Applying Iterative Design Principles to a Live Product

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Date: June 24, 2023

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?
- How would you calculate these KPI(s) using the available event data logs?
    - **Weekly Ride Count:**
        - Count of 'Begin Ride' event per week.
        - This will show us if the ride count increases by time, so that we can understand if out product is growing.
    - **Ride Count per Neighborhood:**
        - Count of 'Begin Ride' event per neighborhood.
        - This will show us the most popular areas our app is being used. So that we can prioritize our operation growth per neighborhood.
    - **Weekly Count of App Usage:**
        - Count of 'Open' event per week.
        - This will show us how many users are using the app. If they are opening the app and not doing the ride, depending on the percentage we can work on the reasons.
- List other KPIs that might be important to Flyber but are not calculable based on available data
    - **Duration Per Ride:** We could have determine if there are any particular patterns between rides that takes longer times and try to provide a solution.
    - **Ride Cancellation Count:** If we had the cancel event, we could determine which step of the Flyber usage users are more likely to cancel, and what cold their pain points be.

Describe the First Multivariate Experiment

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

Control

Experiment 1

Experiment 2

Experiment 3

Describe the First Multivariate Experiment

In this experiment we have 4 cases. We will try to determine the users preferences for some of the UI designs. If the price box should contain 'Tip Included' annotation and also what should be the text inside the booking button.

Control case: Under the price box, we put the 'Tip Included' annotation and the booking button contains the text 'Book Flight'.

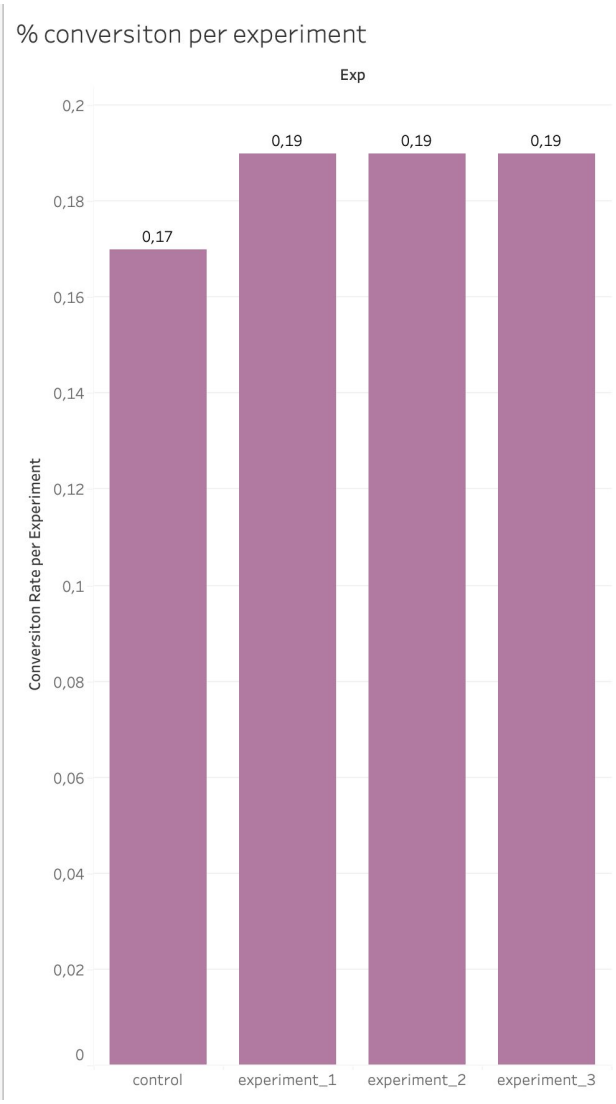
Experiment 1: Under the price box, we put the 'Tip Included' annotation and the booking button contains the text 'Fly Now'.

Experiment 2: Under the price box, we didn't put the 'Tip Included' annotation and the booking button contains the text 'Book Flight'.

Experiment 3: Under the price box, we didn't put the 'Tip Included' annotation and the booking button contains the text 'Fly Now'.

Review Multivariate Test Results: Visualization

- Provide a visual representation of the impact of the experiment on the conversion rate of users booking a flight (out of all users opening the app).



Review Multivariate Test Results: Significance Test

Determine if there was a significant difference between the experiments and control states.

