Applying Iterative Design Principles to a Live Product

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Step 1

Select KPIs

&

Evaluate Previous Multivariate Experiment Results

Select KPIs for Flyber Analyses

- For the data available, which KPI(s) best match Flyber's business model?
  a) The No. of users who begin the ride is an important KPI considering the SaaS business model of Flyber.
  b) The No. of Returning users is another KPI similar to the renewal rate.

- How would you calculate these KPI(s) using the available event data logs?
  Using the "user_uuid" and "Event Type = begin_ride" we can calculate the first KPI. Meanwhile for the second KPI we need "session_uuid ", "user_uuid" and "Event Type = begin_ride". If the user has two different sessions for "Event Type = begin_ride" then he/she is a returning user.

- List other KPIs that might be important to Flyber but are not calculable based on available data
  The User Satisfaction is another KPI but the data isn't there.

Describe the First Multivariate Experiment

- Describe the elements tested during the multivariate experiment. You can use the image below when referencing the tests

Describe the First Multivariate Experiment

Conversion_Rate

Event Type	Experiment Group	
begin_ride	control	0.27%
	experiment_1	0.30%
	experiment_2	0.32%
	experiment_3	0.30%

Change of Button Text and Omission of Text alone or together were the elements tested during the Multivariate Experiment for three variations of the Flyber app.

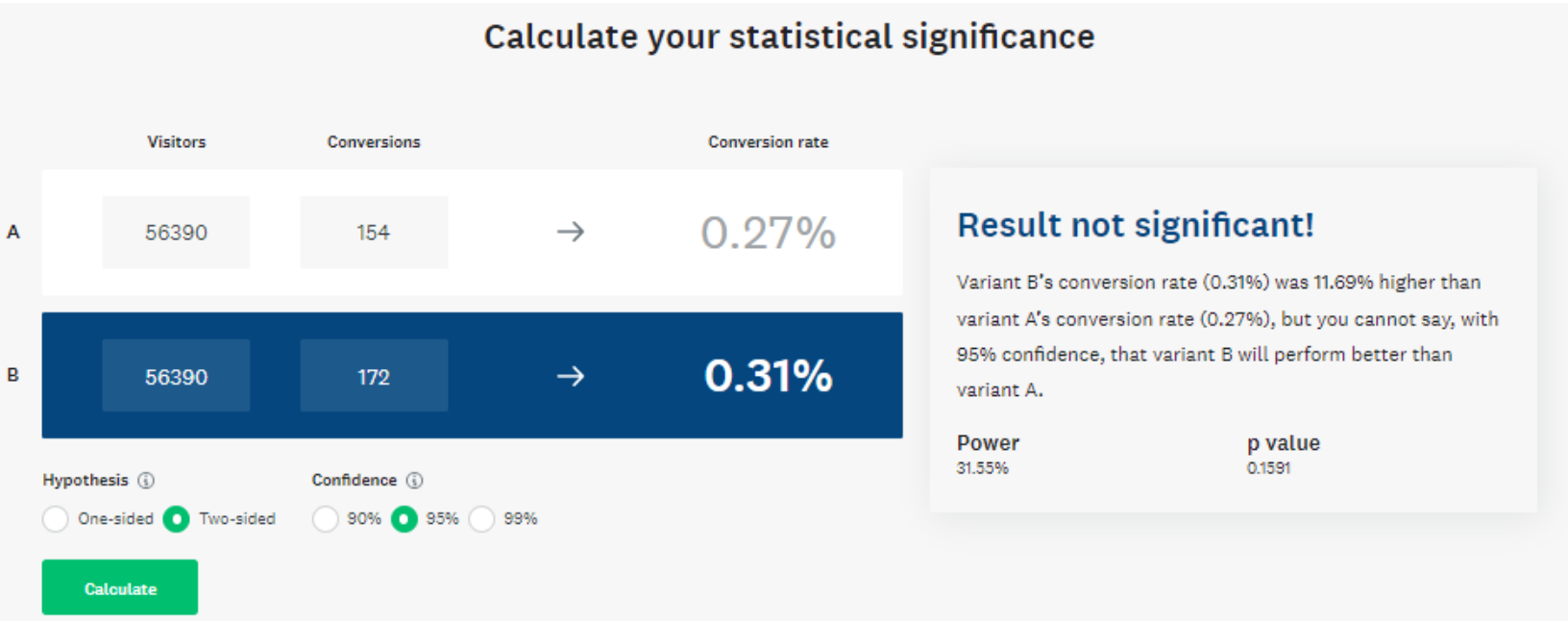
Multivariate test is appropriate as we need to carry out few changes and to see how those changes interact with each other also. Many users are there too.

