Analysis of Indian Restaurants in New York Report

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. New York City was home to nearly 8.5 million people in 2014, accounting for over 40% of the population of New York State.

Indians in the New York City metropolitan region constitute one of the largest and fastest growing ethnicities in the New York City metropolitan area. The New York City region is home to the largest Indian American population among metropolitan areas by a significant margin.

Due to large number of Indians in the city, Indian cuisine is very popular in and around New York. The growth in the New York City metropolitan region's Indian populace has been accompanied by growth in the number of Indian restaurants, located both within and outside of traditional Indian enclaves, such that within New York City proper alone, there are hundreds of Indian restaurants.

Problem Definition:

Looking at all these Indian restaurants we can perform data analysis on them in the following way:-

- Visualize all the parts of New York City that have Indian restaurants.
- Top ranked Indian restaurants in New York City.
- Which areas have best Indian restaurants?
- Which areas lack good Indian restaurants?
- Which all areas have potential Indian restaurant market?
- Which areas are suitable for living if one prefers Indian cuisine?

Data:

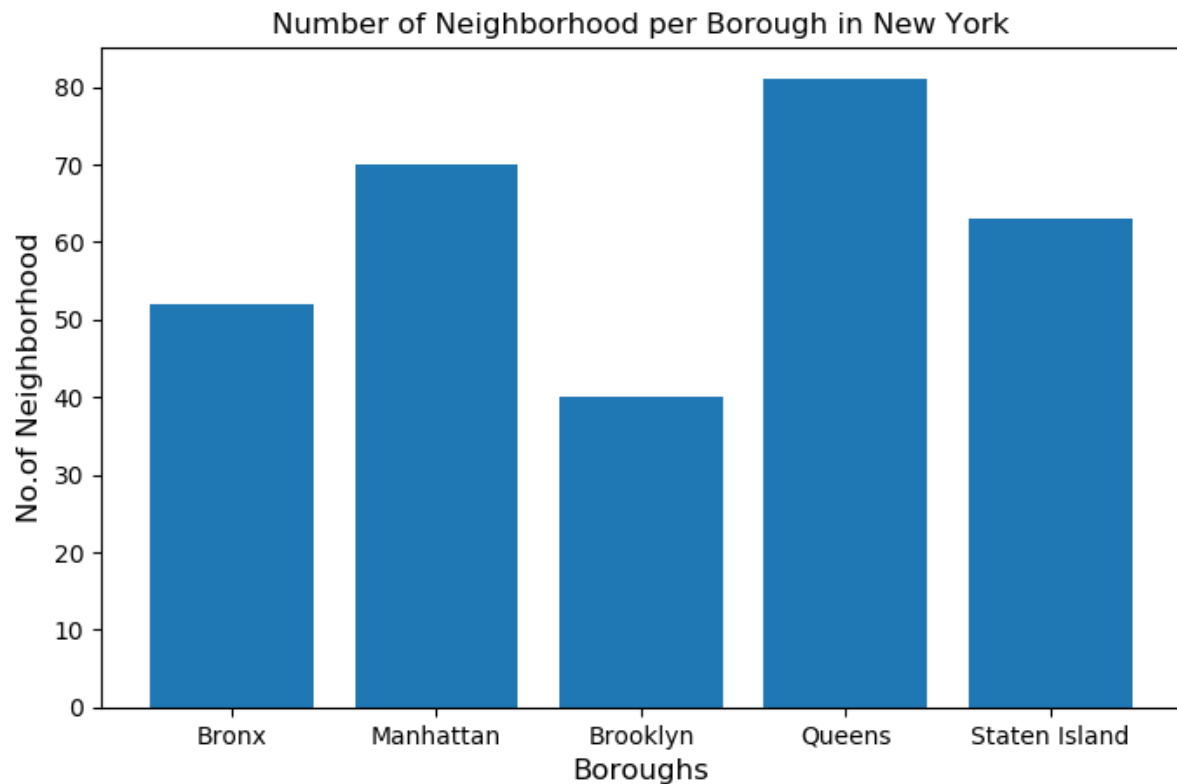Following data will be used for this Data Analysis Capstone Project:

- New York City data that contains list Boroughs, Neighbourhoods along with their latitude and longitude.
  - Data source : 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/BoroughBoundaries/tqmj-j8zm
  - Description: By using this geo space data we will get the New York Borough boundaries that will help us visualize choropleth map.

Methodology:

Following steps were followed:-

1. First we import New York City Data that contains list of Boroughs, Neighbourhoods along with their latitude and longitude from https://cocl.us/new_york_dataset and populate data into a pandas dataframe.

