

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

## **Introduction:**

The City of New York is the most populous city in the United States. With an estimated 2018 population of 8,398,748 distributed over a land area of about 302.6 square miles (784 km<sup>2</sup>), New York is also the most densely populated major city in the United States. People from almost every country lives here. Indians in the New York City metropolitan region constitute one of the largest and fastest growing ethnicities in the New York City metropolitan area of the United States. The New York City region is home to the largest Indian American population among metropolitan areas by a significant margin, enumerating 711,174 individuals by the 2013-2017 U.S. Census American Community Survey estimates.

When a new person moves from India to New York due to job change or any other reasons, some questions come in his mind regarding the Indian food/restaurants e.g.

- Which areas have potential Indian restaurant market?
- What is best place in New York City for Indian Cuisine?

And the same problem arises when a person want to open a new Indian restaurant in the New York. The person also wants to know which is the best Borough to open a new restaurant?

So, in this project we will try to find the solution of above mentioned questions and try to find out best places in New York for Indian Cuisine and also find out the best Borough to open a new Indian restaurant. Also, we will visualize the Indian restaurants in all major parts of New York City.

## **Data:**

For resolving the above mentioned problems, we need the following data:

- Indian restaurants in each neighborhood of New York City
  - Data Source: Foursquare API
  - Description: By using this API we will get all the venues in each neighborhood. We can filter these venues to get only Indian restaurants
- New York City data which contains list Boroughs, Neighborhoods along with their latitude and longitude
  - Description: This data set contains the required information. And we will use this data set to explore various neighborhoods of New York City

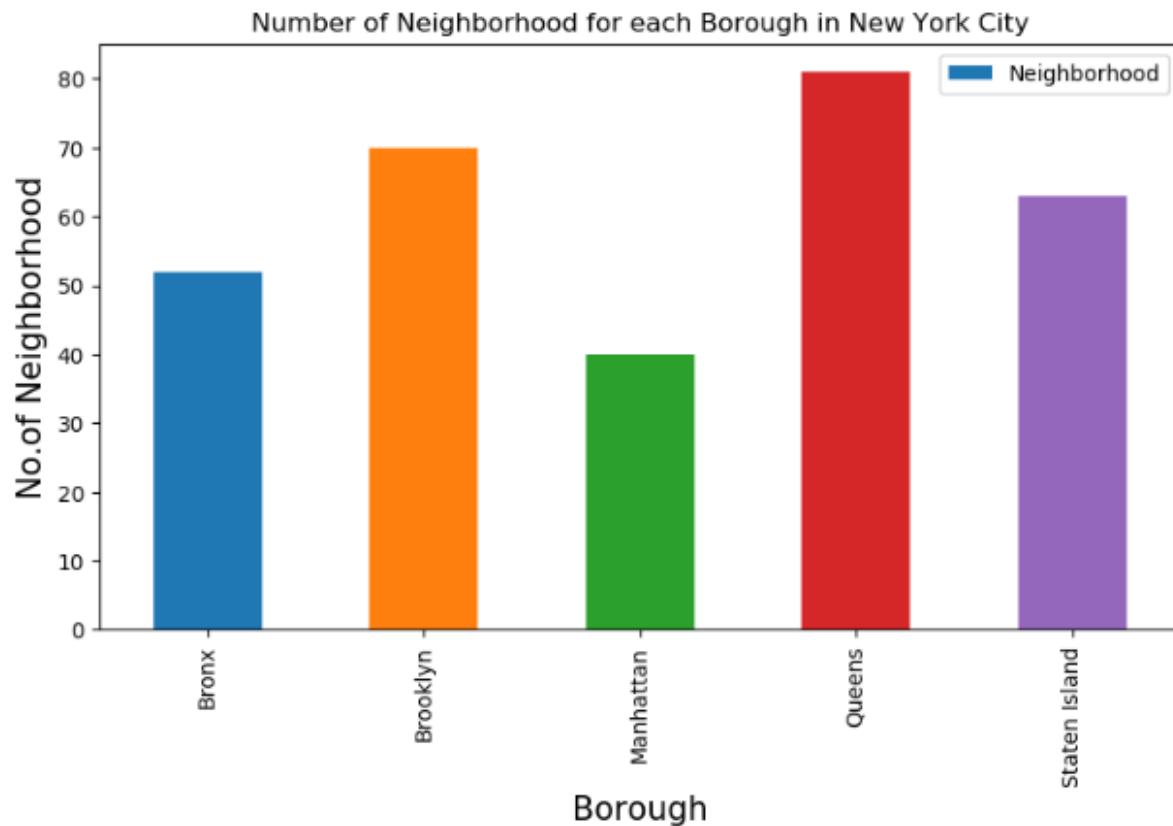
## **Methodology and Results:**

For getting the answers of the above mentioned problems, we did the following steps:

1. We imported the required libraries for python.
  - pandas and numpy for handling data.
  - request module for using FourSquare API.
  - geopy to get co-ordinates of City of New York.
  - folium to visualize the results on a map.
2. We Collected the New York City data from [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)
3. We use Foursquare API to find all venues for each neighborhood.
4. We filtered out all venues that are Indian Restaurants.
5. We find rating, tips and like count for each Indian Restaurants using Foursquare API.
6. We used rating for each restaurant, and then sort that data.
7. We visualized the Ranking of neighborhoods using folium library (python).