T-Test is best to evaluate the Multivariate test results as it tells us whether the results were statistically significant or not with a usual 95% confidence level for two tailed tests as the resuts can go either way viz. better or worse. For the T-test we require no. of visitors and conversions due to the experiment. If the p-value < 0.025 (For two-tailed tests) the results are significant otherwise not.

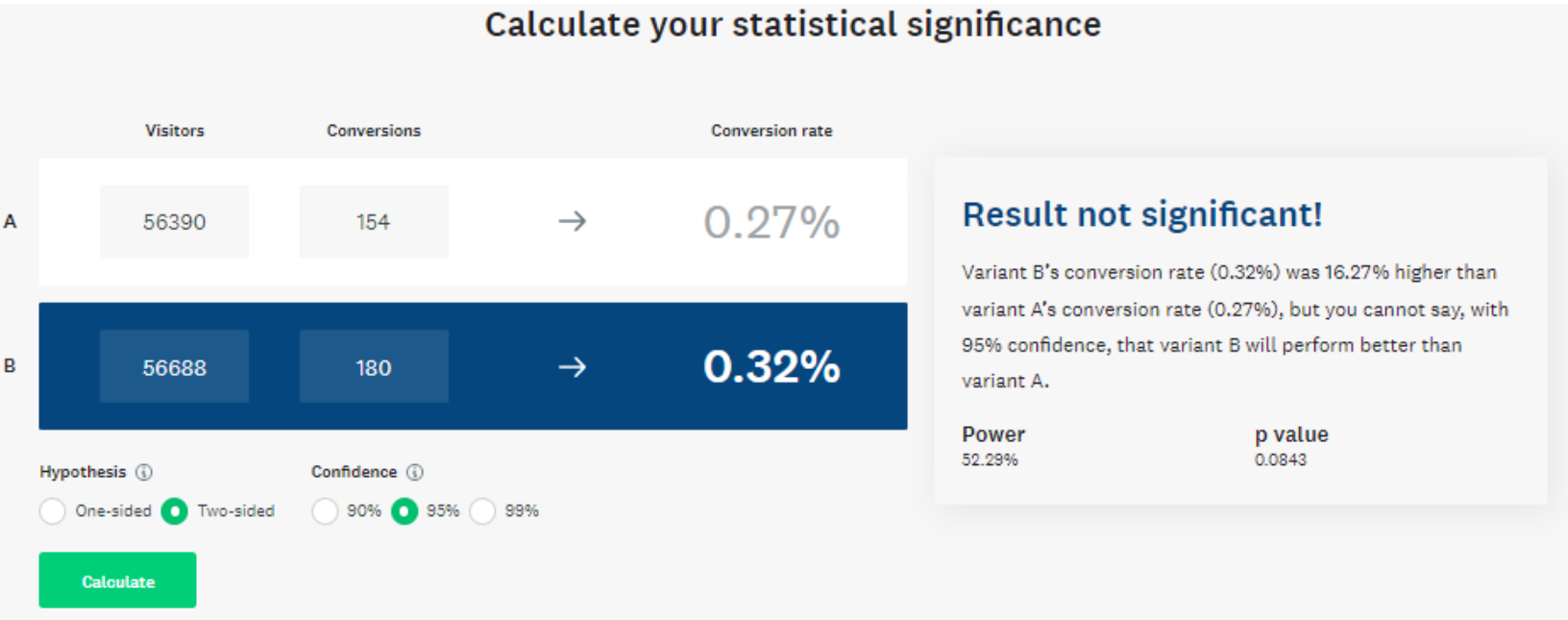
Here we have used the A/B testing calculator from Survey Monkey. PFB the link.
https://www.surveymonkey.com/mp/ab-testing-significance-calculator/