	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

Number of Neighborhood per Borough in New York

2. Using the latitude and longitude, we find venues for each Neighborhood via Foursquare API.
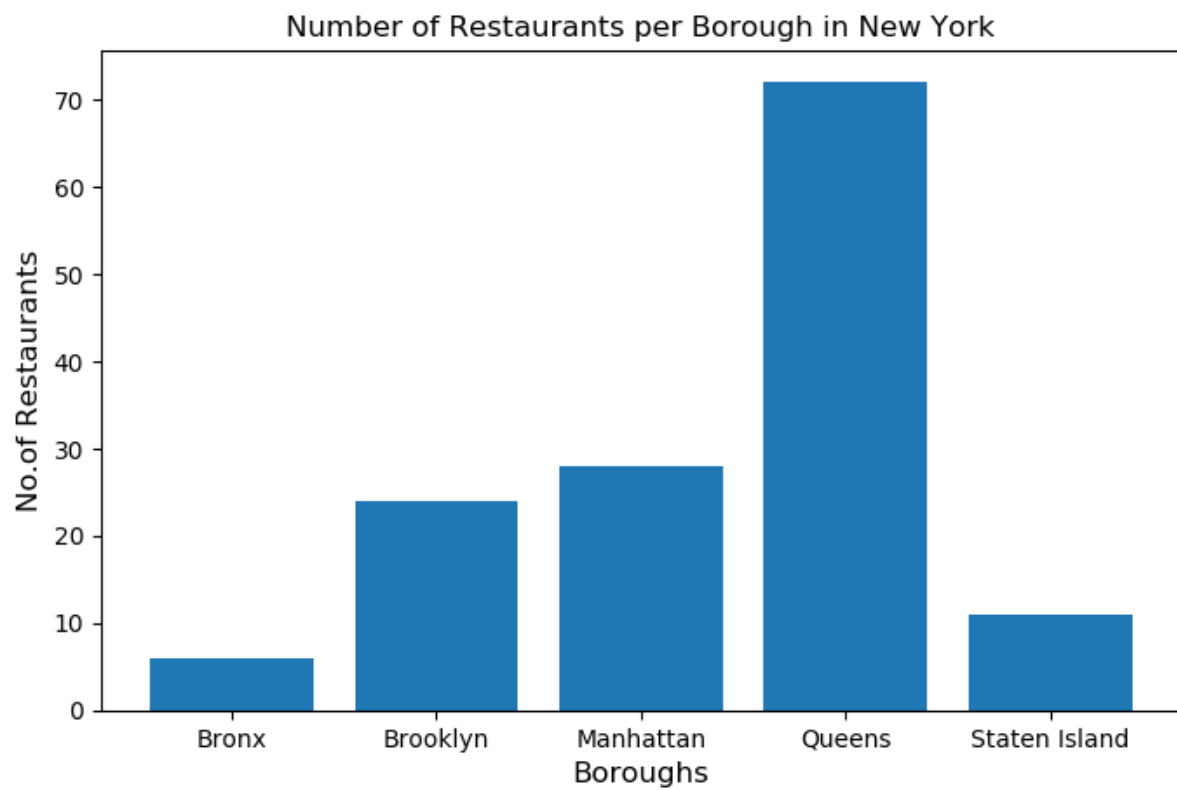
3. Then we filter out all the Indian Restaurants.

