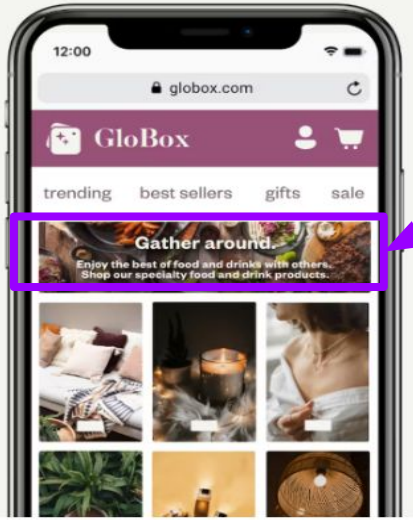
A/B Test for GloBox

- The goal of the experiment:How can we increase the sales on our mobile website?
- Hypothesis:I don't think that adding the banner will increase the sales
- A and B:

Group A: Control
existing landing page

Group B: Treatment
landing page with food & drink banner



The change between the groups

- Dates: 25/01/23-06/02/23
- Results:

	A	B	C	D	E	F
1	**group**	**mean spending**	**standard deviation**	**sample size**	**total spent**	**conversion**
2	**A**	$3.375	25.936	24,343	$82,145.90	3.92%
3	**B**	$3.391	25.414	24,600	$83,415.33	4.63%
4						
5	**confidence level:**	95%				
6						
7	**mean diffrence(B-A):**	$0.016				

- Conclusion:

1. My hypothesis was that the banner won’t do difference.
2. Group B bought a little bit more, but it also can happen randomly.
3. Right now I can’t say there is something specific in the website that make our customers spent there money.

- Recommandation:

1. I think that we don’t need to do any change in our website.
2. We can think about adding something else to our website and check it.

Query I use in the SQL:

1.
```
SELECT count(distinct a.uid)::float/count(distinct g.uid)::float as conversion, "group"
FROM groups g
left join activity a
on g.uid=a.uid
group by 2
;
```

2.
```
select "group", a.device, sum (spent) as total_spent
from groups g
left join activity a
on a.uid=g.uid
group by 1,2
order by 2 ;
```

3.
```
WITH cte AS (
SELECT uid, "group", SUM(spent) AS total_spent
FROM groups
left join activity
using(uid)
GROUP BY uid,"group"
), cte_2 as
(select uid, "group", (COALESCE(total_spent, 0)) total_spent from cte)
SELECT "group", AVG(total_spent) AS mean_spending,
STDDEV(total_spent) AS standard_deviation,
COUNT(distinct uid) AS sample_size,
AVG(total_spent) - 1.96 * STDDEV(total_spent) / SQRT(COUNT(uid)) AS lower_bound,
AVG(total_spent) + 1.96 * STDDEV(total_spent) / SQRT(COUNT(uid)) AS upper_bound
FROM cte_2
group by "group";
```

4.
```
WITH cte AS (
SELECT uid, "group", SUM(spent) AS total_spent
FROM groups
left join activity
using(uid)
GROUP BY uid,"group"
), cte_2 as
(select uid, "group", (COALESCE(total_spent, 0)) total_spent from cte)
select * from cte_2
```

Link to spreadsheet:
a/b_test_project