GlowBox

Food and Drink Banner A/B test

A/B test setup

Group A: Control
existing landing page

Group B: Treatment
landing page with food & drink banner

1. The experiment is only being run on the mobile website.
2. Visitors of the GloBox main page randomly assigned to either the control or test group.
3. New banner is loaded for the test group, no banner is loaded for the control group
4. “Conversion” – visitor makes a purchase

A/B testing pre-conditions

Indicators to measure:

Average Amount Spent Per User
Conversion Rate

12 days A/B testing period:

from 25/01/2023 Wednesday
to 06/02/2023 Monday

The statistical confidence level **95%**
Is statistical reliability indicator that measures the **probability of the difference in the results observed between each sample (group) not being a matter of chance**

It is acceptable to make a mistake in 5% of cases and for the results of the two versions to be identical. **$\alpha = 0.05$**

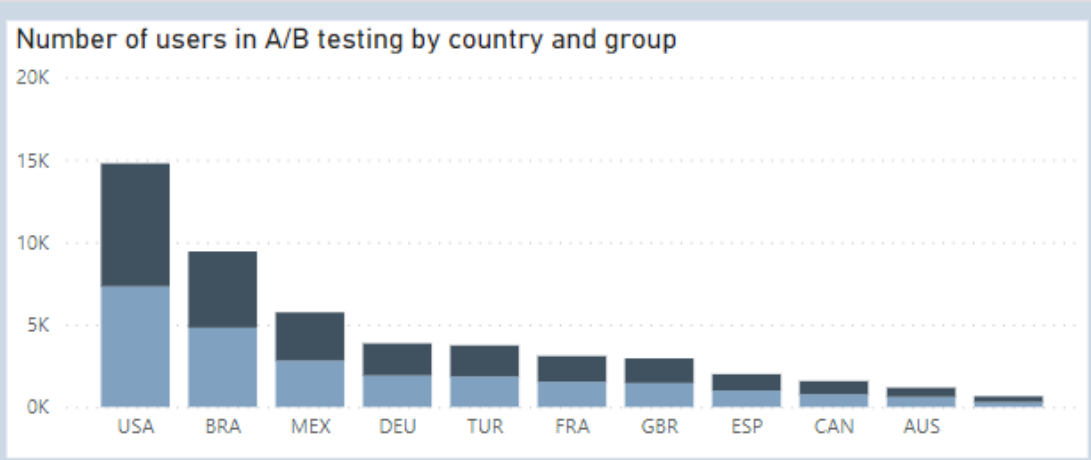
A/B testing conditions

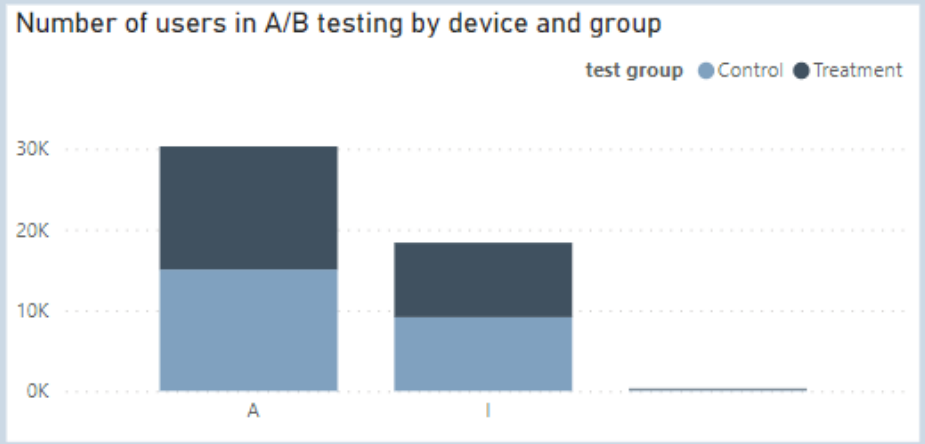
48 943 users involved in the A/B testing

