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OVERVIEW

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Date created	02-09-2023
Date Submitted	25-09-2023

Dashboard URL	https://public.tableau.com/app/profile/alexander.appiah/viz/Cleaned+Data_16949564930370/ABTest#1
Inferential Statistics URL	https://docs.google.com/spreadsheets/d/1EPIHC1j3X_QF_CVrdDTLMluEHLvwDRbHuzfssj9mSEs/edit?usp=sharing
SQL code and documentations	
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EXECUTIVE SUMMARY

OBJECTIVES

The objective of this A/B test was to compare the user conversion rates between the Control Group(A) and Treatment Group(B), to assess the impact of a new food banner on user conversion rate, also considering the average amount spent in each group.

KEY FINDINGS

- The Treatment Group exhibited a significant number in conversion rate (4.63%) compared to the control group (3.92%). The difference in conversion rate was statistically significant based on the probability value being significantly lower than the cut-off value indicating unlikeliness of suspicious findings in the experiment.
- The average amount spent between the test groups also showed a significant number in average amount spent in the treatment group (\$3.3909) compared to the control group (\$3.3745). Based on the probability value of 0.9443, it is concluded that there is insufficient evidence that there is a meaningful difference in the average spending between the control and treatment groups.

RECOMMENDATIONS

Considering the banner being cost effective and given the statistically significant improvement in the conversion rates in the Treatment Group, implementing the new food and drinks banner on the website is recommended on the basis that more tests to be carried to see an increase in both the conversion rate and the average amount spent.

INTRODUCTION

GloBox has built a solid reputation among its customers for its boutique fashion items and high-end decor products. Nevertheless, the company's food and drink offerings have seen remarkable growth in recent months, and GloBox is now looking to promote this product category to drive increased revenue.

To address this, an A/B test is conducted to determine whether the introduction of the food and banner played a role in the increase in revenue.

HYPOTHESIS

- **NULL HYPOTHESIS(H_0):** The drink and food banner made no difference to the changes in the user conversion rate.
- **ALTERNATE HYPOTHESIS(H_1):** The banner made a difference in the user conversion rate.

EXPERIMENTAL SETUP

This experiment is conducted exclusively on a mobile website. When a user visits the GloBox main page, they are randomly assigned to either the control or test group, marking their entry date into the experiment. If the user belongs to the test group, a banner is displayed upon page loading; however, the banner is not shown to users in the control group.

Afterwards, users have the option to make purchases on the website, users that made a purchase are categorised as converted users.