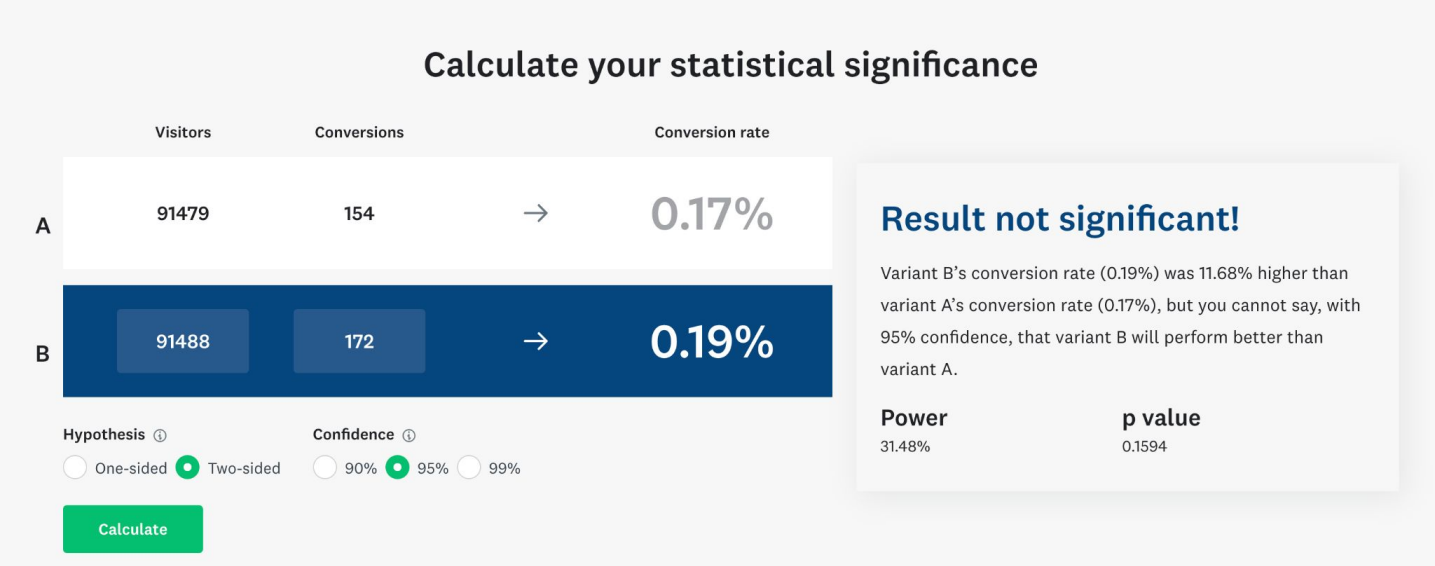
- Explain how you would perform a t-test to determine if the experimental results had a greater impact on the booking conversion rate than the control state
- List the test results (p value) for each experiment compared to the control
- Using the statistical significance calculator of your choice, determine which experiments, if any, had a significant result at the 95% level. Include your calculations as part of your explanation
- Based on your statistical significance calculations, recommend if any of the experiments should be expanded

Review Multivariate Test Results: Significance Test

- We can design an A/B test to see if the experiment has the greater impact. We will compare each of the experiments with the control case. So that we can see the individual conversion rates for each experiment.
- I picked the 'Begin Ride' event count as conversion variable (Booking Count), since this is one of our main kpi's.
- In this case out confidence rates are set to 95%.

