Best Place to open an Indian Restaurant

in New York

In New York, if someone wants to open an Indian restaurant, where should they consider opening it?

- The idea behind this project is that there may not be enough Indian restaurants in New York and it might present a great opportunity for this person who is based in New York.

- With the purpose in mind, finding the location to open such a restaurant is one of the most important decisions for this person and I am creating a model to help the person in finding the best location to open the restaurant in New York.

Data acquisition and cleaning

- The information regarding the neighborhoods in New York and their corresponding latitude and longitude coordinates can be downloaded from the following link "**https://geo.nyu.edu/catalog/nyu_2451_34572**".
- Use **geopy** library to get the latitude and longitude values of New York City.
- number of restaurants and their type and location in every neighborhood will be obtained using **Foursquare API.**

Methodology

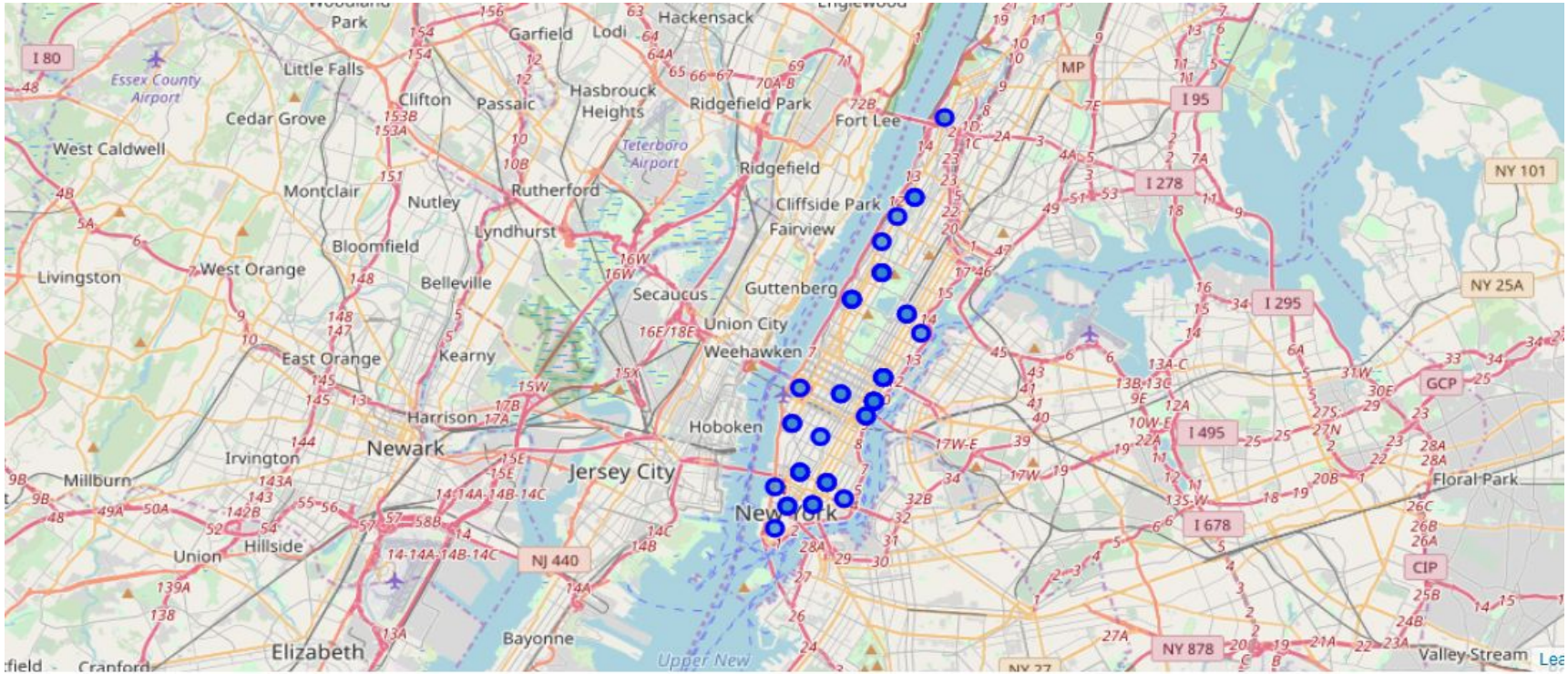
- First, I need to get the list of neighborhoods in New York. Which can be downloaded from the following link "**https://geo.nyu.edu/catalog/nyu_2451_34572**".
- I have created the dataframe of the data we downloaded earlier which contains Borough,Neighborhood and their respective latitude and longitude.
- Next, I use use geopy library to get the latitude and longitude values of Manhattan

Methodology Contd.....

- Next, I use Foursquare API to pull the list of top 100 venues within 500 meters radius.
- From Foursquare, I am able to pull the names, categories, latitude and longitude of the venues.
- After creating and gathering all the coordinates, I visualized the map of New York using Folium package to verify correct coordinates of the restaurants

Methodology Contd....

