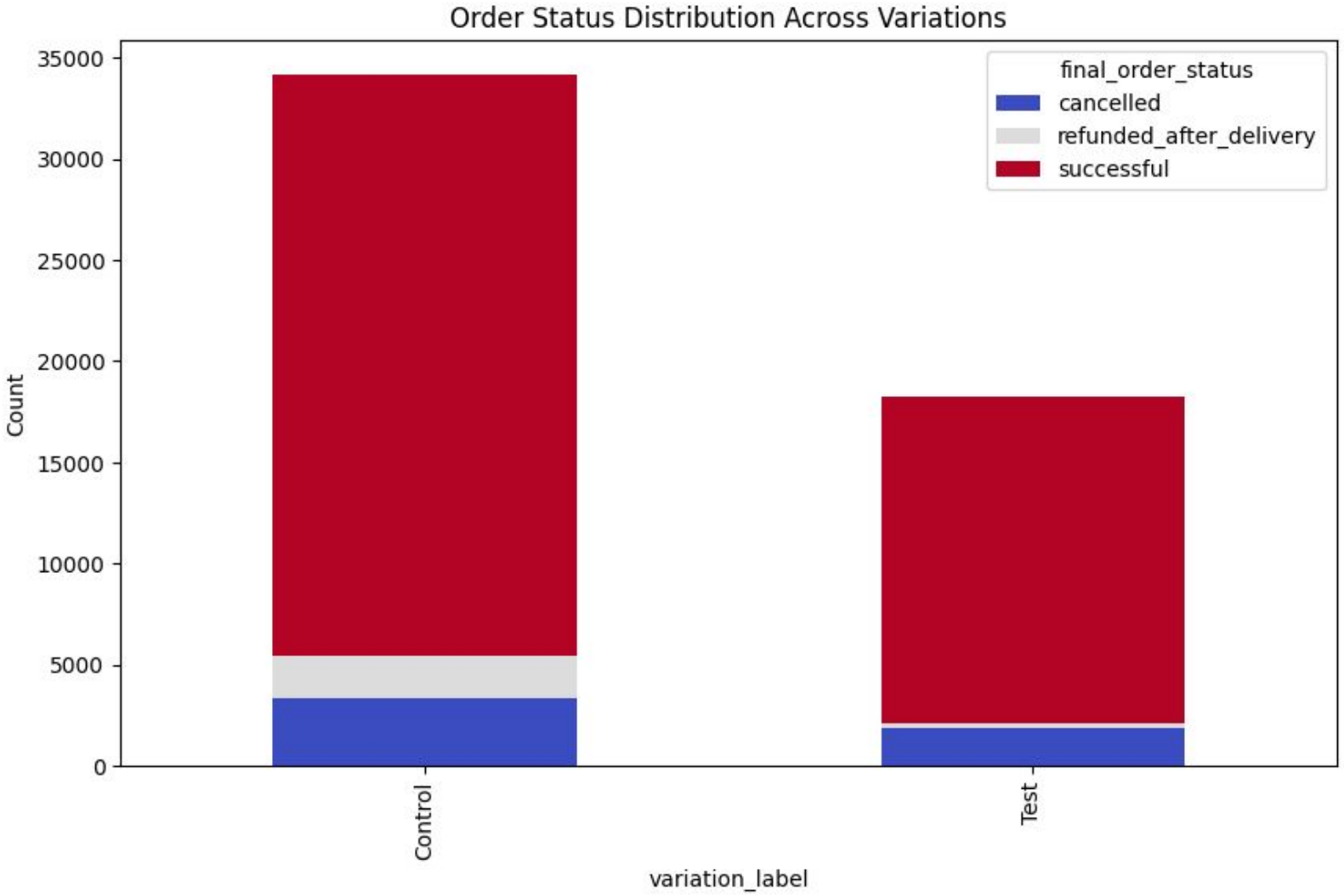
Dataset Analysis – Key Insights

- **Conversion Rates:**
  - Control: 42.41%
  - Test: 42.20%
  - No significant difference (p-value = 0.5213).
- **Order Status Distribution:**
  - Most orders are successful, with a small percentage of cancellations and failures.
  - Similar distribution across control and test groups.
- **Platform-Based Analysis:**
  - Android users have higher conversion rates (~28.9%) compared to iOS users (~13.5%).
  - No significant difference between control and test groups on either platform.

User Behavior Insights

- **Platform Preference:**
  - Android users are more likely to convert than iOS users.
- **Order Status:**
  - Majority of orders are successful, indicating a good user experience.
  - Cancellations and failures are minimal but should be investigated further.
- **Event Types:**
  - Most events are order_paid and order_finished, indicating a focus on transactional behavior.

