

# **FINAL REPORT**

## **Capstone Project - The Battle of Neighbourhoods**

### **Introduction:**

United states have a long history of immigration which includes New York as well. It is one of the most densely populated cities in the country and consists of people from different backgrounds and ethnicities. This city has been the favourite destination for immigrants as it offers a wide variety of options for people when it comes to food and job opportunities.

“As many as 800 languages are spoken in New York, making it the most linguistically diverse city in the world. English remains the most widely spoken language, although there are areas in the outer boroughs in which up to 25% of people speak English as an alternate language, and/or have limited or no English language fluency. English is least spoken in neighbourhoods such as Flushing, Sunset Park, and Corona.”

The city has lots of restaurants when it comes to food habits and satisfying its people. Hence, my problem statement revolves around the Indian restaurants in New York city.

Q1) Figure out the parts of New York city that has Indian restaurants?

Q2) Find out good locations for Indian cuisine?

Q3) Find the potential Indian restaurant market?

Q4) Find the areas that lack Indian restaurants and can be used to open one?

Q5) which is the best place to stay if you prefer Indian Cuisine?

### **Data Section:**

New York City's demographics show that it is a large and ethnically diverse metropolis. With its diverse culture, comes diverse food items. There are many restaurants in New York City, each belonging to different categories like Chinese, Indian, and French etc.

For this project we need the following data:

- New York City data that contains list Boroughs, Neighbourhoods along with their latitude and longitude.
  - Data source : [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)
  - Description: This data set contains the required information. And we will use this data set to explore various neighbourhoods of New York City
- Indian restaurants in each neighbourhood of New York City.
  - Data source : Foursquare API
  - Description: By using this API we will get all the venues in each neighbourhood. We can filter these venues to get only Indian restaurants.
- GeoSpace data
  - Data source : <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tgmj-j8zm>
  - Description: By using this geo space data we will get the New York Borough boundaries that will help us visualize choropleth map.

## Methodology:

1. I collected data from the new York city website "[https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)"

## 2. I find all venues for each neighbourhood using Foursquare API

```
In [6]: new_york_data=get_new_york_data()
```

```
In [7]: new_york_data.head()
```

```
Out[7]:
```

	Borough	Neighborhood	Latitude	Longitude
0	Bronx	Wakefield	40.894705	-73.847201
1	Bronx	Co-op City	40.874294	-73.829939
2	Bronx	Eastchester	40.887556	-73.827806
3	Bronx	Fieldston	40.895437	-73.905643
4	Bronx	Riverdale	40.890834	-73.912585

```
In [8]: new_york_data.shape
```

```
Out[8]: (306, 4)
```

The above result shows that there are 306 different Neighborhoods in New York.

## 3. Now I found the ratings, Tips and number of likes by using a Foursquare API. Hence, I found the entire data for Indian restaurants

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Woodlawn	4c0448d9310fc9b6bf1dc761	Curry Spot	5	7.6	10
1	Bronx	Parkchester	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	5.8	2
2	Bronx	Spuyten Duyvil	4c04544df423a593ac83d116	Cumin Indian Cuisine	13	6.1	9
3	Bronx	Concourse	551b7f75498e86c00a0ed2e1	Hungry Bird	8	6.9	3
4	Bronx	Unionport	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	5.8	2

## 4. I sorted Neighbourhoods and Borough the data keeping Ratings as the constraint.

	Neighborhood	Average Rating
12	Civic Center	9.100000
69	Tribeca	9.100000
0	Astoria	9.000000
5	Blissville	9.000000
75	West Village	8.800000
44	Midtown South	8.800000
43	Midtown	8.800000
29	Gramercy	8.733333
25	Fort Greene	8.700000
11	Chelsea	8.700000

	Borough	Average Rating
2	Manhattan	8.210000
1	Brooklyn	7.700000
3	Queens	6.552113
0	Bronx	5.585714
4	Staten Island	3.533333

- Then all the ratings greater than equal to 9 are shown on map.