## **Results:**

Below screenshot shows the number of Neighborhood for each Borough in New York City.

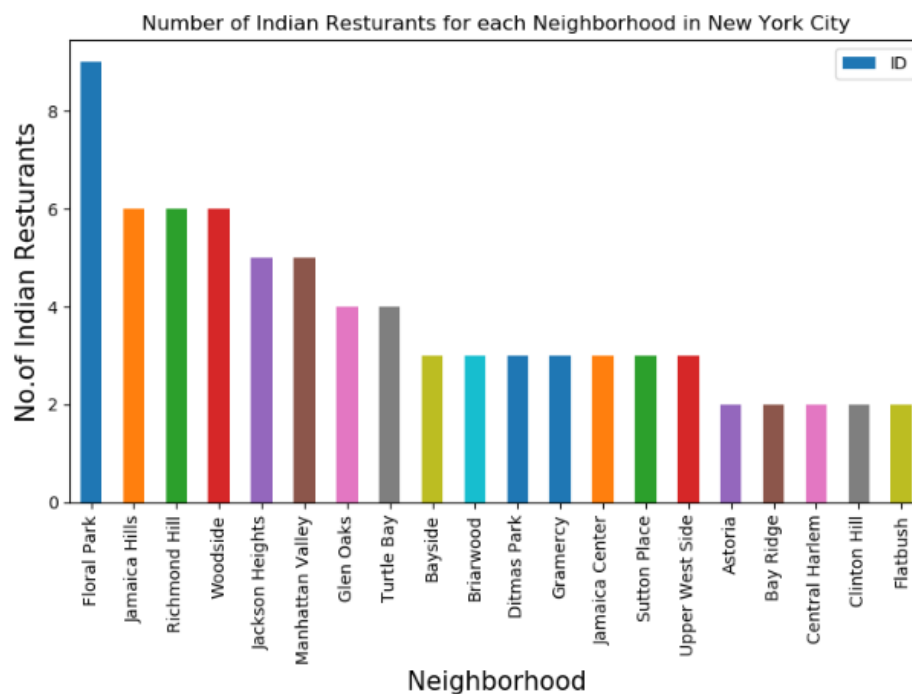


Below screenshot shows the number of Indian Restaurants for each Borough in New York City.



It is clear from above screenshot that 'Staten Island' and 'Bronx' both have less than 10 Indian Restaurant, so these both places are suitable for opening a new restaurant. 'Queens' have highest number of Indian restaurants.

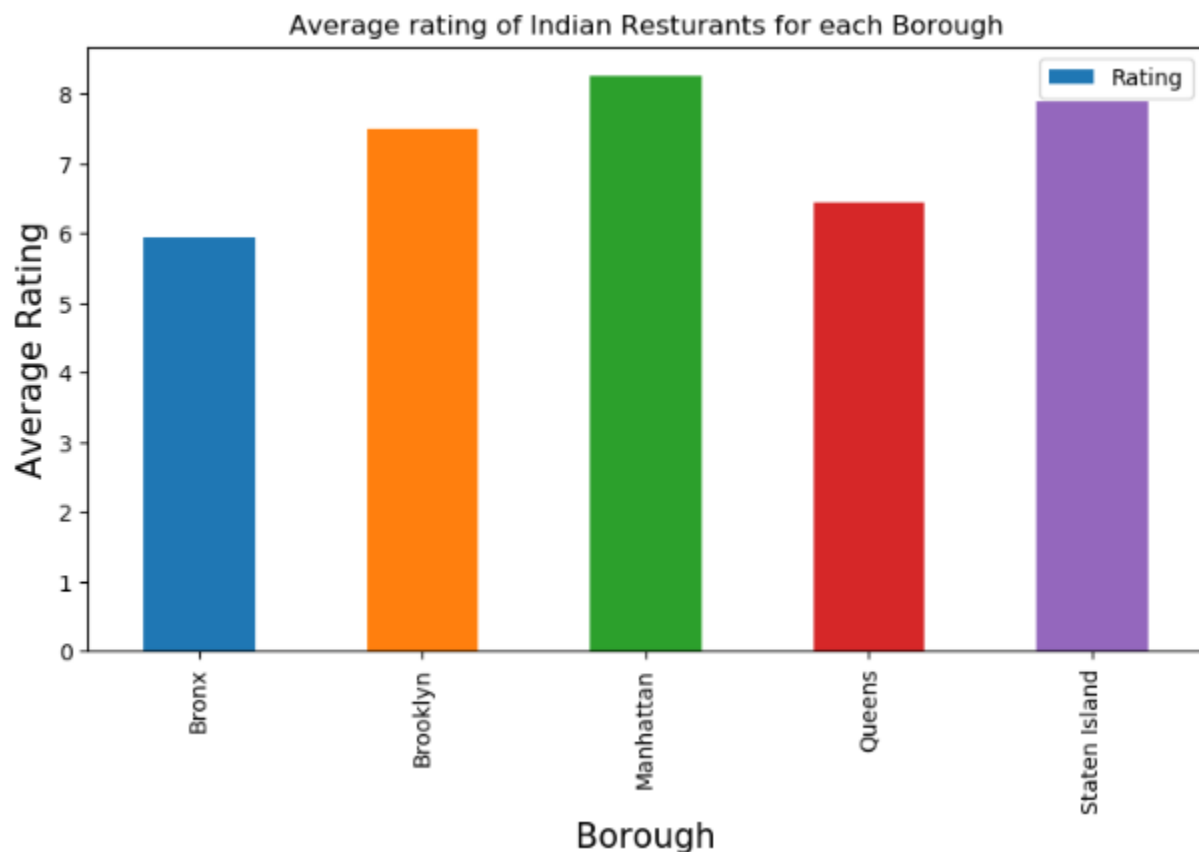
Below screenshot shows number of Indian Restaurants for top 20 Neighborhoods in New York City.



