Battle of Neighborhoods

Potential locations for the sharing economy of power banks in New York

The problem

It's a Saturday night, you've been having a great time with friends at a popular bar, and suddenly you here a noise coming from your mobile phone. It's only 8:30 pm, but you won't be able to get home without Uber, do you abandon your friends and go home now? Or do you recharge your phone now?

But how do you recharge your phone at a bar?

Objectives

In this report, we will:

- Analyze the neighborhoods of New York based on venues

- Cluster neighborhoods based on common popular venues

- Recommend the company for the optimal strategy of a pilot testing program for power-bank rentals.

Data

We will be using the New York city data from: https://cocl.us/new_york_dataset.

We will also be using the Foursquare API data.

The Foursquare data is appropriate for the following reasons:

- Foursquare users overlap with our target customers in terms of age-group.

- Foursquare data are user generated and updated, which is more relevant to our business, because we don't want outdated places that are recommended by critics but irrelevant for our actual target customers.

Methodology

Specifically, we will need to explore the following aspects based on the data:

- The most popular venues in all neighborhoods in New York by type;

- After identifying the venues in particular neighborhoods, we will group them and explore neighborhoods that have similar popular venues.

- And based on the clusters we will recommend the optimal choice of cluster.

Selection Criteria

- Our potential customers are 20~35 year olds.

- Potential customers are more likely to use our service, the more time they spend at a venue (thus the more likely that their phone's battery running out).

- The power bank rental stations need some but not extensive maintenance (assuming a monthly checkup). So they shouldn't be too spread out.

- The power bank rental stations cost $3,000 each to produce, and we only have a budget to produce a limited amount for pilot testing.

- Our marketing team would like to be able to go frequently around the rental stations to do promotions and observe how people actually adopt or interact with our service.

# Visualizing New York Neighborhoods
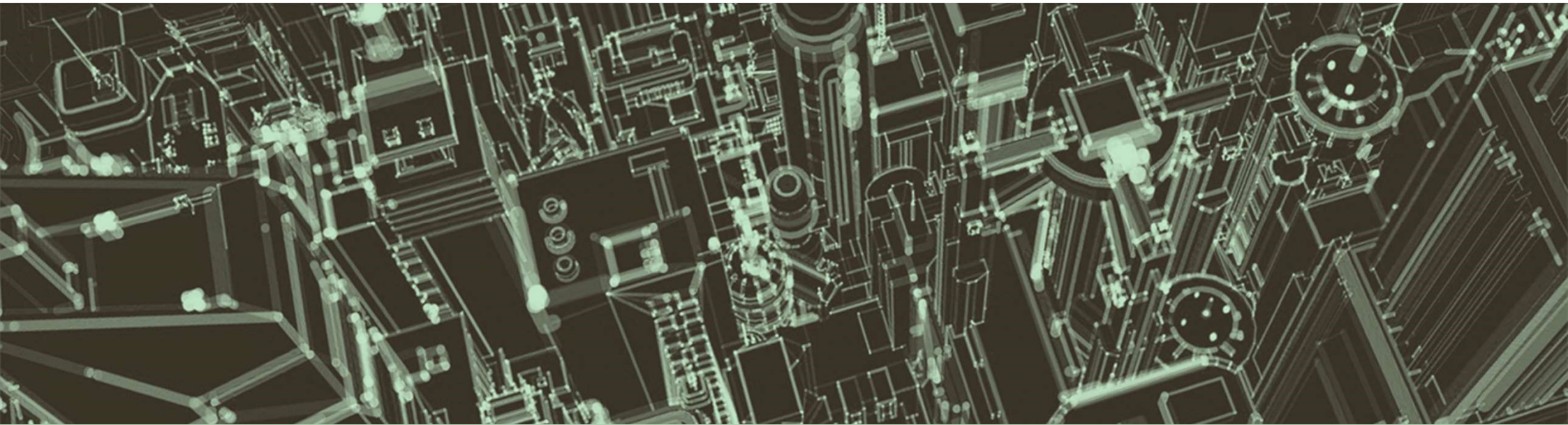
Exploring the clusters

Cluster 1

- Cluster 1 have many outdoor parks and also supermarkets, and also commonly have fast food restaurants.