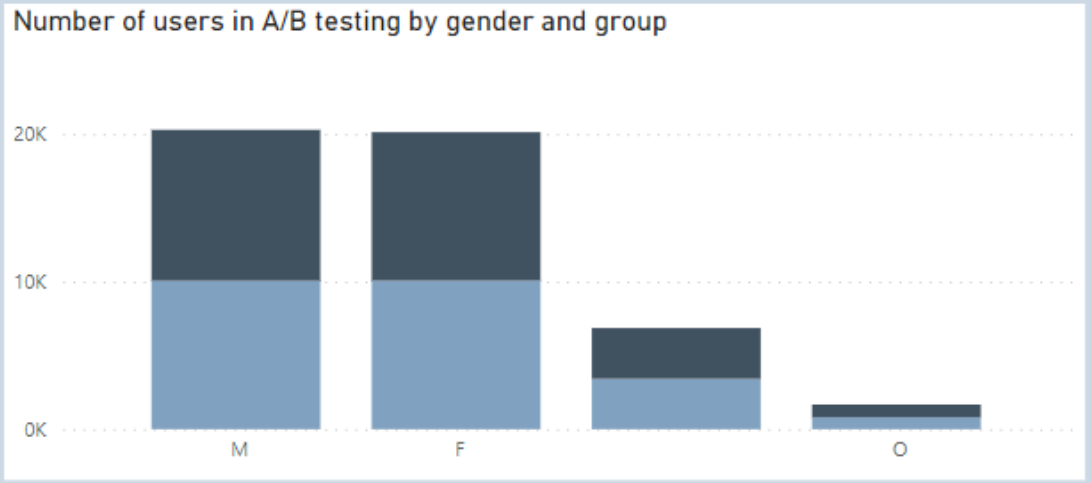
24 343 users assigned to the control group

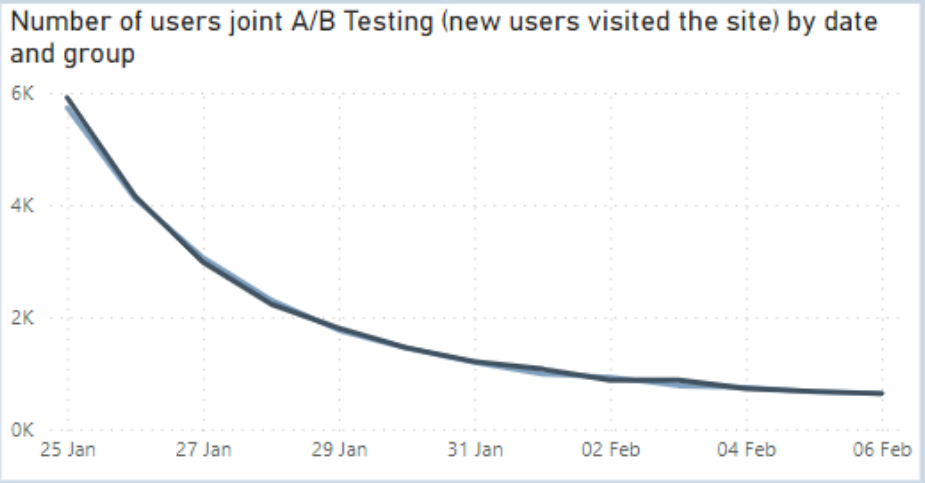
24 600 users assigned to the treatment group

