



IBM – Applied Data Science - Capstone Project

The Battle of Neighbourhoods. Part 1.

New York City's is one of the largest and ethnically diverse metropolis in the world. Different communities from all over the world living there have own culture and cuisine. That's why there are numerous cafes and restaurants placed in NYC that can satisfy everyone with any taste, restrictions, and food preference.

For this project the following data to be used:

- NYC data comprises Boroughs, Neighbourhoods with its latitude and longitude. This data set contains the required information. This data will be used to explore various neighbourhoods of New York City (Source: https://cocl.us/new_york_dataset)
- Indian restaurants of New York City. By using this API we will have all the venues in each neighbourhood. We can filter them to get only Indian restaurants. (Source: Foursquare API)
- GeoSpace data. By using this data, we will get the Borough boundaries that will help us visualizing choropleth map. (Source: <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm>)

Problem

New York City was home to nearly 8.419 million people in 2019, accounting for over 40% of the population of New York State and a slightly lower percentage of the New York metropolitan area, home to approximately 23.6 million. The New York region continues to be by far the leading metropolitan gateway for legal immigrants admitted into the United States.

Children from an Indian family that immigrated to NYC in 1990s are full of energy and excitement after graduation decided open a new format of Indian restaurant with full of digital services and innovative devices. To start their own family business, we are supposed to answer to the following questions:

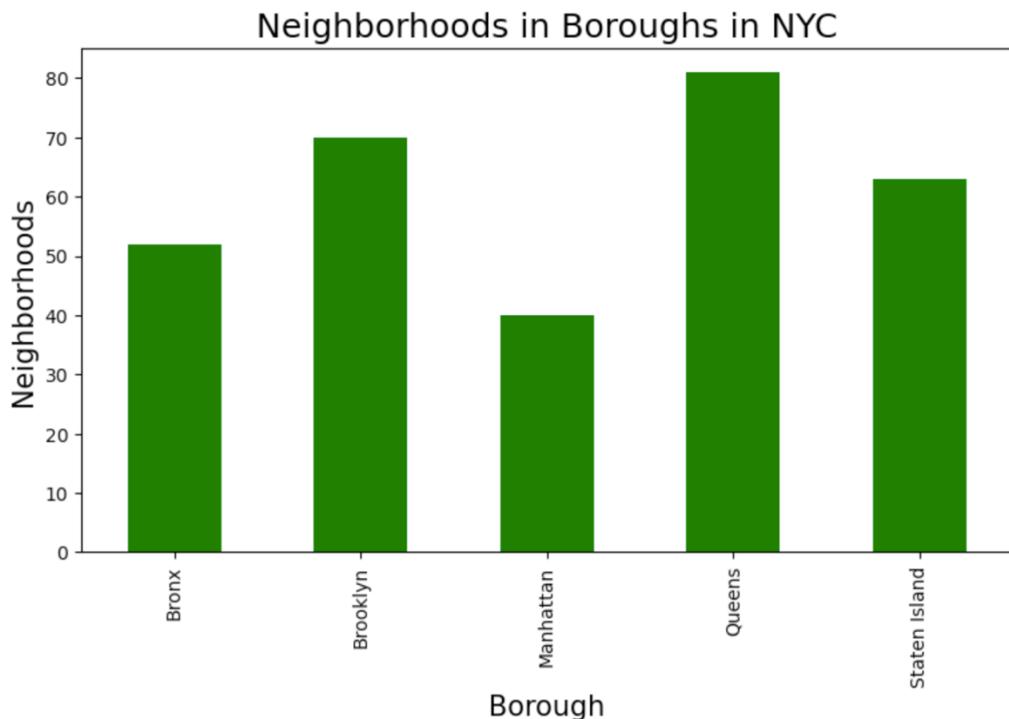
- 1) show all major spots of Indian restaurants in NYC.
- 2) what is best possible place in NYC for a new Indian restaurant?
- 3) which areas have potential Indian ready meal market?
- 4) which all areas have insufficient Indian Restaurants?
- 5) which is the best place to stay if you love Indian cuisine?