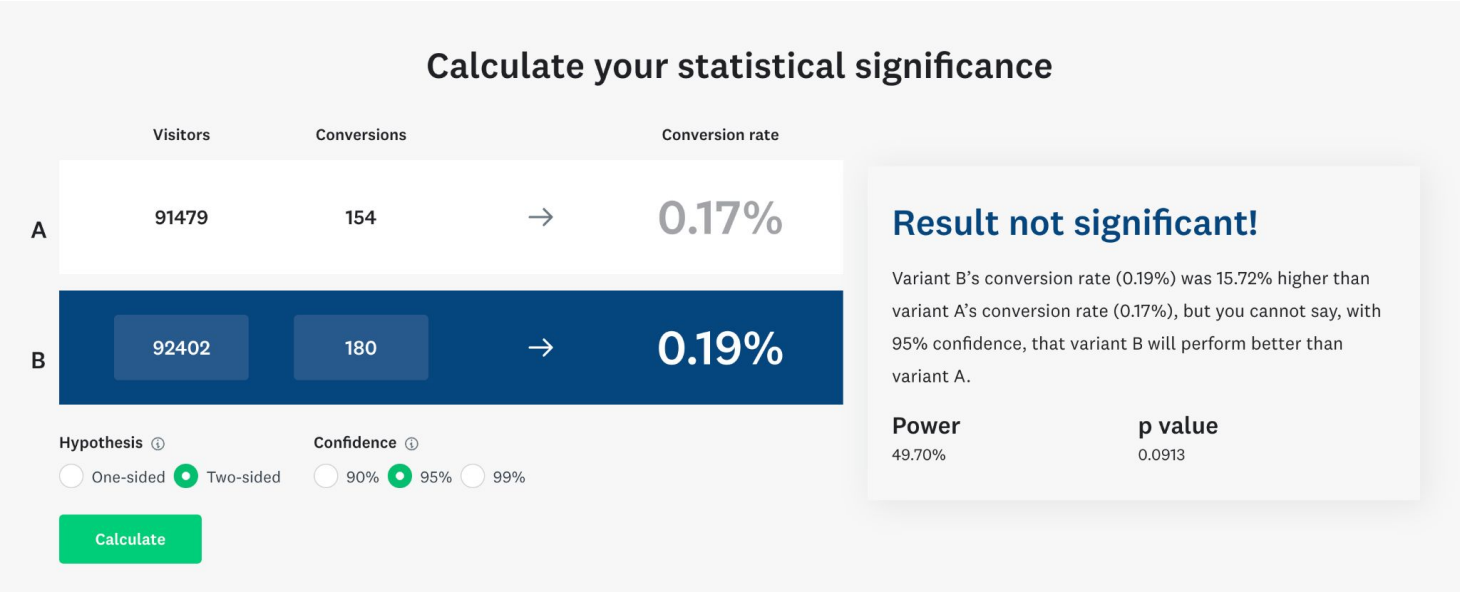
Experiment 1

A is the control case and B is the experiment 1



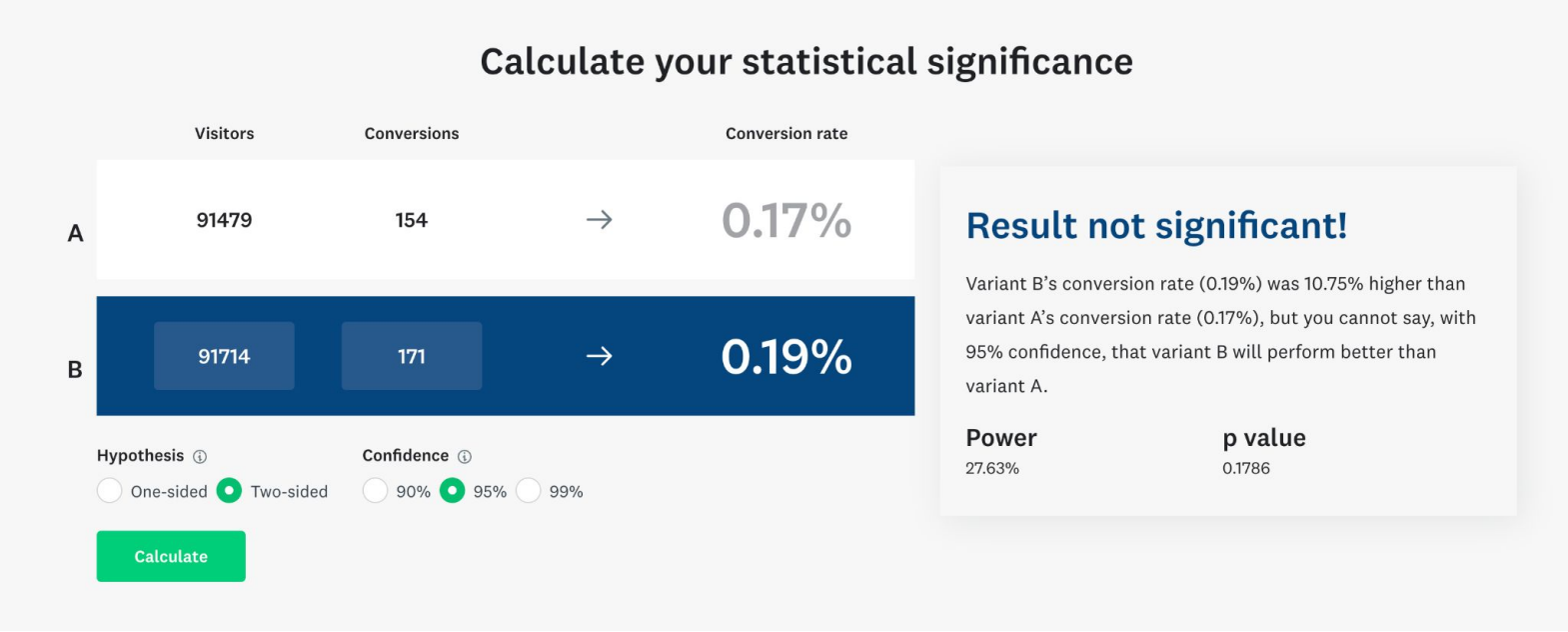
Experiment 2

A is the control case and B is the experiment 2



Experiment 3

A is the control case and B is the experiment 3



Overall, none of the experiments has significant impact.

Experiment 2 has the highest conversion rate with 15,72%. But it is not enough to say it is better then our control case. So it is not necessary to make the effort for this experiment to be expended.