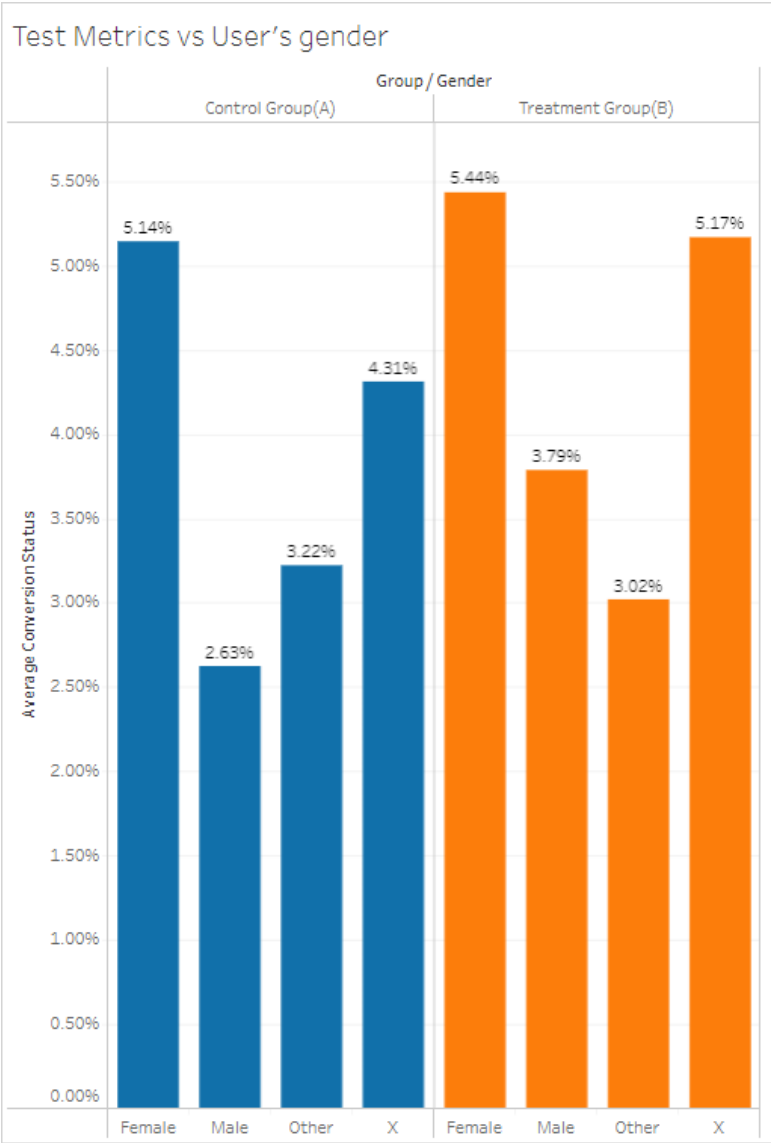
RESULTS

With a significance level of **5%** or **0.05**, the probability value for our test was calculated after deriving the sample proportions of both the control and treatment groups which resulted in a value of **0.00011**, thereby rejecting the null hypothesis that the food and drink banner made no difference in increasing the conversion rate for users in the test groups.

Furthermore, a confidence interval for the 95% confidence level being calculated resulted in a lower bound and upper bound of **0.0035** and **0.0107** respectively. This range of values helped in estimating where the true parameter is likely to be, which aided in concluding that there is a significant difference between the test groups. From results and findings, the control group and treatment groups showed a result of 3.92% and 4.63 % respectively in conversion rates.

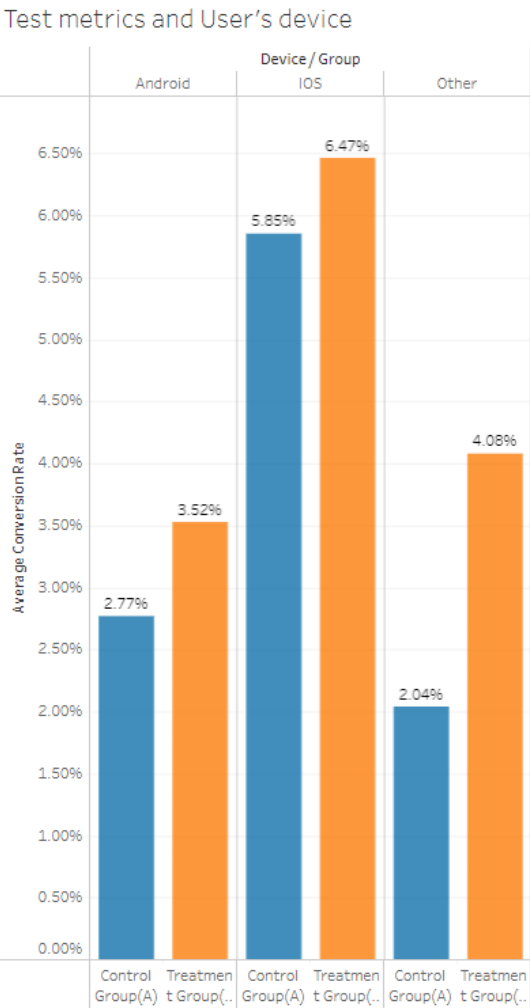
Further findings in the test metrics showed a pattern in the conversion rate values for gender. The results showed that across both genders, women had a higher conversion rate for both the control and treatment groups while men on the other hand showed a very low figure in conversion rate.

TEST METRICS VS GENDER



Further results also showed different variations in figures for the devices used by users when making a purchase across both groups. From these results, it was evident that more users using IOS made more purchases compared to users on android.

TEST METRICS VS USER DEVICES



LIMITATIONS

Even though the availability of missing gender, demographics and devices used values in our test had no influence in the conversion rates between each test group, it created an imbalance in results for our further analysis of the most impacted genders and the devices they users used in making purchases.

RECOMMENDATION

For the food and drinks banner to be implemented onto the website, it depended on two criteria; to yield an increase in conversion rate as well as an increase in average amount spent for the treatment group. In this case, only one criterion was met, therefore further tests and new designs need to be carried out to see an increase in the average amount spent and only in that instant can be banner be implemented.