It is clear from above screenshot that Floral Park in Queens has the highest number of Indian Restaurants with a total count of 9.

After that, we identify top neighborhoods and Borough with average rating of Indian restaurants.

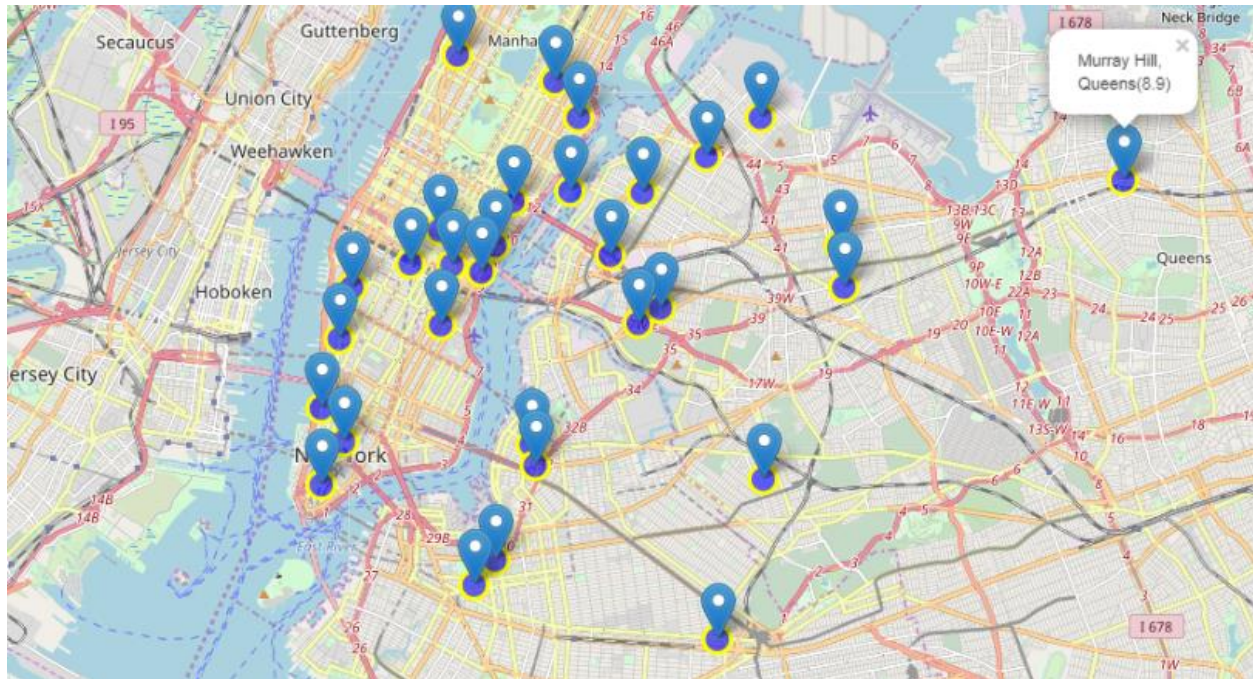
Below screenshot shows the average rating of Indian Restaurants for each Borough.



It is clear from above screenshot that 'Manhattan' has highest average rating of Indian Restaurants.

After that, we consider all the neighborhoods with average rating greater or equal 8.0 to visualize on map using the folium.

Below screenshot shows the visualization of all the neighborhoods with average rating greater or equal 8.



## **Discussion and Conclusion:**

Based on above results we find answers of all the problems mentioned in the introduction section. Some observations are given below:

'Blissville' (Queens), 'Civic Center' (Manhattan) are some of the best neighborhoods for Indian cuisine.

'Manhattan' has potential Indian Restaurant Market.

'Queens' (Borough) has highest number of Indian restaurants.

'Flora Park' (Neighborhood) has highest number of Indian Restaurants.

Manhattan is the best place to stay if you prefer Indian Cuisine because it has highest average rating of Indian Restaurants.

'Staten Island' and 'Bronx' both have minimum number of Indian Restaurants, so these both places are suitable for opening a new restaurant.