A/B test users

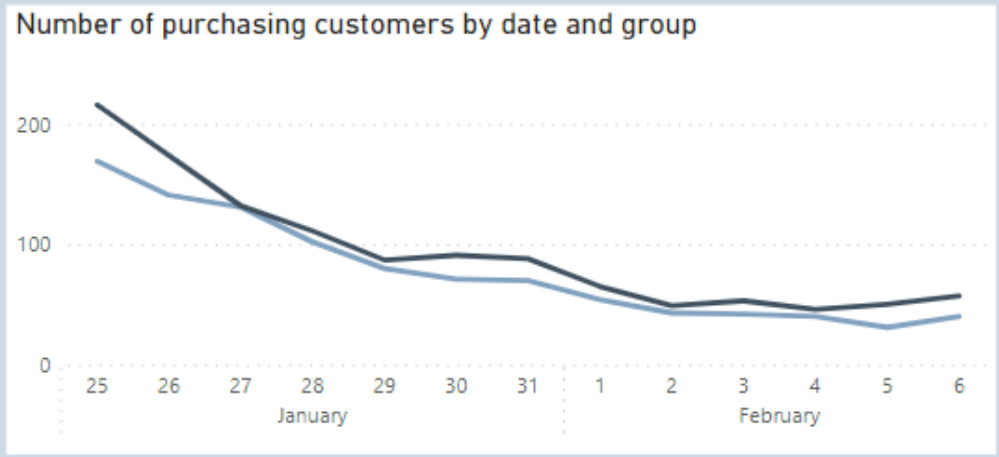


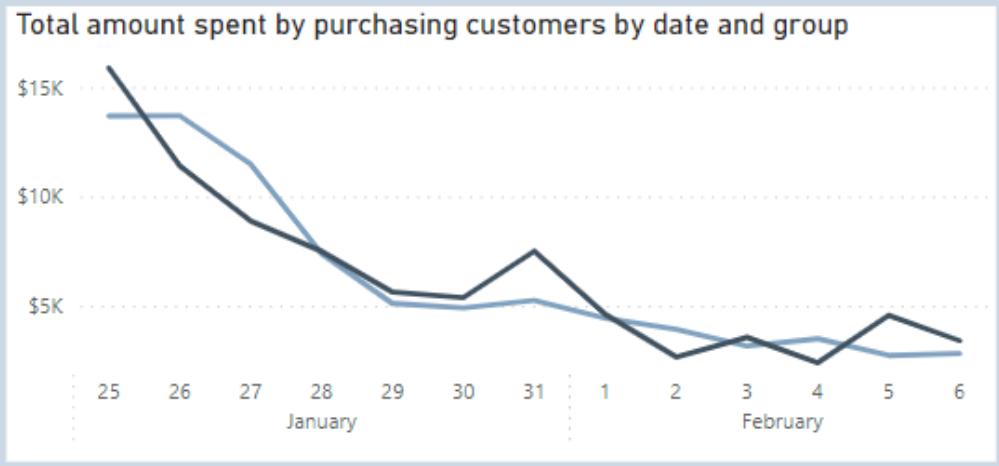


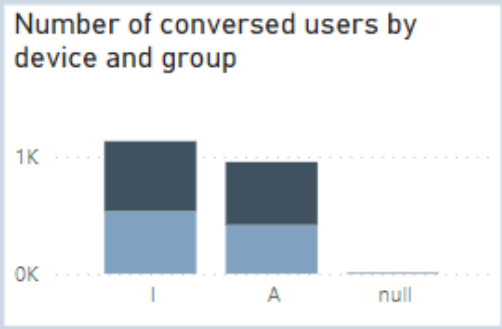


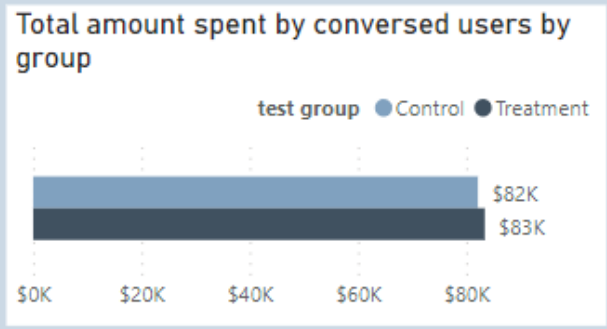


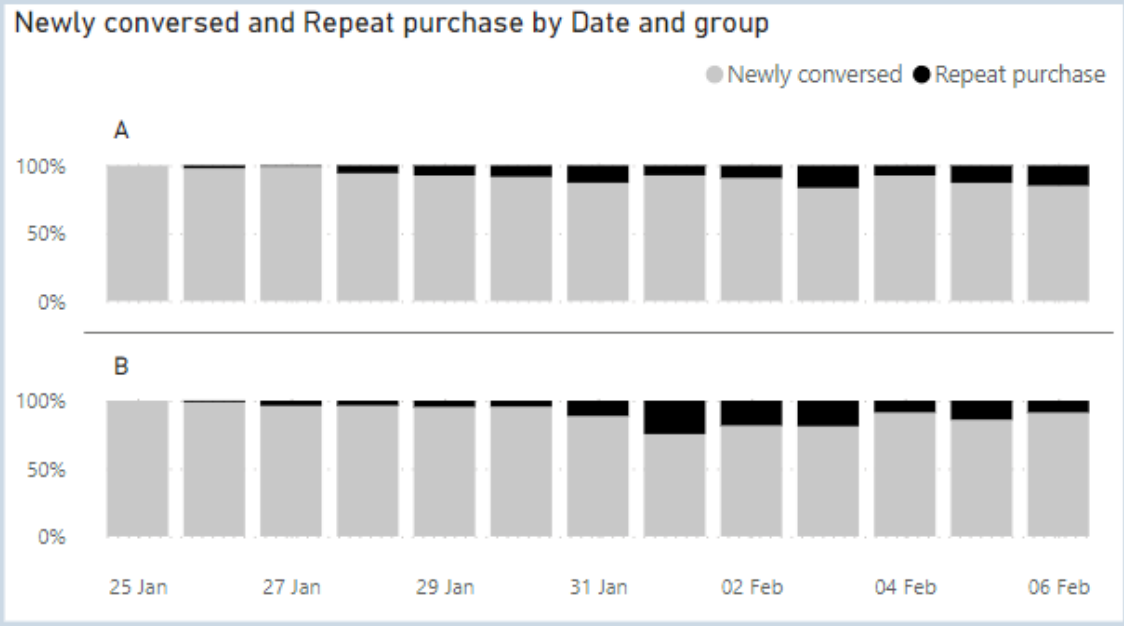
Conversion


Number of purchasing customers by date and group
200
100
0
25
26
27
28
29
30
31
1
2
3
4
5
6
January
February

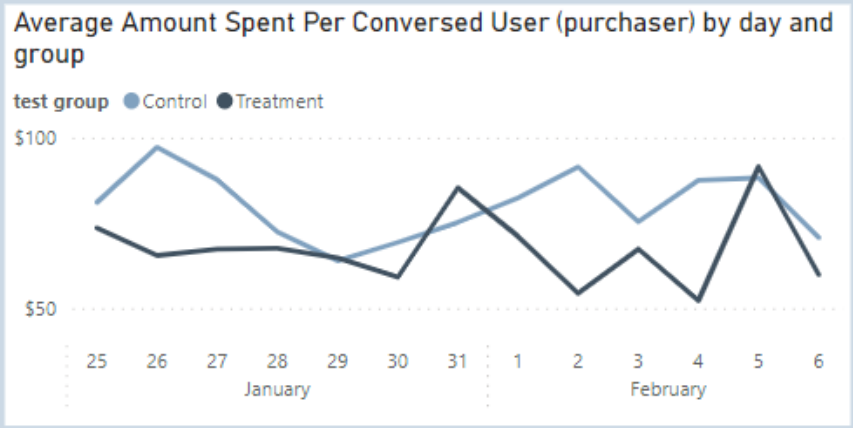

Total amount spent by purchasing customers by date and group
$15K
$10K
$5K
25
26
27
28
29
30
31
1
2
3
4
5
6
January
February

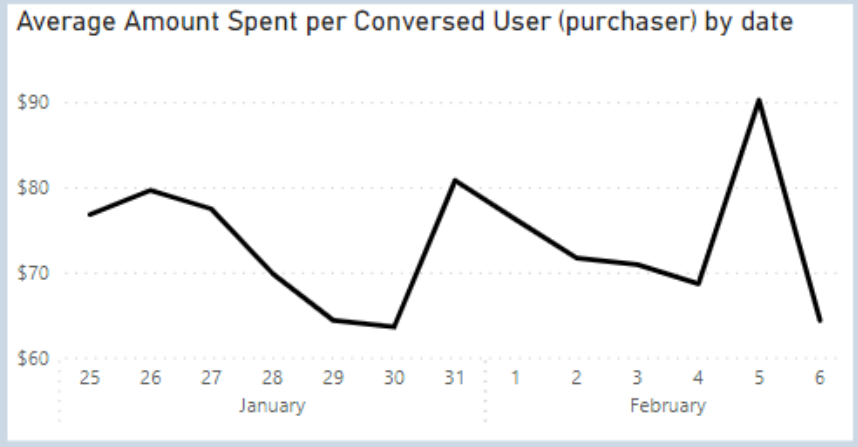

Number of conversed users by device and group
1K
0K
I
A
null


Total amount spent by conversed users by group
test group
Control
Treatment
$82K
$83K
$0K
$20K
$40K
$60K
$80K


Newly conversed and Repeat purchase by Date and group
Newly conversed
Repeat purchase
A
100%
50%
0%
B
100%
50%
0%
25 Jan
27 Jan
29 Jan
31 Jan
02 Feb
04 Feb
06 Feb

Average Amount Spent





Average amount spent per user (visitor)

$3.383	$3.375	$3.391
All users (both groups)	Control group	Treatment group

Average amount spent per customer (purchaser)