Methodology:

1. We begin by collecting the New York city data from the following link
["https://cocl.us/new_york_dataset"](https://cocl.us/new_york_dataset)
2. We will find all venues for each neighbourhood using Foursquare API

Borough	Neighborhood	Latitude	Longitude
0	Bronx	Wakefield	40.894705
1	Bronx	Co-op City	40.874294
2	Bronx	Eastchester	40.887556
3	Bronx	Fieldston	40.895437
4	Bronx	Riverdale	40.890834

3. We will then filter out all venues with Indian restaurant for further analysis.



4. Next using Foursquare API, we will find the Ratings, Tips, and Number of Likes for all the Indian Restaurants.

Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Woodlawn	4c0448d9310fc9b6bf1dc761	Curry Spot	5	7.4
1	Bronx	Parkchester	4c194631838020a13e78e561	Melanie's Roti Bar And Grill	3	6.0
2	Bronx	Spuyten Duyvil	4c04544df423a593ac83d116	Cumin Indian Cuisine	13	5.9
3	Bronx	Concourse	551b7f75498e86c00a0ed2e1	Hungry Bird	8	6.7
4	Bronx	Unionport	4c194631838020a13e78e561	Melanie's Roti Bar And Grill	3	6.0

5. We will then sort Neighbourhoods and Borough the data keeping Ratings as the constraint.

Neighborhood		Average Rating	Borough		Average Rating
70	Tribeca	9.1			
67	Sunnyside	9.1			
6	Blissville	9.1			
13	Civic Center	9.1			
53	Prospect Heights	8.8	2	Manhattan	8.270270
12	Chelsea	8.8	1	Brooklyn	7.708000
10	Carnegie Hill	8.8	0	Bronx	6.450000
75	West Village	8.7	3	Queens	6.364865
44	Midtown	8.6	4	Staten Island	5.433333
45	Midtown South	8.6			

6. Next we will consider all the neighbourhoods with average rating greater or equal 9.0 to visualize on map.

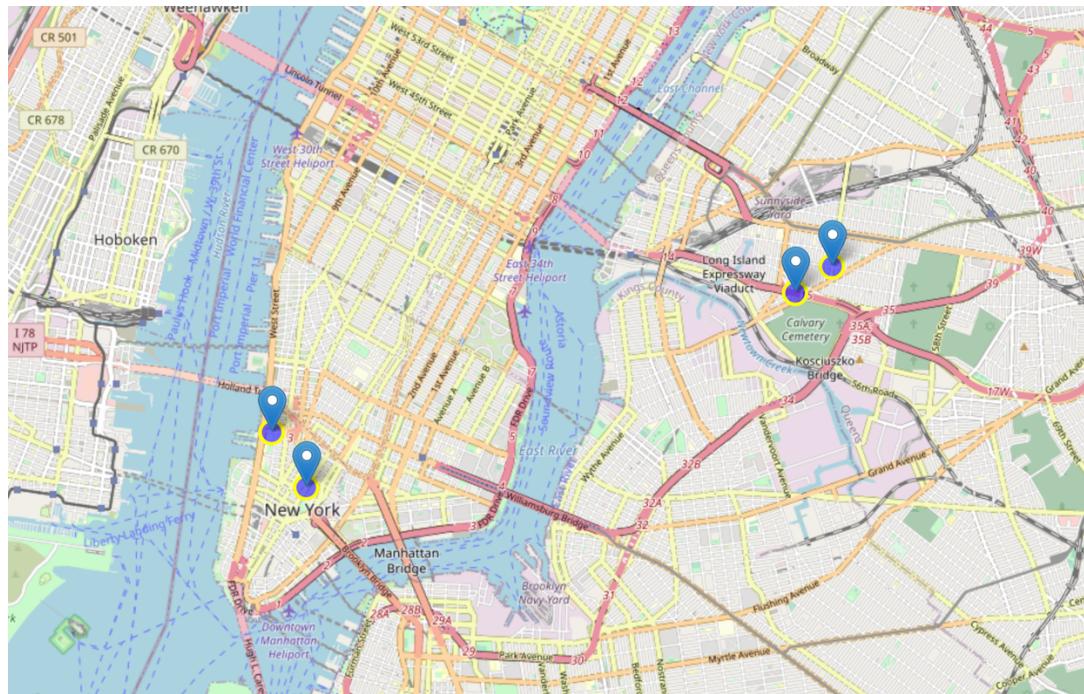
Neighborhood		Average Rating
6	Blissville	9.1
13	Civic Center	9.1
67	Sunnyside	9.1
70	Tribeca	9.1