- Combing these information with the graphical representation, we can see that these neighborhoods are spread-out and are on the outskirt of New York (far from the city's center).

- It could be some of the lower income neighborhoods.
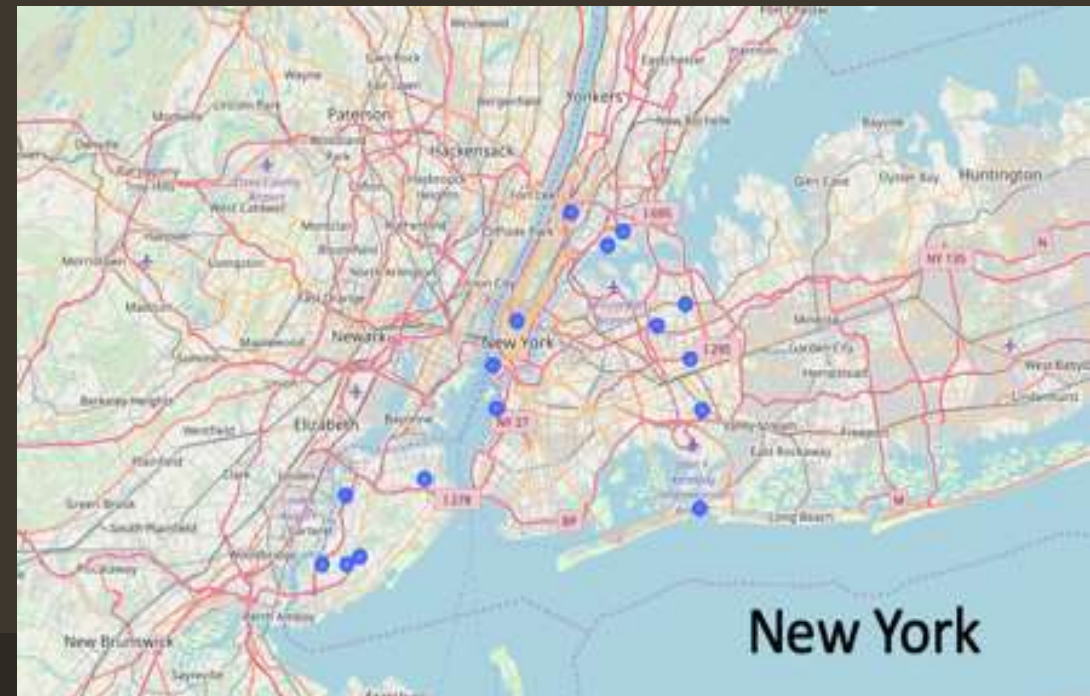
Cluster 2

- Cluster 2 are characterized by lots of pizza places and fast food restaurants.

- The difference from cluster 1 is that they are very concentrated and also nearer the centre of the city, in fact one concentration on the top, and the other on the bottom, with Manhattan just sitting in between.

- Reading from the map, the spots are close to Bronx and Brooklyn.

