

FINAL REPORT

Applied Capstone Project - The Battle of Neighbourhoods

Introduction:

New York City's demographics show that it is a large and ethnically diverse metropolis. It is the largest city in the United States with a long history of international immigration. The New York region continues to be by far the leading metropolitan gateway for legal immigrants admitted into the United States. New York City has also been a major point of entry for immigrants; the term "melting pot" was coined to describe densely populated immigrant neighbourhoods on the Lower East Side. 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 in USA. English is least spoken in neighbourhoods such as Flushing, Sunset Park, and Corona. 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. In USA, there are number of Indians are living and provided with the number of Indian restaurants.

Problem:

To find the answers to the following questions:

- Q1) List and visualize all major parts of New York City that has great Indian restaurants.
- Q2) what is best location in New York City for Indian Cuisine?
- Q3) which areas have potential Indian Restaurant Market?
- Q4) which all areas lack Indian Restaurants?
- Q5) which is the best place to stay if you prefer Indian Cuisine?

Data Section:

New York City is a large and ethnically diverse metropolis. With its diverse culture, comes diverse food items. There are number of restaurants in New York City, also there are different types of food item with yummy taste, each belonging to different categories like Chinese, Indian, and French and many more. So to do this project we need some important data.

The required data for this project is:

Data source : https://cocl.us/new_york_dataset

Description: This data set contains the required information which will be used to explore various neighbourhoods of New York City

Indian restaurants in each neighbourhood of New York City.

Data source : Foursquare API

Description: The Foursquare API will provide us each venue in different neighbourhoods.

GeoSpace data

Data source : <https://data.cityofnewyork.us/City-Government/BoroughBoundaries/tqmj-j8zm>

Description: The geo space will help us to visualize choropleth map.

Methodology:

1. First collect the New York city data: "https://cocl.us/new_york_dataset"
2. Use Foursquare API to find the venues

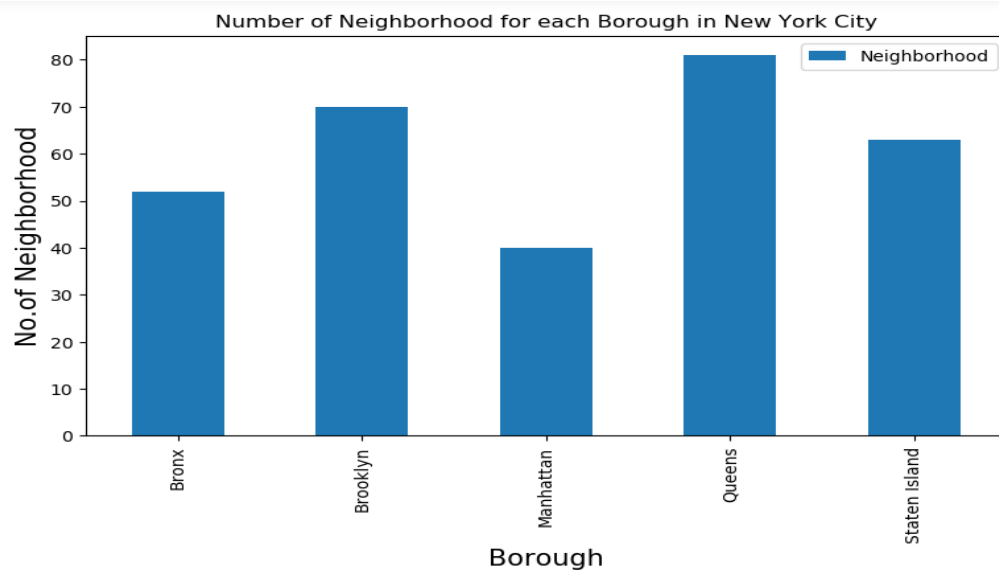
```
new_york_data=get_new_york_data()
```

```
new_york_data.head()
```

	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

```
new_york_data.shape
```

```
(306, 4)
```



- then filter out all venues with Indian restaurant for further analysis.

```
( 1 / 306 ) Indian Resturants in Wakefield, Bronx:0
( 2 / 306 ) Indian Resturants in Co-op City, Bronx:0
( 3 / 306 ) Indian Resturants in Eastchester, Bronx:0
( 4 / 306 ) Indian Resturants in Fieldston, Bronx:0
( 5 / 306 ) Indian Resturants in Riverdale, Bronx:0
( 6 / 306 ) Indian Resturants in Kingsbridge, Bronx:0
( 7 / 306 ) Indian Resturants in Marble Hill, Manhattan:0
( 8 / 306 ) Indian Resturants in Woodlawn, Bronx:1
( 9 / 306 ) Indian Resturants in Norwood, Bronx:0
( 10 / 306 ) Indian Resturants in Williamsbridge, Bronx:0
( 11 / 306 ) Indian Resturants in Baychester, Bronx:0
( 12 / 306 ) Indian Resturants in Pelham Parkway, Bronx:0
( 13 / 306 ) Indian Resturants in City Island, Bronx:0
( 14 / 306 ) Indian Resturants in Bedford Park, Bronx:0
( 15 / 306 ) Indian Resturants in University Heights, Bronx:0
```