$79.06	$86.02	$68.43
All customers (both groups)	Control group	Treatment group

Average amount spent per customer per day

$74.14	$81.01	$73.24
All customers (both groups)	Control group	Treatment Group

Confidence interval

Average Amount Spent per user

We are 95% confident that the interval (3.049, 3.700) captured the true Average Amount Spent per user in **the control group**,
giving us the range of plausible values for the Average Amount Spent per user of the entire population of GlowBox users when **the banner is not loaded**

95% confidence interval for the average amount spent per user in the control group:

(3.049, 3.700)

We are 95% confident that the interval (3.073, 3.708) captured the true Average Amount Spent per user in **the treatment group**,
giving us a range of plausible values for the Average Amount Spent per user of the entire population of GlowBox users when **the banner is loaded**

95% confidence interval for the average amount spent per user in the treatment group:

(3.073, 3.708)

Hypothesis test

Difference in Average Amount Spent per user

$\alpha = 0.05$

$H_0: \mu_{treatment} - \mu_{control} = 0$

$H_a: \mu_{treatment} - \mu_{control} > 0$

Where,

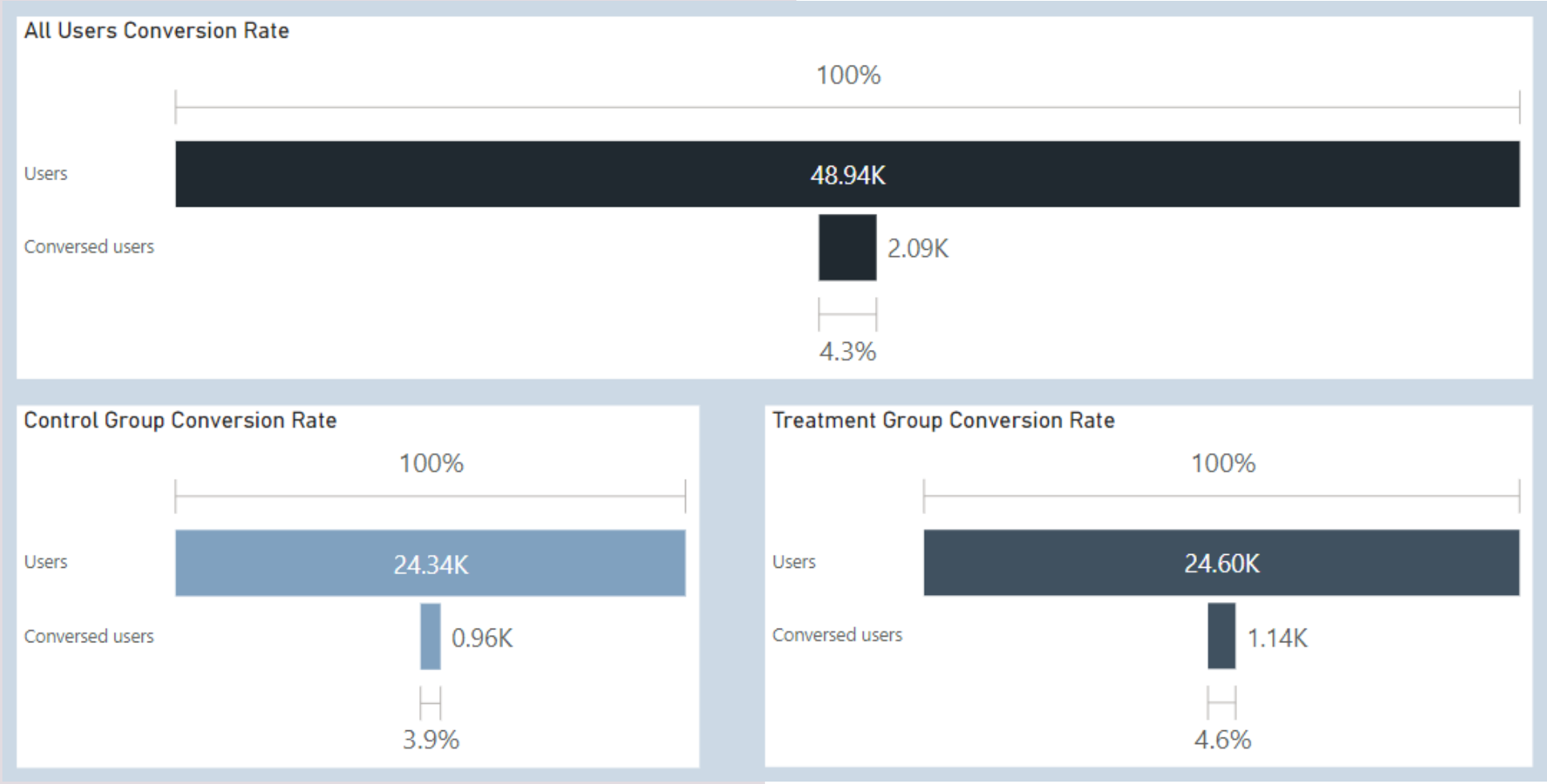
$\mu_{treatment}$ is Average Amount Spent per user in the treatment group