7. We will join this dataset to original New York data to get longitude and latitude.

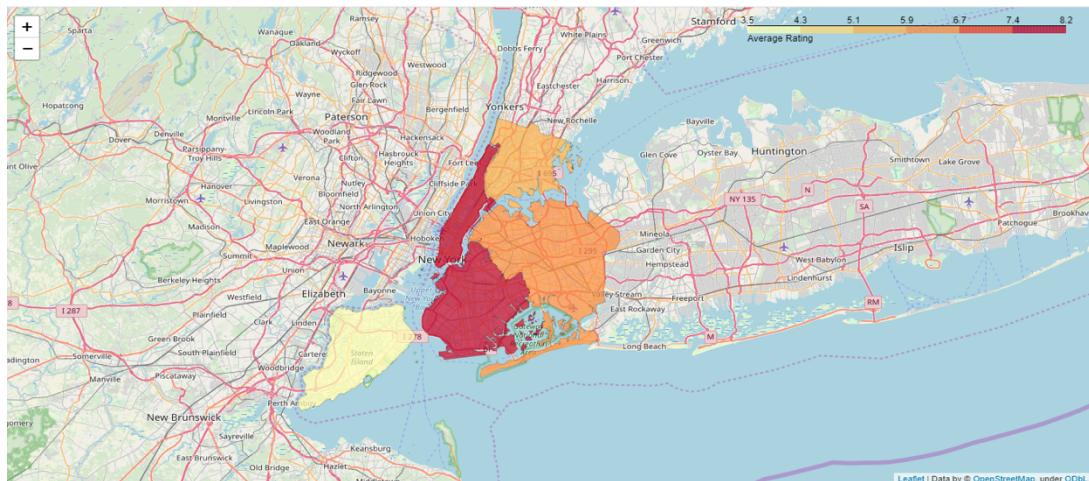
Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Queens	Blissville	40.737251	-73.932442
1	Manhattan	Civic Center	40.715229	-74.005415
2	Queens	Sunnyside	40.740176	-73.926916
3	Staten Island	Sunnyside	40.612760	-74.097126
4	Manhattan	Tribeca	40.721522	-74.010683

8. Finally, we will visualize the Neighbourhoods and Borough based on average Rating using python's Folium library.

Neighbourhoods based on average rating:



Borough based on average rating:



Result:

So now we can answer the questions asked above in the Questions section:

Answers:

1. The following location in New York City has great Indian restaurants.

Neighborhood Average Rating

6	Blissville	9.1
13	Civic Center	9.1
67	Sunnyside	9.1
70	Tribeca	9.1

2. Sunnyside(Queens), Blissville(Queens), Civic Center(Manhattan), Tribeca(Manhattan) are FOUR some of the best neighbourhoods for Indian cuisine.
3. Manhattan have potential Indian Restaurant Market.
4. Staten Island ranks last in average rating of Indian Restaurants.
5. Manhattan is the best place to stay if you prefer Indian Cuisine.

Conclusion:

There is always room for improvement and hence the above solution I have provided can also be improved for best results depending upon the data we have.