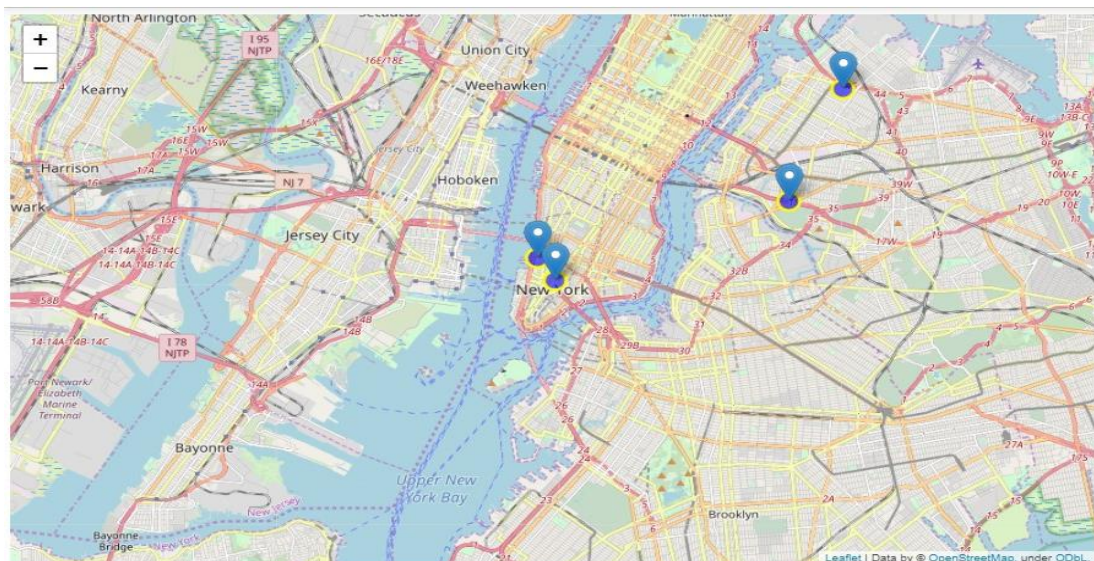
	Neighborhood	Average Rating
0	Astoria	9.0
5	Blissville	9.0
12	Civic Center	9.1
69	Tribeca	9.1

- Next step is to merge the two datasets

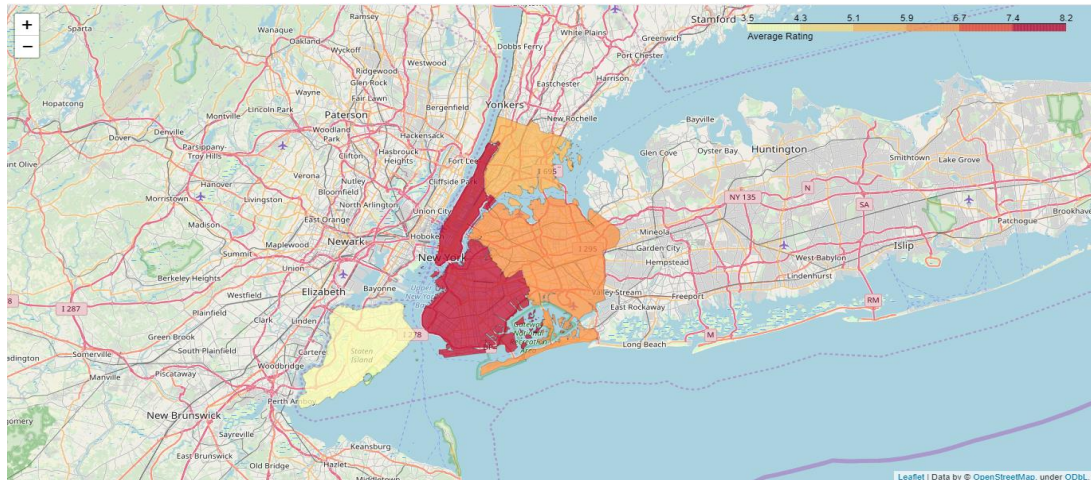
	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Queens	Astoria	40.768509	-73.915654	9.0
1	Queens	Blissville	40.737251	-73.932442	9.0
2	Manhattan	Civic Center	40.715229	-74.005415	9.1
3	Manhattan	Tribeca	40.721522	-74.010683	9.1

- 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:

Hence, we have concluded the following things: Below mentioned is the list of great Indian restaurants.

	Borough	Neighborhood	Latitude	Longitude	Average Rating
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1	Queens	Blissville	40.737251	-73.932442	9.0
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Astoria (Queens), Blissville (Queens), Civic Center (Manhattan) are some of the best neighbourhoods for Indian cuisine. Manhattan have potential Indian Restaurant Market. Staten Island ranks last in average rating of Indian Restaurants. Manhattan is the best place to stay if you prefer Indian Cuisine.

## Conclusion:

The above analysis describes a way to use data and come up with a decision of great Indian restaurants and great places to open Indian restaurants.