$\mu_{control}$ is Average Amount Spent per user in the control group

assuming unequal variance, using the unpooled standard error

p value = 0.4721 ,
p>0.05 ,
fail to reject Ho, not enough evidence to reject the null hypothesis
or
we **don't have enough evidence** that the average amount spent per user in the **treatment group** is **greater** than the average amount spent per user in the **control group**

Conversion Rate



Confidence interval

Conversion rate

95% confidence interval for conversion rate of users in the control group:

(3.68%, 4.17%)

95% confidence interval for conversion rate of users in the treatment group:

(4.37%, 4.89%)

We are 95% confident that the interval (3.68%, 4.17%) captured the true Conversion rate in **the control group**, giving us a range of plausible values for the Conversion rate of the entire population of GlowBox users when **the banner is not loaded**

We are 95% confident that the interval (4.37%, 4.89%) captured the true Conversion rate in **the treatment group**, giving us a range of plausible values for the Conversion rate of the entire population of GlowBox users when **the banner is loaded**

Hypothesis test

Difference in Conversion Rate per user

$\alpha = 0.05$

$H_0: P_{treatment} - P_{control} = 0$

$Ha: P_{treatment} - P_{control} > 0$

Where,

$P_{treatment}$ is Conversion rate in the treatment group

$P_{control}$ is Conversion rate in the control group

p value = 0.000056 ,

$p<0.05$,

reject H_0 and accept Ha ,

the **evidence** suggests that conversion rate in the **treatment group** is **greater** than the conversion rate in **control group**

Conclusion

A/B testing process

Test over incomplete period

Conversion rates can vary massively on different days of the week and even at different times of the day so a normal range of conversions should be respected

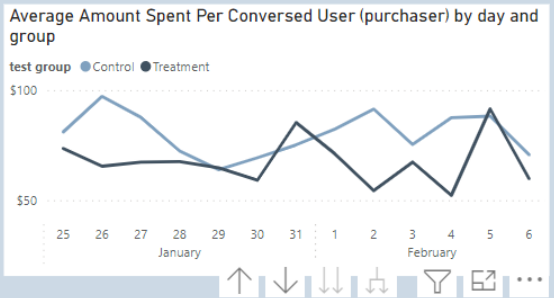
Better to test over at least one business cycle and ideally two

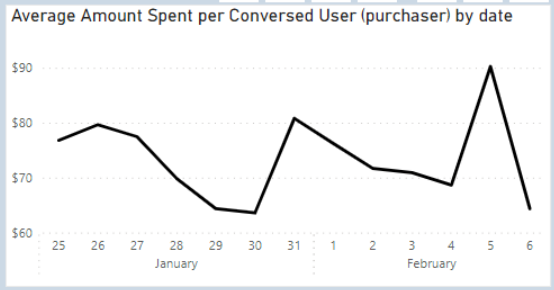
Internet users do not make a purchase as soon as they come across the site

More than 12 days might elapse between the time users are the subject of the test and the point at which they convert

Conclusion

A/B testing process results





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Revenue could be calculated as a product of 3 factors:

Traffic
Conversion Rate
Average Amount Spent Per Customer (Conversed User)

Conversion rate increases, average amount spent per customer decreases

With the increase of conversion rates (e.g. thanks to a new, cheaper product), average amount spent per customer goes down (even though average amount per user stay the same) – the differences between these should be tracked, as a gap too large might be negative for the sales

Conclusion

The gap between average amount spent per customer and increased conversion rate should be considered to avoid negative impact on sales before launching the experience to all users. There was no data available about the purchased products to conduct a research.

Possible sources of issues:

pricing strategy

marketing strategy

discount policy