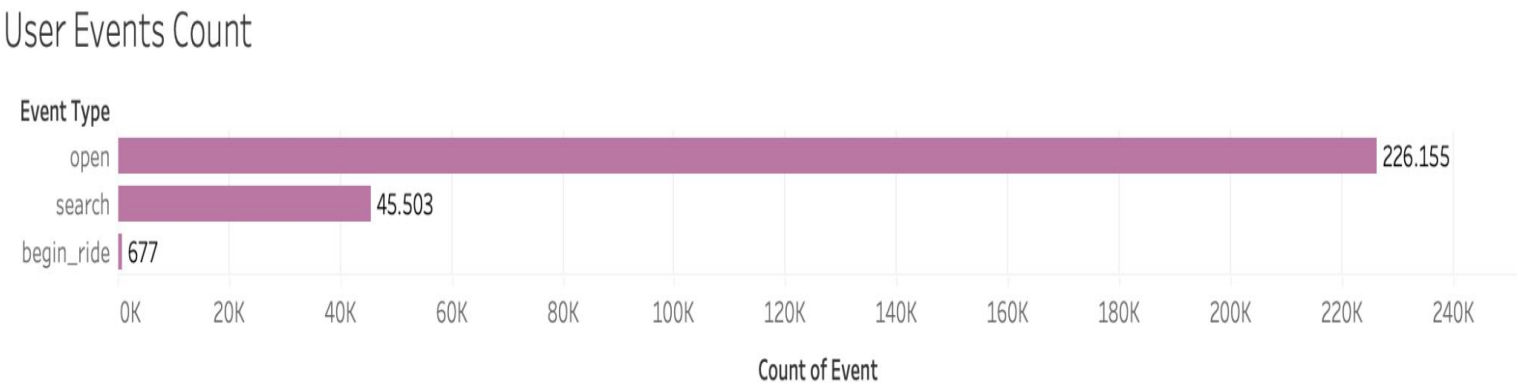
Step 2

Funnel & Cohort Analyses

User Funnel

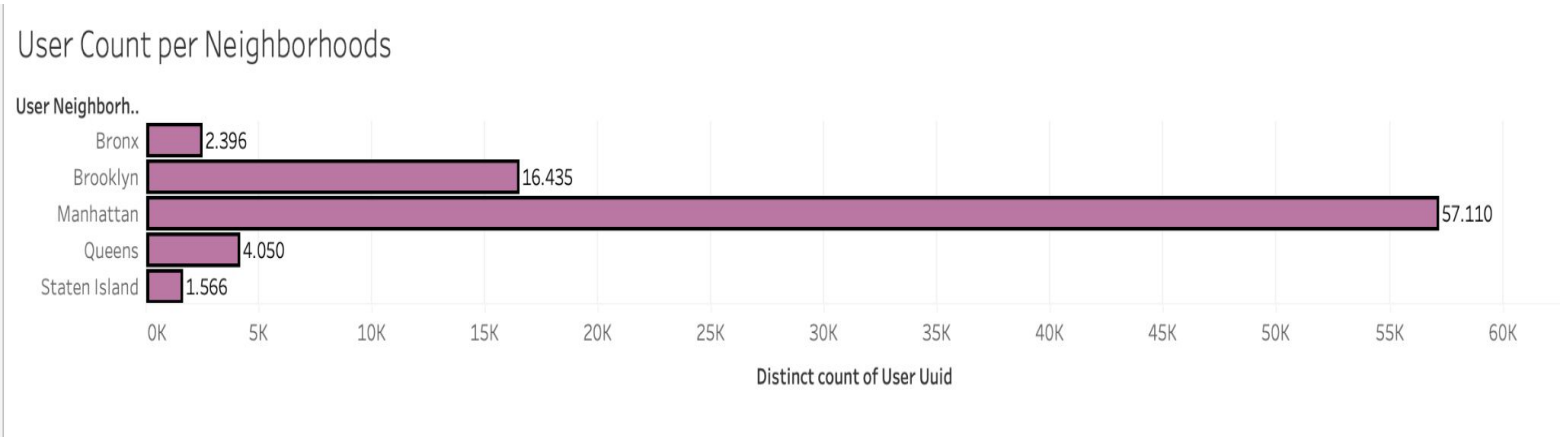
Identifying the different stages the user funnel

- Based on the event types in the data provided, list the 3 or more steps a user can take from opening the app to final booking of a ride
  - User opens the app. (open)
  - Users searches for ride. (search)
  - Users books the ride. (begin_ride)
- Provide a graph showing the funnel from step to step, including drop off rates.

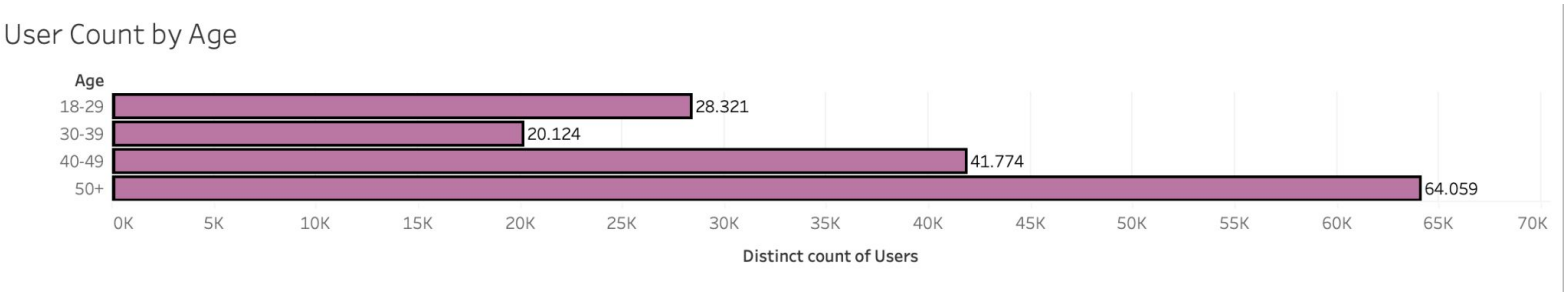


User Segments

- Identify 2 demographic attributes present in the data that allow for segment analysis
  - Neighborhood: Neighborhoods of the Flyber users.
  - Age: Age of the Flyber users.
- For each demographic attribute, provide the number of users in each segment group
- For each demographic attribute, identify the segment group with the largest number of users
  - Neighborhood: Number of users in each segment can be seen below and Manhattan is the segment with the largest number of users.



- Age: Number of users in each segment can be seen below and 50+ is the segment with the largest number of users.