Map of New York with Indian and Asian restaurants superimposed on top.

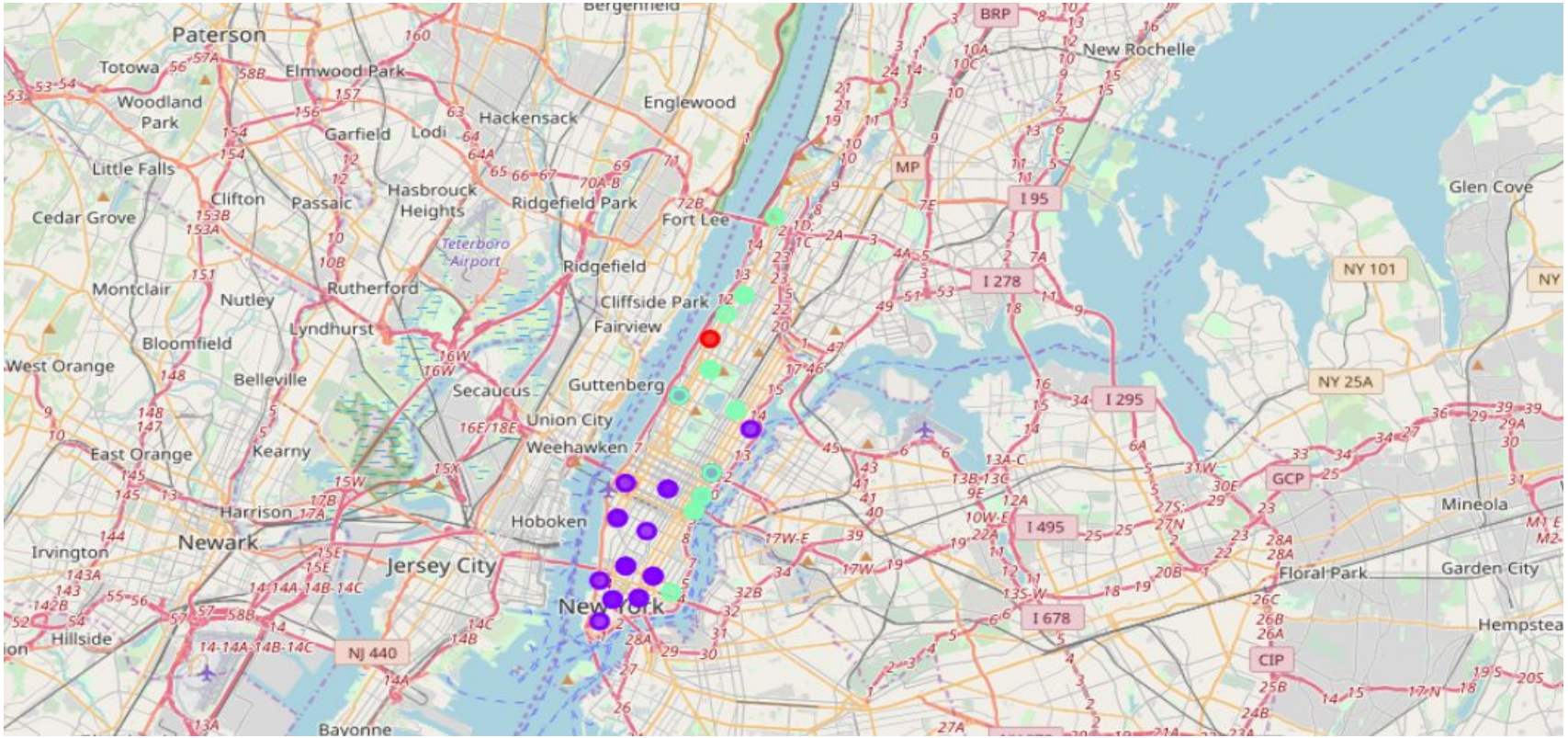


Methodology Contd.....

- Next I again use the Foursquare API to get the rating of all the Indain and Asian restaurants in the New York.This is to prepare clustering to be done later.
- Lastly, I performed the clustering method by using k-means clustering.
- I have clustered the neighborhoods in New York into 3 clusters based on their rating.

Results

Clusters



Results Contd.....

The results from k-means clustering show that we can categorize New York neighborhoods into 3 clusters based on how many Indian and Asain restaurants are in each neighborhood:

- Cluster 0: Restaurants having rating less than 7
- Cluster 1: Restaurants having rating between 7 and 8
- Cluster 2:Restaurants having rating greater than 8

Recommendations & Conclusion

- Most of Indian and Asian restaurants are in Cluster 0 and 1 which is around Manhattan Valley area have lowest rating on foursquare. So, there is a good opportunity to open near this area as the competition seems to be low.

- In this project, we have gone through the process of identifying the business problem, specifying the data required, extracting and preparing the data, performing the machine learning by utilizing k-means clustering and providing a recommendation to the stakeholder.