Describe the First Multivariate Experiment

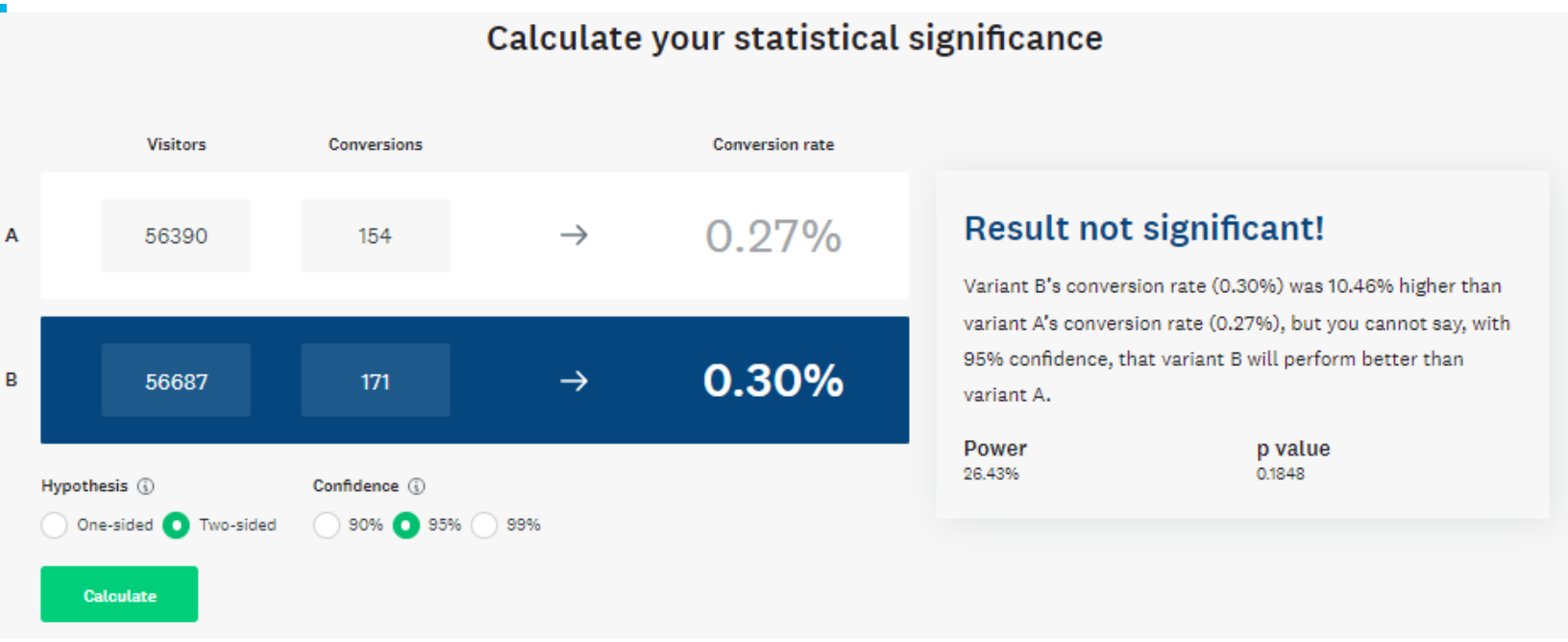
Control & Experiment 1



Control & Experiment 2



Control & Experiment 3



The results of the multivariate tests were insignificant as evident from above slides. The p-value > 0.025 for all the tests hence result not significant. We can see negligible difference between the conversion rates of the control and experiment groups also.

As it's not significant we can't expand any of the tests.

NB: We see many users repeating in different experiments across different days hence we haven't used CountDistinct for the users of the Multivariate tests. For all other analysis we have used CountDistinct to get the unique count.

Review Multivariate Test Results: Visualization

PFB the Tableau visualisation for the Conversion rate.

Conversion_rate

	Experiment Group			
Event Type	control	experiment_1	experiment_2	experiment_3
open	56,390	56,390	56,688	56,687
#_of_users	23,612	23,626	23,953	23,557
search	11,323	11,300	11,581	11,299
begin_ride	154	172	180	171

Step 2

Funnel & Cohort Analyses

User Funnel

Identifying the different stages of the user funnel

The four stages in the funnel are:

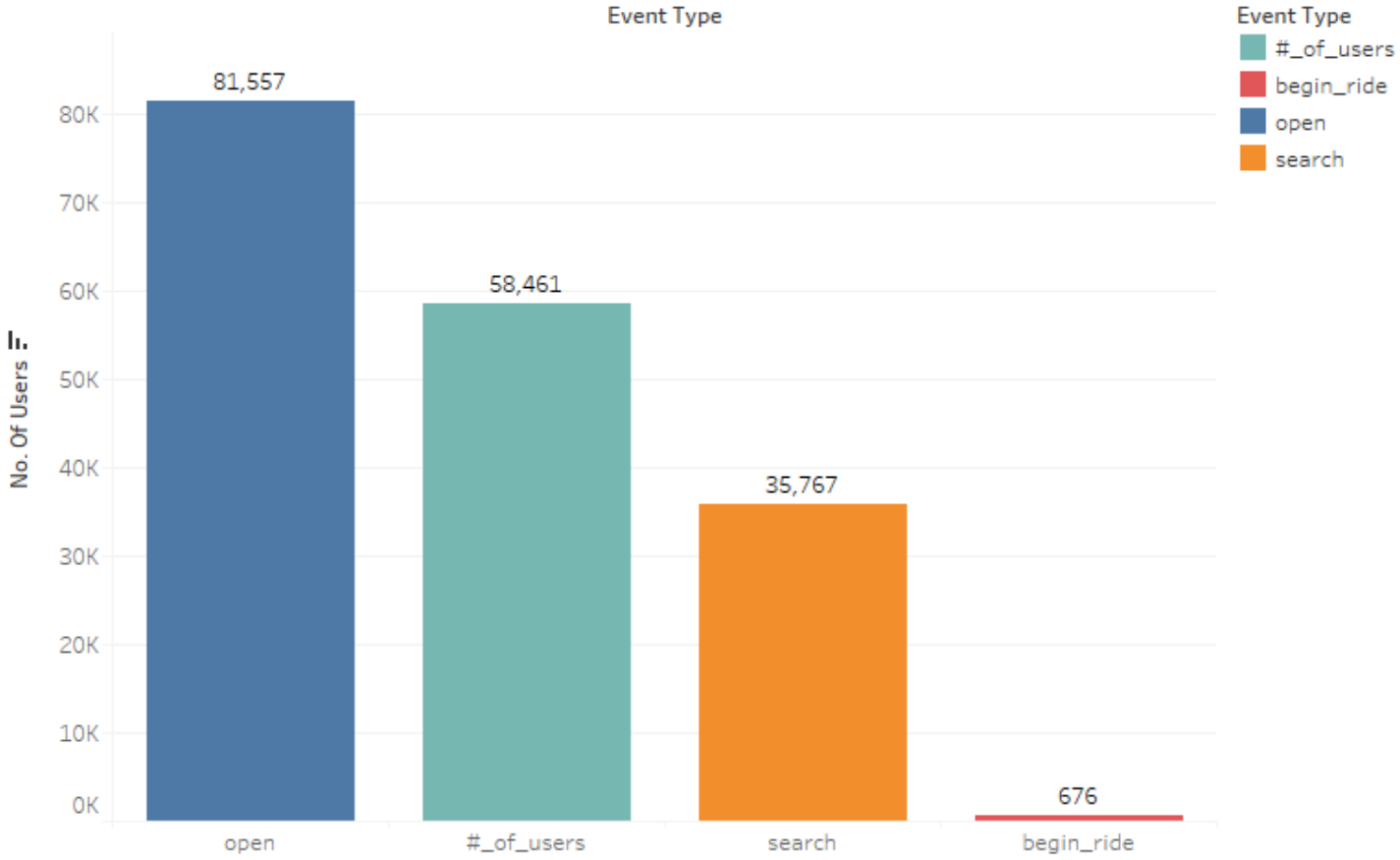
1) Open (Opening the app)
2) #_of_users (Inputting the no. of riders)
3) Search (Searching for Flyber taxi)
4) Begin_Ride (Booking the ride)

Funnel_DropOff_Calculation

Event Type	
open	
#_of_users	-28.32%
search	-38.82%
begin_ride	-98.11%

User Funnel

Funnel_DropOff_Visualisation



Distinct count of User Uuid for each Event Type. Color shows details about Event Type. The marks are labeled by distinct count of User Uuid.

User Segments

- Age and User Neighbourhood are the two main demographic attributes present in the data that allow for segment analysis.

Age_Cohort

Age			
18-29	30-39	40-49	50+
28,321	20,124	41,774	64,059

The Age Cohort of 50+ is the largest segment as evident above.

The Neighbourhood cohort of Manhattan is the largest segment as given below.

Neighbourhood_Cohort

User Neighborhood				
Bronx	Brooklyn	Manhattan	Queens	Staten Island
2,396	16,435	57,110	4,050	1,566

Segment Analysis of Funnel

Identify Opportunities for Improvement

Funnel_Dropoff_Age

	Age			
Event Type	18-29	30-39	40-49	50+
open				
#_of_users	-53.59%	-55.27%	-50.40%	-42.15%
search	-33.88%	-35.18%	-32.69%	-62.13%
begin_ride	-98.55%	-98.29%	-98.16%	-98.61%

From no. of users to the search stage the dropoff rates are the highest at 62.13% in the Age cohort 50+

Meanwhile for the Neighbourhood cohort below the dropoff rates are almost same.