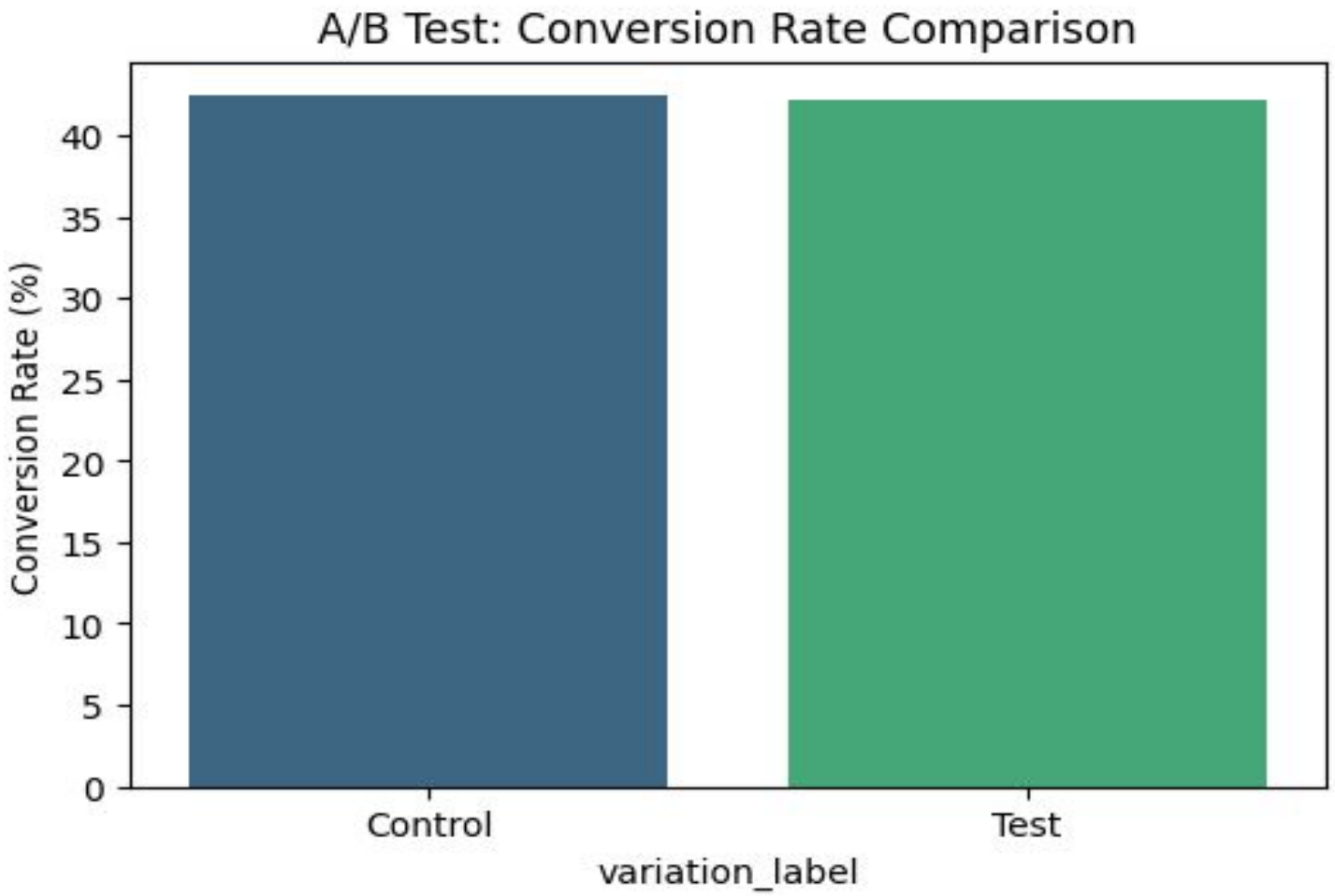
Order Status Disturbution Graph



Statistical Significance

- **Chi-Square Test Results:**
  - Chi-Square Statistic: 0.4114
  - P-Value: 0.5213
- **Conclusion:**
  - No statistically significant difference between control and test groups.
  - The test variation did not outperform the control.

Conversion Rate Cpmparison Graph



Business Recommendations

- **Next Steps for the Product Team:**
  - **Re-evaluate the Test Variation:**
    - Consider testing a different variation or feature.
  - **Focus on Platform Optimization:**
    - Investigate why Android users have higher conversion rates and replicate success on iOS.
  - **Address Missing Data:**
    - Improve data collection for final_order_status and shop_id to enhance analysis accuracy.
  - **Explore Additional Metrics:**
    - Include metrics like user engagement, session duration, and repeat purchases for deeper insights.
  - **Conduct Further Testing:**
    - Run longer or larger-scale tests to confirm results.

Conclusion

- **Key Takeaways:**
  - The A/B test did not show a significant improvement in conversion rates.
  - Android users are more likely to convert than iOS users.
  - The dataset provides valuable insights but has room for improvement in data quality.
- **Final Recommendation:**
  - Use these insights to refine the product and testing strategy for future experiments.