

FINAL REPORT

The Battle of Neighbourhoods

Shubrata Das Shubro

1.INTRODUCTION & BACKGROUND:

Ethnically diverse metropolis New York city is the largest city in the United States with a long history of international immigration. NY City was home to nearly 8.5 million people in 2014, 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. Over the last decade the city has been growing faster than the region. The New York region continues to be by far the leading metropolitan gateway for legal immigrants admitted into the United States.

Being 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, 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.

There comes diverse food items with its diverse culture,. There are many restaurants in New York City, each belonging to different categories like Chinese, Indian, and French etc.

1.1 PROBLEM:

Find the answers to the following questions:

- ✓ List and visualize all major parts of New York City that has great Indian restaurants.
- ✓ Which is best location in New York City for Indian Cuisine?
- ✓ Which areas have potential Indian Restaurant Market?
- ✓ Which all areas lack Indian Restaurants?
- ✓ Which is the best place to stay if you prefer Indian Cuisine?

2. DATA SECTION:

We need the following data for this 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/Borough-Boundaries/tqmj-j8zm>
 - Description: By using this geo space data we will get the New York Borough boundaries that will help us visualize choropleth map.

3. METHODOLOGY:

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

3.

```
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.



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	7.6	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

5. We will then 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

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

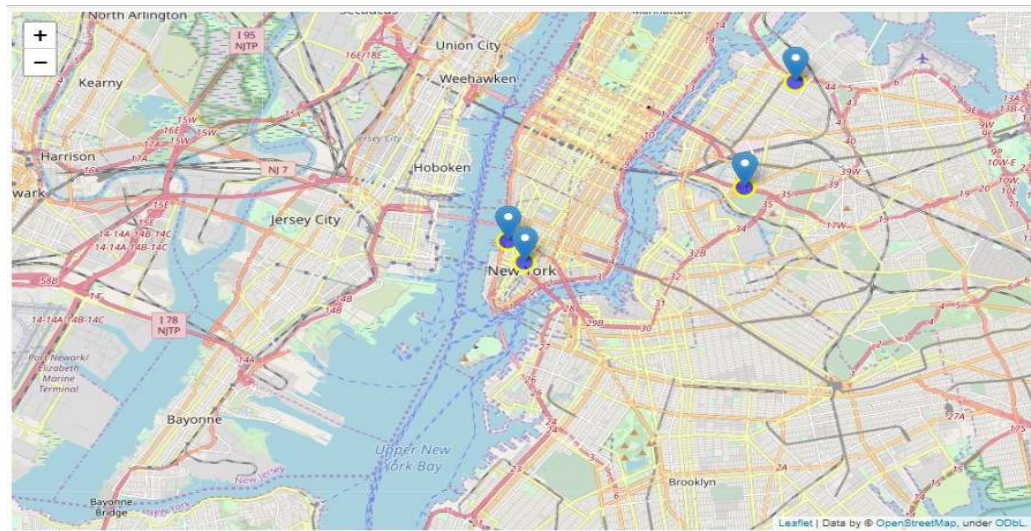
	Neighborhood	Average Rating
0	Astoria	9.0
5	Blissville	9.0
12	Civic Center	9.1
69	Tribeca	9.1

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

Neighbourhoods based on average rating:



d on average rating:



4. RESULT:

The answer of the above Questions section:

Answers:

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

	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. Some of the best neighbourhoods for Indian cuisine are Astoria (Queens), Blissville (Queens), Civic Center (Manhattan).
3. Manhattan have potential Indian Restaurant Market.
4. In average rating of Indian Restaurants, Staten Island ranks the last.
5. If you prefer Indian Cuisine, Manhattan is the best place to stay.

5.CONCLUSION:

People are frequently moving into new cities. And in this ever growing world filled with technology, having a neighborhood recommendation based on location data is something to be considered basic now-a-days. And the application of neighborhood segmentation lies beyond this application too. This can serve to be an impressive tool to better organize a city resources. Furthermore, it can be used as a tool for security measurement if combined with crime data.