Funnel_DropOff_Demography

	User Neighborhood				
Event Type	Bronx	Brooklyn	Manhattan	Queens	Staten Island
open					
#_of_users	-28.71%	-28.63%	-28.22%	-28.89%	-26.37%
search	-38.35%	-38.61%	-38.89%	-38.30%	-40.50%
begin_ride	-97.82%	-98.14%	-98.11%	-98.26%	-97.96%

Step 3

Hypothesis & Next Steps

Review Qualitative Data

- The UI isn’t very usable in terms of readability for Elderly people hence comparatively high Dropoff rates for 50+ age cohort.
- Usability need is unmet in this senario.
- Please find below the quotes corroborating the unmet needs.

“I just hail a taxi or tell my phone to call a cab to go to a certain address (I'm always on the phone, so I just use voice commands with my phone most of the time) “ - Kierran Blackburn.

“I call up our local pilot, Bob. He's not always available but I don’t need to fiddle around with an app and hitting tiny buttons. He knows where I tend to be and where I want to go. “ - Charlie Johnson.

“I have a personal car service on call. My assistant books Flyber whenever I'd be travelling during peak NYC traffic hours. Time is money and Flyber saves me time! But I let my assistant actually book the Flyber because the first few times I tried booking, the instructions were too small. “ - Louis Jones.

Suggested Features & Experimentation Plan

- We believe higher Dropoff rates Because 50+ user not able to read properly And that by improving the usability for 50+ Age cohort we will see more conversion rate.

- Features to be included:

  a) Voice Command Option b) Increased Font Size with proper layout (Making the UI further simple and Readable) c) Fast UI (Enabling Cookies for determining whether returning customer to fetch the usage history for faster checkout)

- The Age Cohort of 50+ should be exposed to the experiments. Meanwhile there is big opportunity to be used here as this cohort is the largest one.

- Multivariate testing should be done as many users are there and also we need to test few changes like Voice command option, UI with bigger font and less clutter and finally a fast UI with cookies option enabled.

Suggested Features & Experimentation Plan

Optimal Two Features Multivariate Testing Framework is given below

Group	Button/Font Size	Voice Control
Control	No	No
Exp. 1	Large	No
Exp. 2	Normal	Yes
Exp. 3	Large	Yes

Listed Three Features Multivariate Testing Framework is also given below if required

Group	Button/Font Size	Voice Control	Fast UI
Control	No	No	No
Exp. 1	Large	No	No
Exp. 2	Normal	Yes	No
Exp. 3	Normal	No	Yes
Exp. 4	Large	Yes	No
Exp. 5	Normal	Yes	Yes
Exp. 6	Large	No	Yes
Exp. 7	Large	Yes	Yes

- No. of Users opting for the Voice command option, Clickthrough rate and session duration are the metrics to be tracked once these additional features are launched.

Appendix

Raw Data

Additional Info

Feature Usage Neighbourhood Wise

	User Neighborhood				
Event Type	Bronx	Brooklyn	Manhattan	Queens	Staten Island
open	100.00%	100.00%	100.00%	100.00%	100.00%
#_of_users	71.29%	71.37%	71.78%	71.11%	73.63%
search	43.95%	43.81%	43.86%	43.88%	43.81%
begin_ride	0.96%	0.82%	0.83%	0.77%	0.89%

Feature Usage Age Wise

	Age			
Event Type	18-29	30-39	40-49	50+
open	100.00%	100.00%	100.00%	100.00%
#_of_users	46.41%	44.73%	49.60%	57.85%
search	30.69%	28.99%	33.38%	21.91%
begin_ride	0.44%	0.50%	0.61%	0.30%

Feature Usage Time Wise

	Event Time							
Event Type	5	6	7	8	9	10	11	12
open								
#_of_users	-56.13%	-53.95%	-53.75%	-53.53%	-53.61%	-53.61%	-53.56%	-56.60%
search	-52.31%	-50.23%	-49.79%	-49.96%	-50.71%	-49.24%	-50.02%	-52.27%
begin_ride	-98.38%	-98.49%	-98.15%	-98.46%	-98.76%	-98.64%	-98.31%	-98.50%