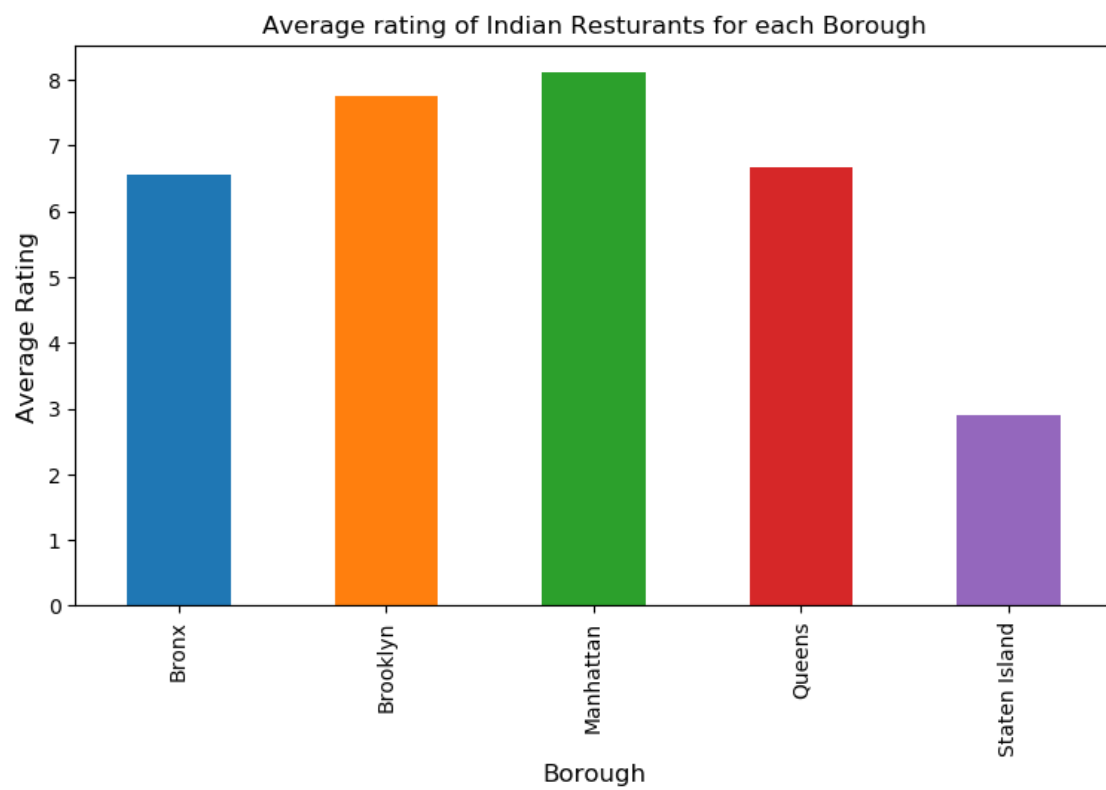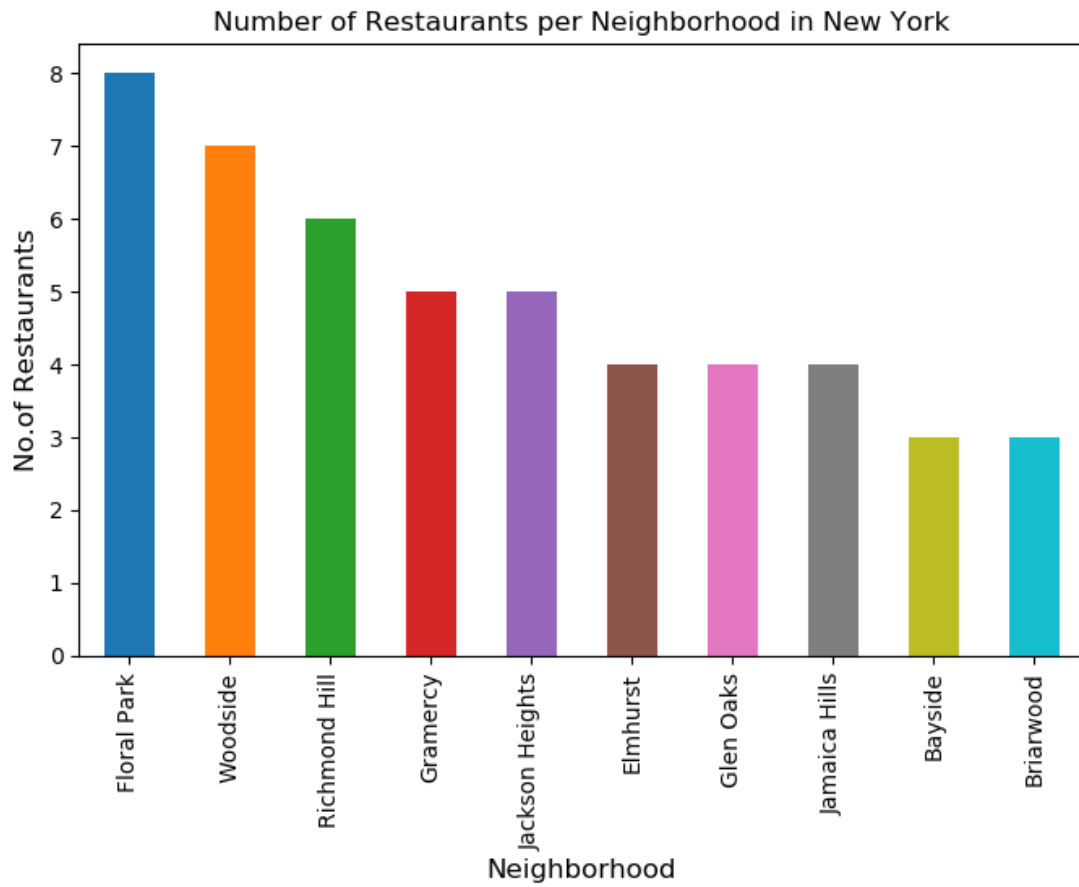|	Borough	Neighborhood	ID	Name
0	Bronx	Woodlawn	4c0448d9310fc9b6bf1dc761	Curry Spot
1	Bronx	Parkchester	4c194631838020a13e78e561	Melanies Roti Bar And Grill
2	Bronx	Spuyten Duyvil	4c04544df423a593ac83d116	Cumin Indian Cuisine
3	Bronx	Concourse	551b7f75498e86c00a0ed2e1	Hungry Bird
4	Bronx	Unionport	4c194631838020a13e78e561	Melanies Roti Bar And Grill