New York
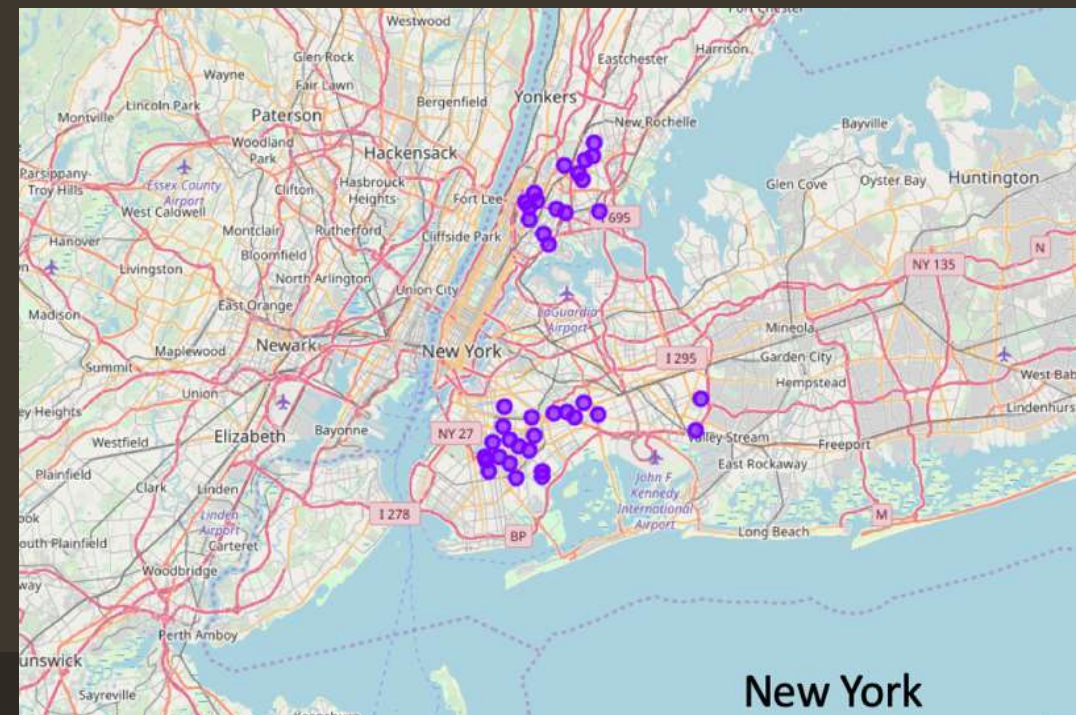
Cluster 3

- Cluster 3 is the most spread-out so far, and has so many more neighbors contained.

- Examining the result, we see a lot of restaurants, banks, and shops.

- They all suggest that these could be 'average' neighborhoods where most people reside.


New York
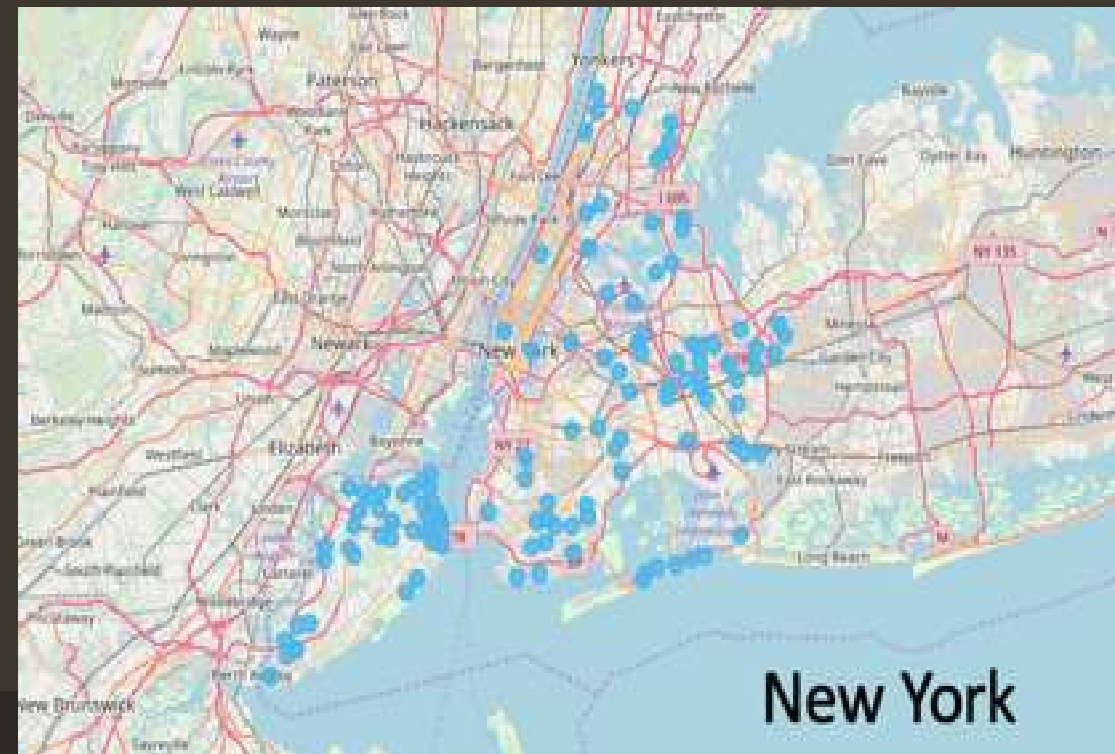
Cluster 4

- Ignoring a few very isolated spots, cluster 4 is by far the most densely concentrated areas. It is characterized by lots of theatres, restaurants and bars.