Segment Analysis of Funnel

Identify Opportunities for Improvement

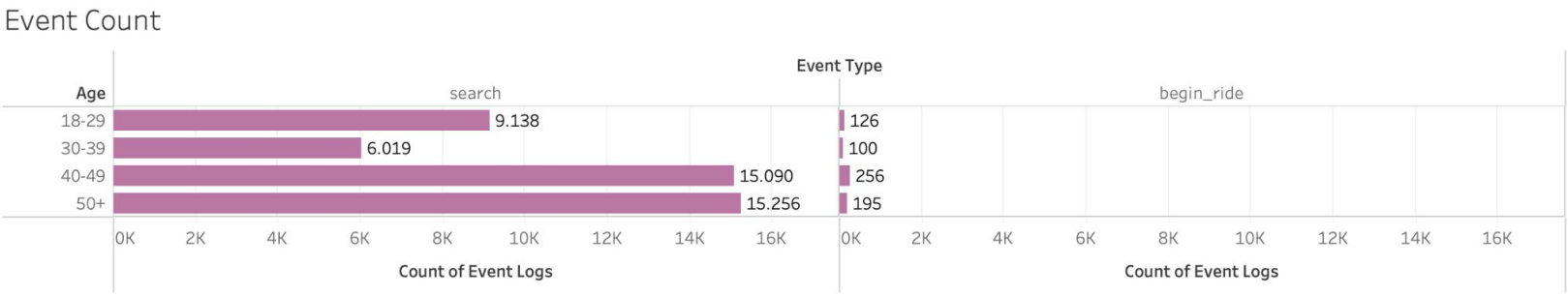
- Perform a funnel analysis by segment for all identified demographic attributes and describe the results
- If underperformance for a segment in an attribute is identified, add a visual showing the average funnel conversion by segment group for that demographic

Segment Analysis of Funnel

First we filter the 'Search' and 'Begin Ride' events to get numbers of rides in each cohort segment. And we will calculate the drop off rate for each of them using the formula:

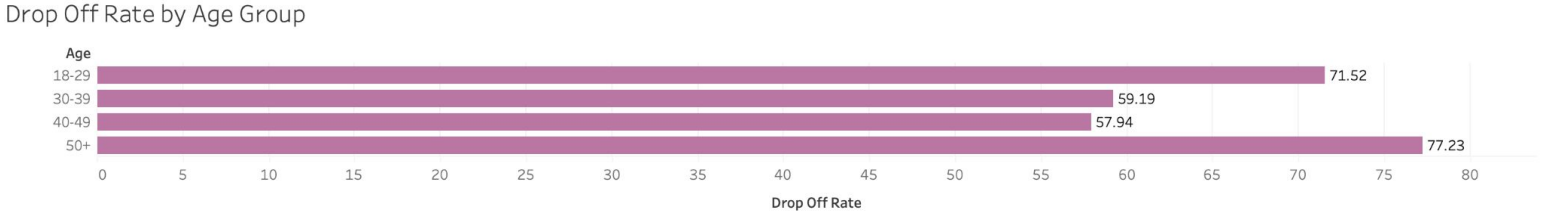
*Drop Off Rate = (#Search- #Begin Ride) / #Begin Ride * 100*

Age Segment:



Drop Off Rates

- 18-29: %7152
- 30-39: %5919
- 40-49: %5794
- 50+ : %7723



50+ age group has a higher than average drop of rate.
The underperformance can be seen in the chart above.

