# Glovox AB Testing Analysis

Presentation

# Agenda

- Overview of the experiment
- Bias analysis to ensure results can be attributed to the experiment
- Hypothesis testing results comparing conversion rates across groups
- Hypothesis testing results comparing average amount spent across groups
- Conclusion and recommendations

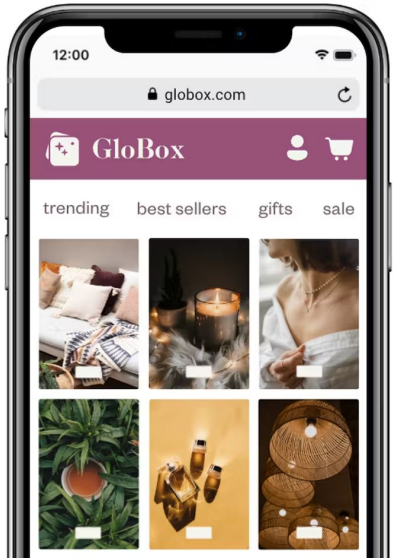
# Overview

The growth team has run an AB test randomly assigning customers to the control or treatment group, the treatment group has seen a food and drink banner as shown on the picture.

The goal of this analysis is to determine whether the banner was effective in improving conversion rates, promoting the new food and drink products and how the overall revenue has been affected.

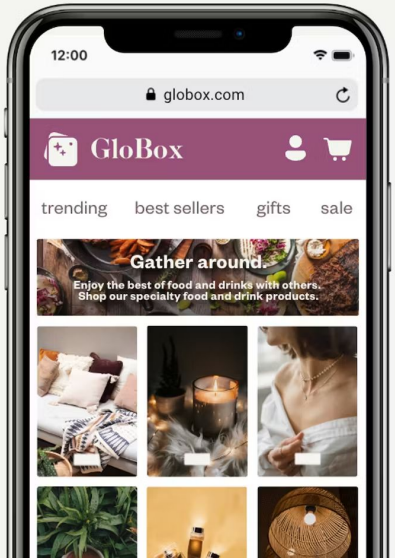
Group A: Control

existing landing page




Group B: Treatment

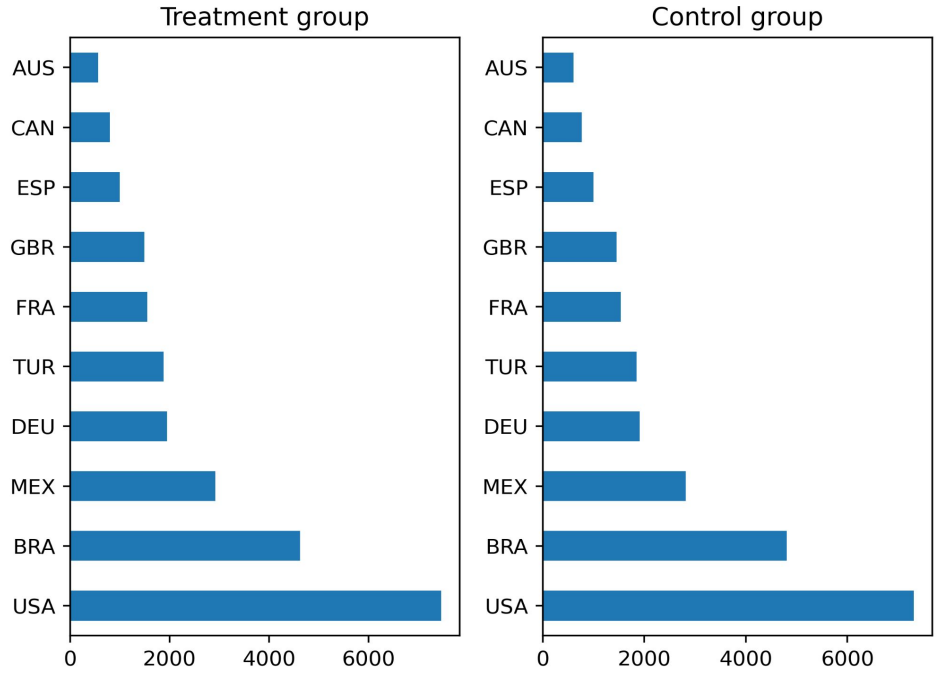
landing page with food & drink banner



# Bias Analysis: Country

In order to ensure that the assignment of customers has been random we will compare the two groups and look for any differences between them that could influence the results of the test.

We begin by looking at the countries the users on each group are from, the plot on the left shows how both groups have very similar values.