Therefore, 141 Indian Restaurants across New York were retrieved

4. Next we retrieve information - Ratings, Likes, Tips for each Indian Restaurant, again by using Foursquare API.
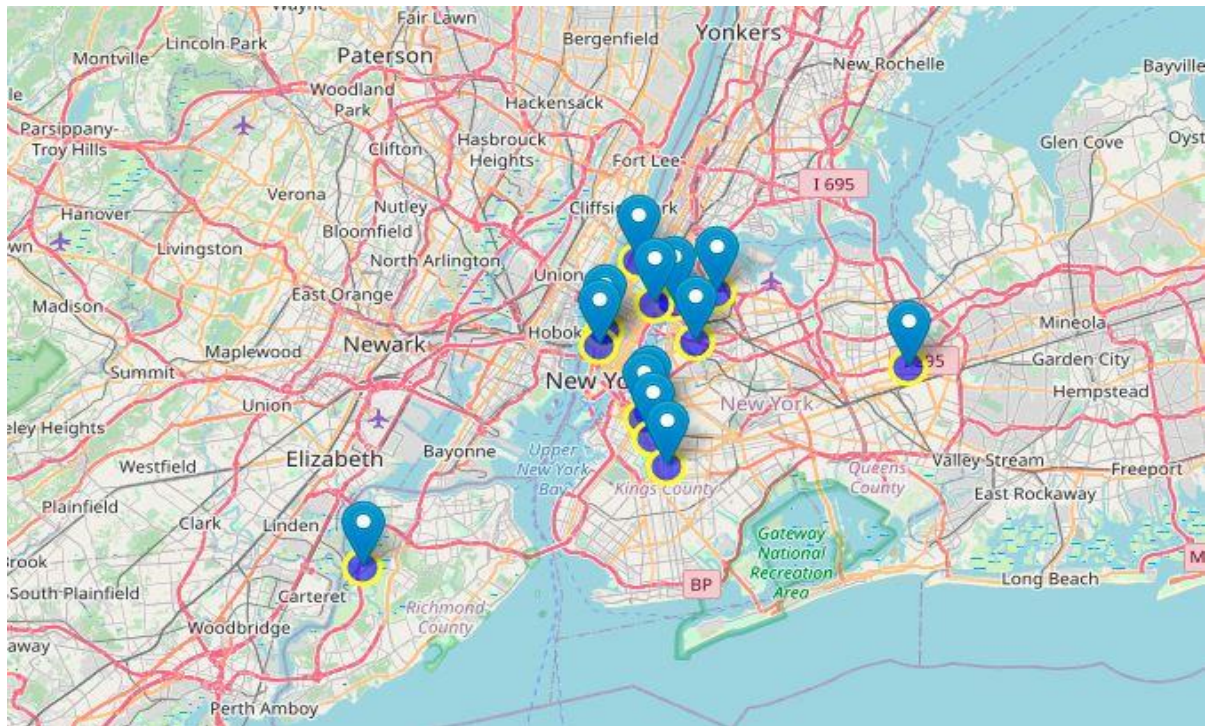
	ID	Name	Likes	Tips	Rating
0	4c0448d9310fc9b6bf1dc761	Curry Spot	5	10	7.8
1	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	2	6.0
2	4c04544df423a593ac83d116	Cumin Indian Cuisine	13	9	6.0
3	551b7f75498e86c00a0ed2e1	Hungry Bird	8	3	6.8
4	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	2	6.0

5. Perform analysis on the data obtained.

Number of Restaurants per Borough in New York

Number of Restaurants per Neighborhood in New York

Average rating of Indian Resturants for each Borough

6. Visualize the conclusions on the map of New York.

Neighborhoods with best Average Ratings >= 8.5

Boroughs based on Average Ratings

Results:

Now, with all the analysis done, we found answers to all the questions below:-

1. Which areas have best Indian restaurants? - Astoria (Queens), Blissville (Queens), Chelsea (Manhattan) are some of the best Neighborhoods with Indian Restaurants

2. Top ranked Indian restaurants in New York City are Seva Indian Cuisine (Rating-9.0), Dhaba (Tips-164, Likes-497).

3. Which areas are suitable for living if one prefers Indian cuisine? - Manhattan is the suitable place to stay if one prefers Indian cuisine since the average rating of Restaurants in Manhattan is the highest (8.0).

4. Which areas lack good Indian restaurants - Staten Island (least Indian Restaurants - 3).

5. Which all areas have potential Indian Restaurant market - Manhattan & Brooklyn have potential Indian Restaurant market.

Conclusion:

Hence, in this Capstone Project, I performed an analysis on Indian Restaurants in New York City with the help of visualizations such as bar graphs and maps using Foursquare API thereby discovering some useful information from the data.