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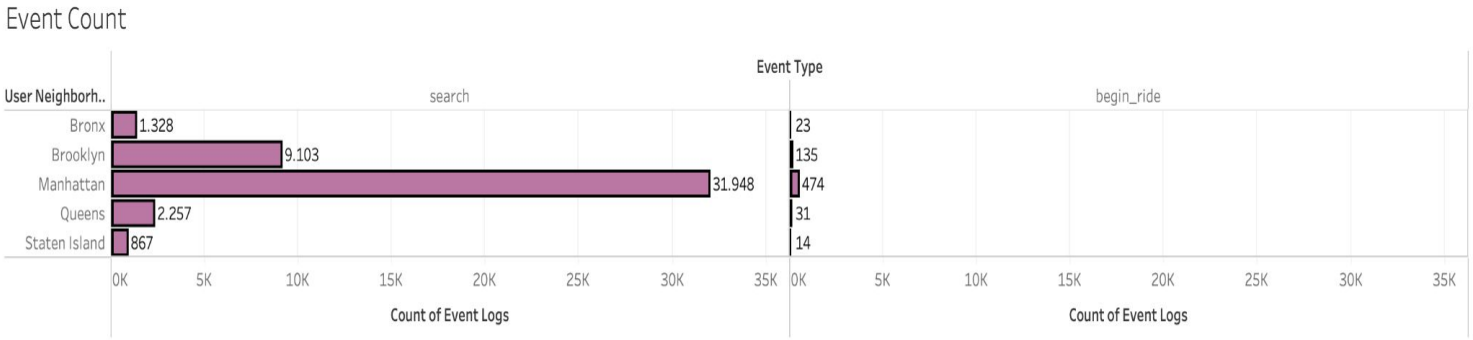
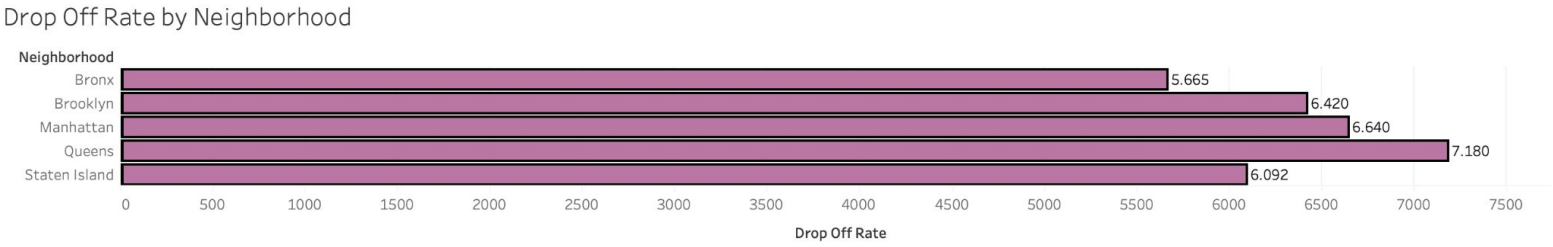
Segment Analysis of Funnel

Neighborhood Segment:



Drop Off Rates

- Bronx: % 5665
- Brooklyn: %6420
- Manhattan: %6640
- Queens: %7180
- Staten Island: %6092



Queens has the highest drop off rate.
The underperformance can be seen in the chart above.

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Step 3

Hypothesis & Next Steps

Review Qualitative Data

- Read user interviews to understand “why” any funnel under-performance seen in Step 2 might occur
- List your hypothesis for what customer need is being under-served
- Provide 3 or more quotes as evidence for this hypothesis

Age Segment:

We have seen that the drop off rate is the highest on 50+ age group.

If we look at their answer on ‘What Do Use When You Don’t Use Flyber’ we can see that they are mostly calling for their other vehicles or using traditional ways they are used to.

- “Before Flyber, I'd call a taxi service on the phone.” -Sapphire Dupont
- “Drive my car or call a taxi service.” -Tanner Cherry
- “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

We can assume that our app usage can be a challenge for elderly people.

Suggested Features & Experimentation Plan

- Share your hypothesis using the following format:

  We believe that 50+ people might be having hard time using our app for Flyber. Because they are used to more traditional ways like calling a cab or hailing it on the road. And by adding some futures to our app and making it more easy to use, we can gain elderly people and increase their app and Flyber usage

- Suggest 2 or more features that would match your hypothesis and determine a plan for multivariate testing, including describing the control and experimental conditions:

1) We can add a ‘Call’ button to our app, to make the booking via phone call instead of selecting locations and going through app menus.
2) We can add a ‘Favorite Places’ future, so that users can save their most used locations. And doesn’t have to enter that info every time they use the app.

- We can plan our multivariate test as below

We can start by dividing users to 4 groups with even demographics and show them the versions of app as below:

Control: No call future and no save location future.

Experiment 1: Call future and no save location future.

Experiment 2: Call future and save location future.

Experiment 3: No call future and just save location.

After collecting the event data of each of these experiments, we can perform an a/b test and calculate their p values for each experiment. After that we will be able to determine if there is an experiment we can expand or it makes a significant change.

- Determine who should be exposed to the experimental changes:

50+ people should be exposed to the changes, since we are making our new futures targeting them. future.

- List any additional metrics that would be helpful to collect from your suggested features

  Call event type and count would be helpful to determine the conversion rate from app usage to call future.

  Save location event type and future would also be helpful for same reasons.