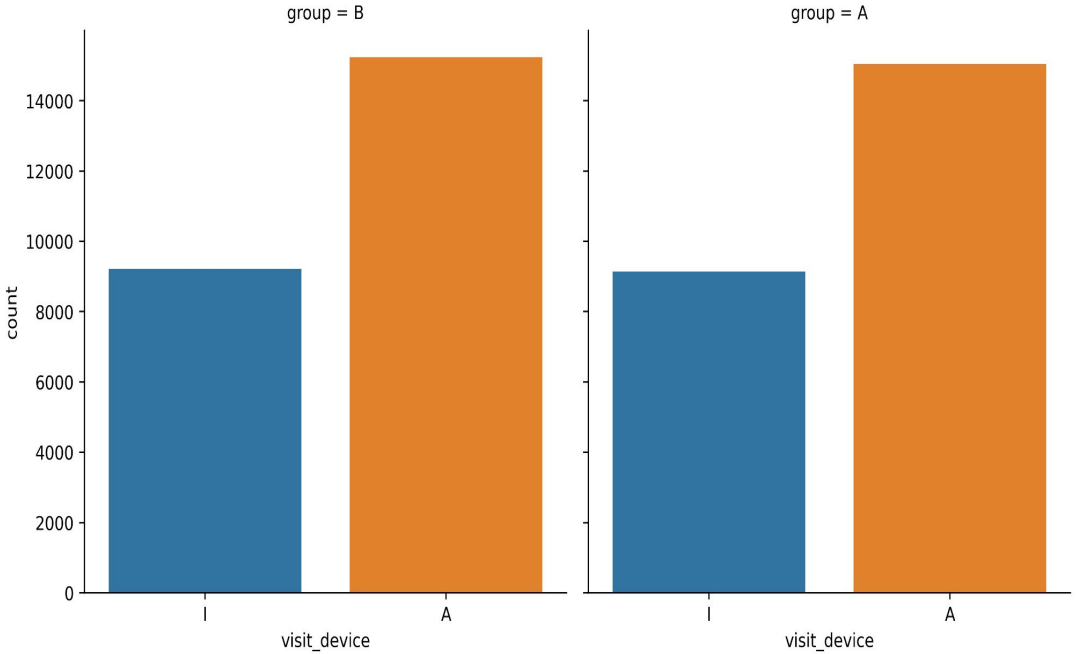


# Bias Analysis: Device

Next we look at the devices that the users of each group used to connect to the app.

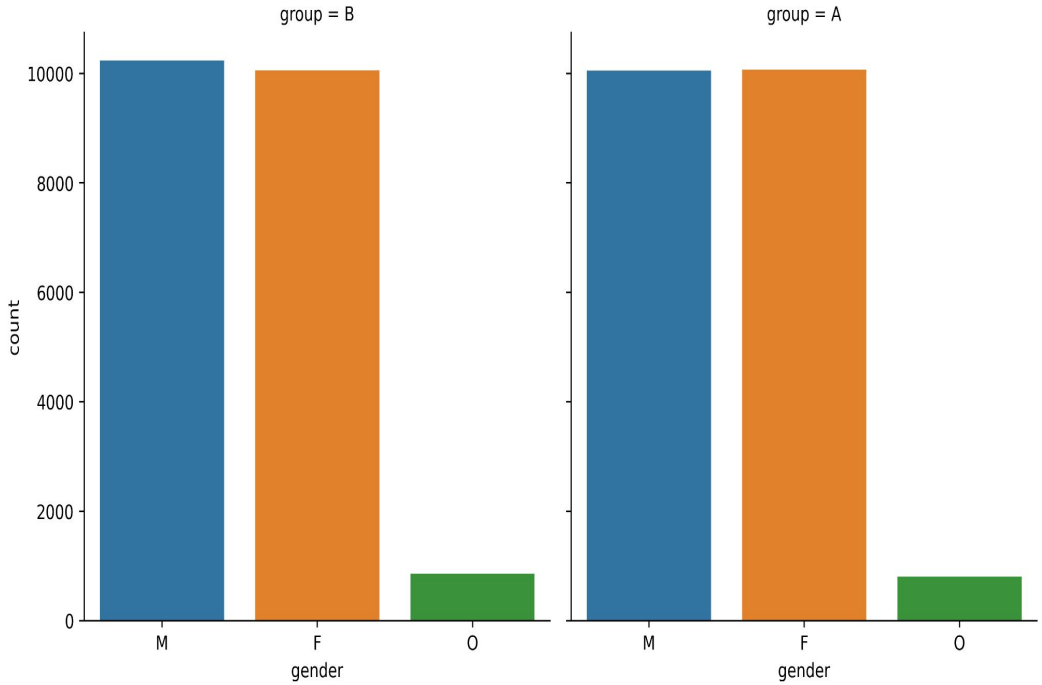
Again the difference across the control and treatment group seems minimal.