- In fact, looking at the map, this is Manhattan and its surrounding neighborhoods.

New York

Cluster 5

- Cluster 5 seem to be all quite close to the beach, like Brighton beach, these locations have restaurants, bed & breakfast.

- So they appear to be more tourist and resort like neighborhoods.
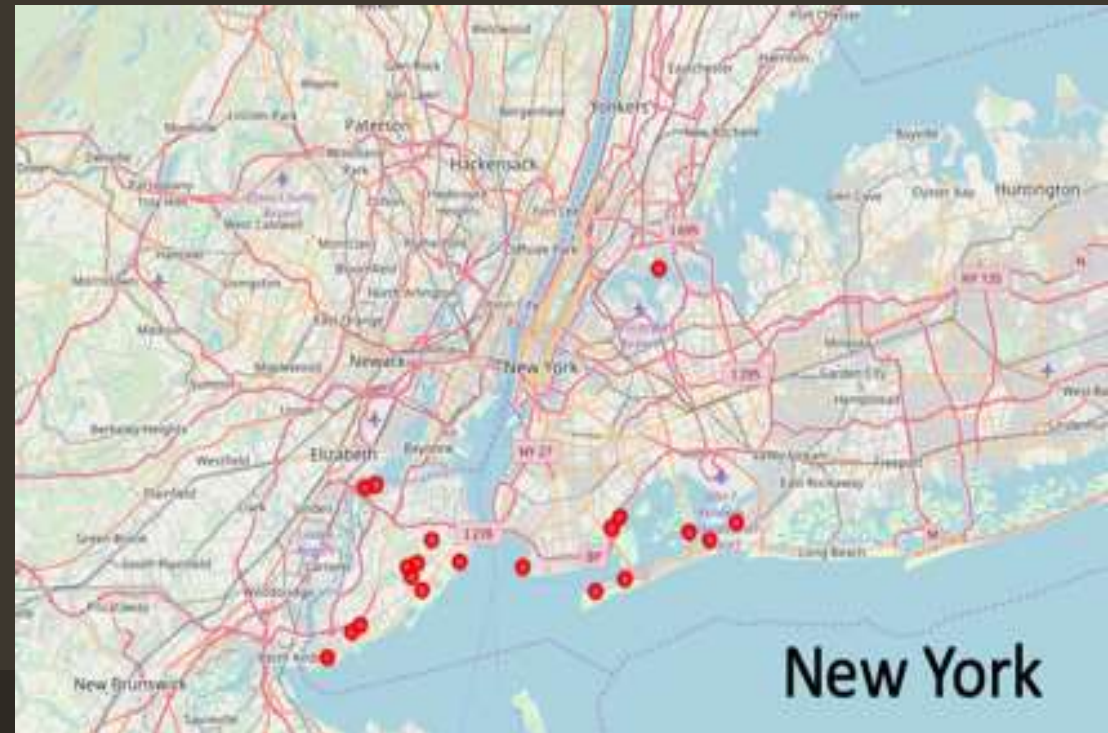
Results

- Based on previous findings and our criteria, I will first rule out cluster 1 and cluster 3, the reason is they are all too spread-out and not characteristic of younger demographics, who are more likely to adopt new innovations such as our service.

- Cluster 5 is also quite spread-out. However, based on its characteristic and tourist-related functions, I think this is has potentials and is worth saving out for later. If our power bank rental business comes out to be successful, then in the second round, we can launch the service here, working with local restaurants and resorts to minimize our own efforts. But at this stage, what we really want is quick feedback, cluster 5 is too difficult for our marketing team to promote and maintain.

- Cluster 2 and 4 both seem like promising places. They are full of restaurants and bars, which are places people really would like to spend a whole night in, so there's certainly a lot of potential for needing to charge their phones. These places are also very densely concentrated, so it is easy for our marketing team to go from one place to the next.

Recommendation

I would recommend our company to start piloting in cluster 4 neighborhoods.

And if successful, in the next testing stage, can move onto either one section of cluster 2 first, and then later use the other for cross-checking to see the marketing results are as expected.