- Then use Foursquare API to 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	7.6	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

- Sort 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

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

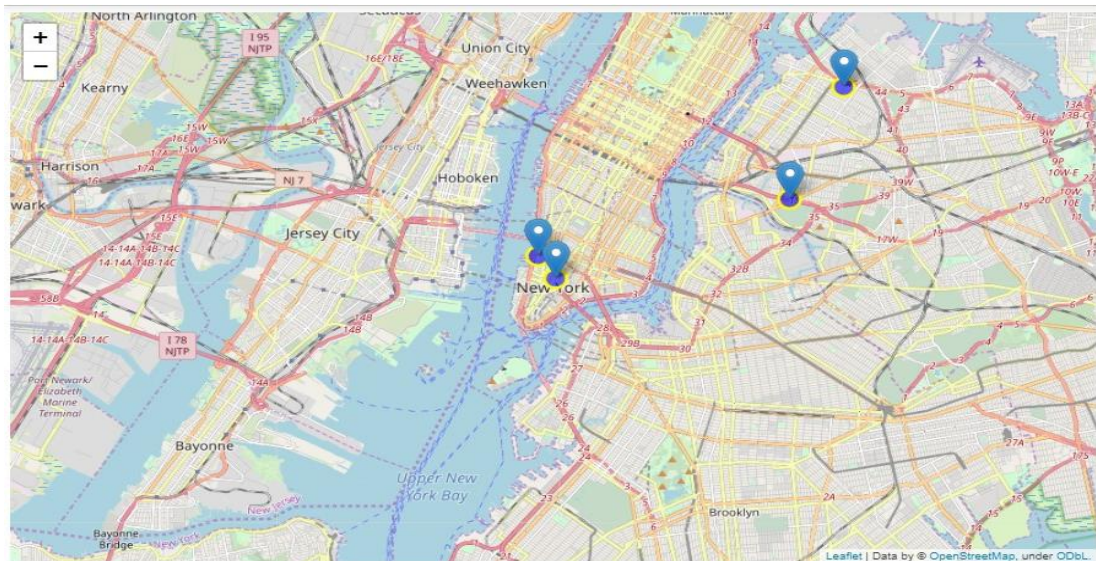
	Neighborhood	Average Rating
0	Astoria	9.0
5	Blissville	9.0
12	Civic Center	9.1
69	Tribeca	9.1

7. Join this dataset to original New York data to get longitude and latitude.

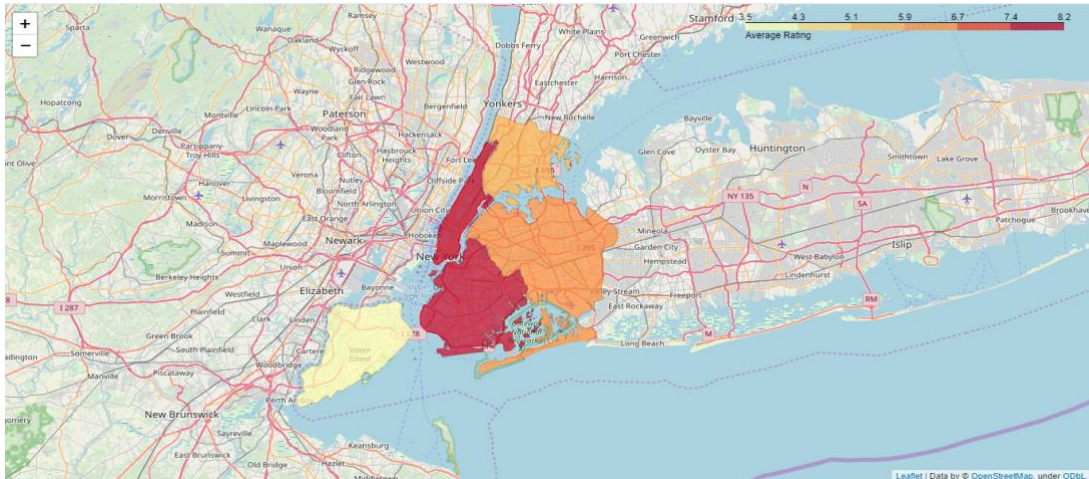
	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Queens	Astoria	40.768509	-73.915654	9.0
1	Queens	Blissville	40.737251	-73.932442	9.0
2	Manhattan	Civic Center	40.715229	-74.005415	9.1
3	Manhattan	Tribeca	40.721522	-74.010683	9.1

8. Finally, 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.

	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

2. Astoria (Queens), Blissville (Queens), Civic Center (Manhattan) are 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.