Note: ‘I’ stands for iphone and ‘A’ for android



# Bias Analysis: Gender

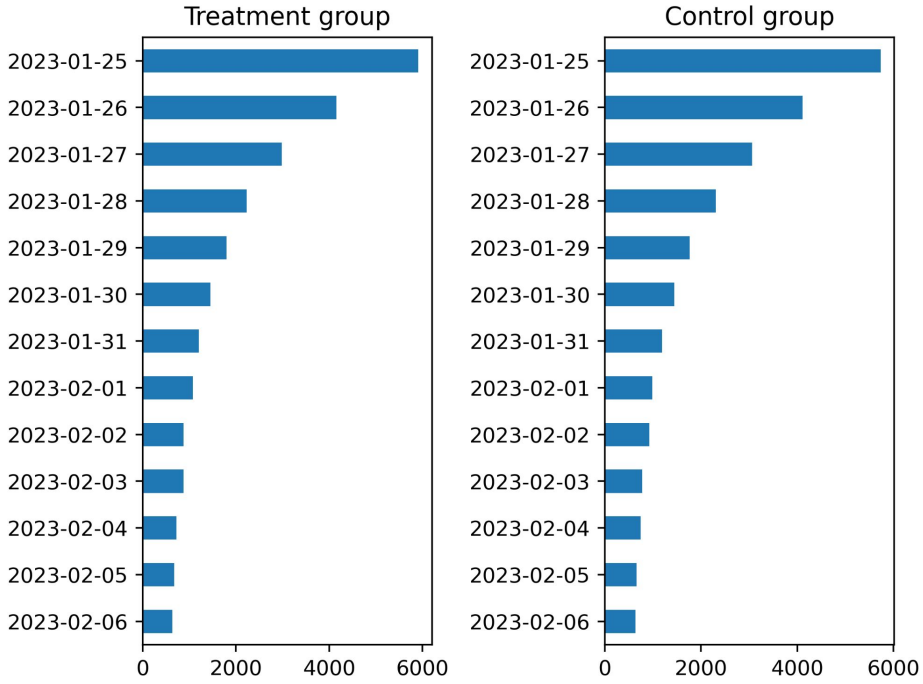
Here we are looking at gender where we find similar values on each group ensuring no gender bias in group selection



# Bias Analysis: Joining date

Finally we compare the joining date, i.e. the date the users were assigned to each group, other than seeing a clear downwards trend were most users joined on the first dates of the experiment there is no difference between the two groups when looking at their joining date.

This concludes the bias analysis part of the study, we have compared the data we have on customers on either group and conclude that other than their group assignment the customers on each group don’t seem to have any other difference that could influence the results.



# Hypothesis testing results: Conversion rates

- The null hypothesis for the test is that there is no difference in the conversion rates across the two groups.
- The alternative is that there is a difference across the two groups. (two tail test)
- Alpha has been set to 0.05

Test results:

The conversion rate for users in group A was roughly 3.9% while for users in group B it was around 4.6%, when running a z-test to compare two population proportions the z-statistic was 3.86 with a P-value of 0.0001.

This P-value is well below alpha meaning we are 95% confident that we can reject the null hypothesis in favour of the alternative, the conversion rate was different for users in group A and group B

# Hypothesis testing results: Difference in means

- The null hypothesis is that the average amount spent for customers in both groups is the same
- The alternative hypothesis is that the control group had a higher average amount spent
- The alpha level has been set to 0.05

Test results:

When looking at the average amount spent for customers that did convert on each group we see that customers on group A that did convert spent on average around $81 while customers in group B spent around $68.

A t-test to compare the means of two populations was conducted and the results were a t-stat of 3.18 and a P-value of roughly 0.0007.

With these results we are 95% confident that we can reject the null hypothesis in favour of the alternative and conclude that the users in the control group that did convert spent more on average than the conversions from the treatment group

# Conclusions

There are several parts of the analysis to consider when deciding on the next steps to take:

- The result of testing the difference in conversion rates has shown that the treatment group had a statistically significant greater conversion rate than the control group

- The result of testing the difference in average amount spent has shown that the control group spent more on average than the treatment group

Possible shortcomings and improvements of the analysis:

- With data on the type of products that the customers are buying we could see if indeed the lower expenditure comes from customers purchasing different products

- Data of the previous conversion rates would have been helpful to better understand the customers

# Recommendations

When looking at the results overall we need to go back to the purpose of the test and the motivation behind the new banner:

- Glovox wants to bring awareness to its food and drink products

- The test has shown that the group that did see the banner had greater conversion rates, we could consider this a success as we are promoting our new products and improving the conversion rate

- The test has shown that of those that did convert the ones from the control group spent more on average, this however could be due to the types of products that customers from each group are buying, perhaps the banner did help push people towards the new food and drink products which may in turn be less expensive than other products

- Since the overall revenue is still greater in the treatment group and it has a better conversion rate, considering that part of the goal was to promote the new products we would consider it a success and recommend to keep the banner