Battle of Neighborhoods

BATTLE OF NEIGHBOURHOODS

INTRODUCTION

New York City (NYC), is the most populous city in the United States. With an estimated 2018 population of 8,398,748 distributed over about 302.6 square miles (784 km²), New York is also the most densely populated major city in the United States. Located at the southern tip of the U.S. state of New York, the city is the centre of the New York metropolitan area, the largest metropolitan area in the world by urban landmass. With almost 20 million people in its metropolitan statistical area and approximately 23 million in its combined statistical area, it is one of the world's most populous megacities. New York City has been described as the cultural, financial, and media capital of the world, significantly influencing commerce, entertainment, research, technology, education, politics, tourism, art, fashion, and sports. Home to the headquarters of the United Nations, New York is an important centre for international diplomacy.

Throughout its history, New York City has been a major point of entry for immigrants; the term "melting pot" was coined to describe densely populated immigrant neighborhoods 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 neighborhoods 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. So as part of this project, we will list and visualize all major parts of New York City that has great Indian restaurants.

PROBLEM STATEMENT

NYC being diverse and many different cuisines being eaten across the city to find the best place to eat particular cuisine is difficult. To address this problem we will develop a model to find out the restaurants which offers best Indian cuisine.

People always migrant to New York City for opportunities. As many as 711,174 Indians and growing in NYC there always be demand for Indian cuisine. To fulfill the demand of ever growing Indian cuisine, new restaurants need to be setup. We will address this issue by finding the potential market for Indian restaurants. We will also search for areas that lack Indian restaurants.

Expats or tourist who visit New York City for short duration also need place for stay. We will look to solve this problem by searching for best places to stay if they prefer Indian cuisine.

DATA

New York City data that contains list Boroughs, Neighborhoods 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 neighborhoods of New York City.

Indian restaurants in each neighborhood of New York City.

- Data source: Fousquare 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.
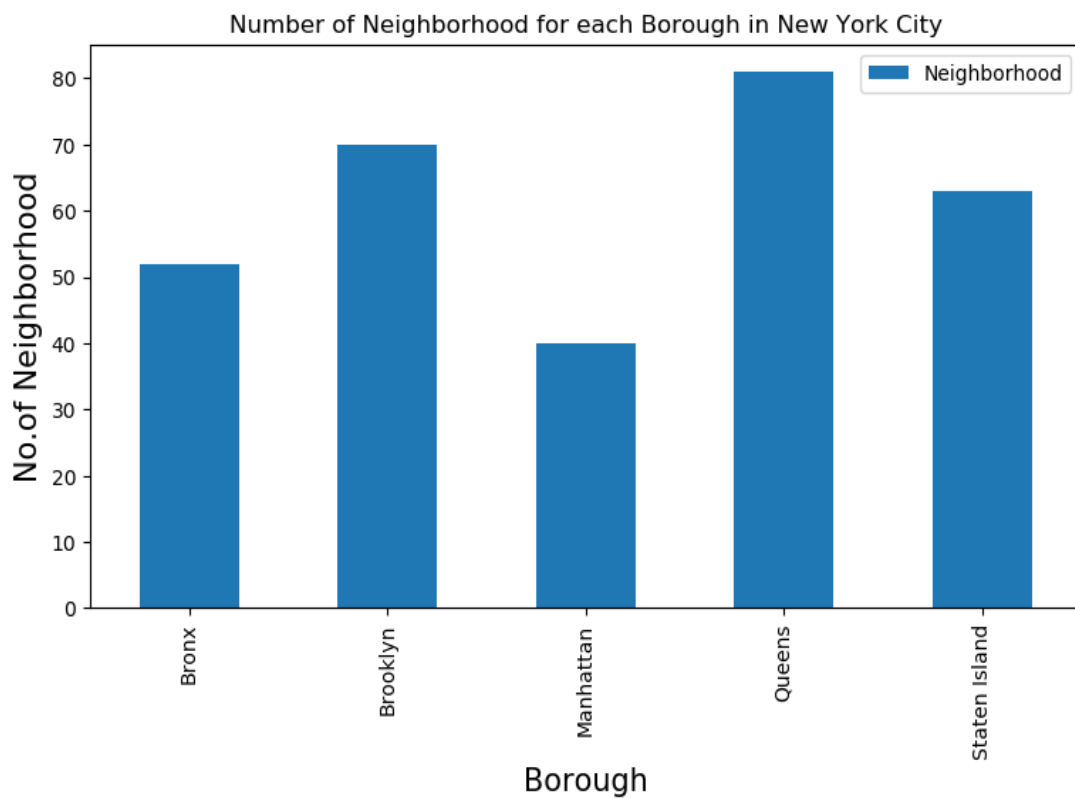
GeoSpace data

- 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.
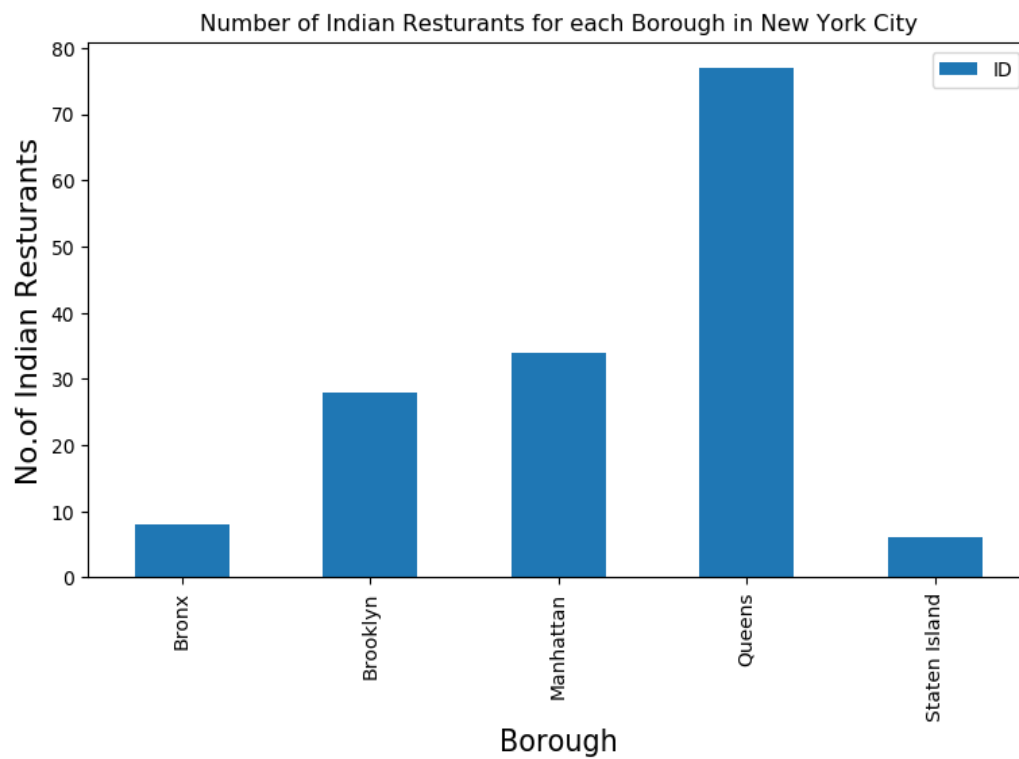
METHODOLOGY

- Exploratory Data Analysis

  The describe function in python is used to get statistics of the New York City restaurants data, this returns the mean, standard deviation, minimum, maximum, 1st quartile (25%), 2nd quartile (50%), and the 3rd quartile (75%) for each of the major restaurants in New York City.
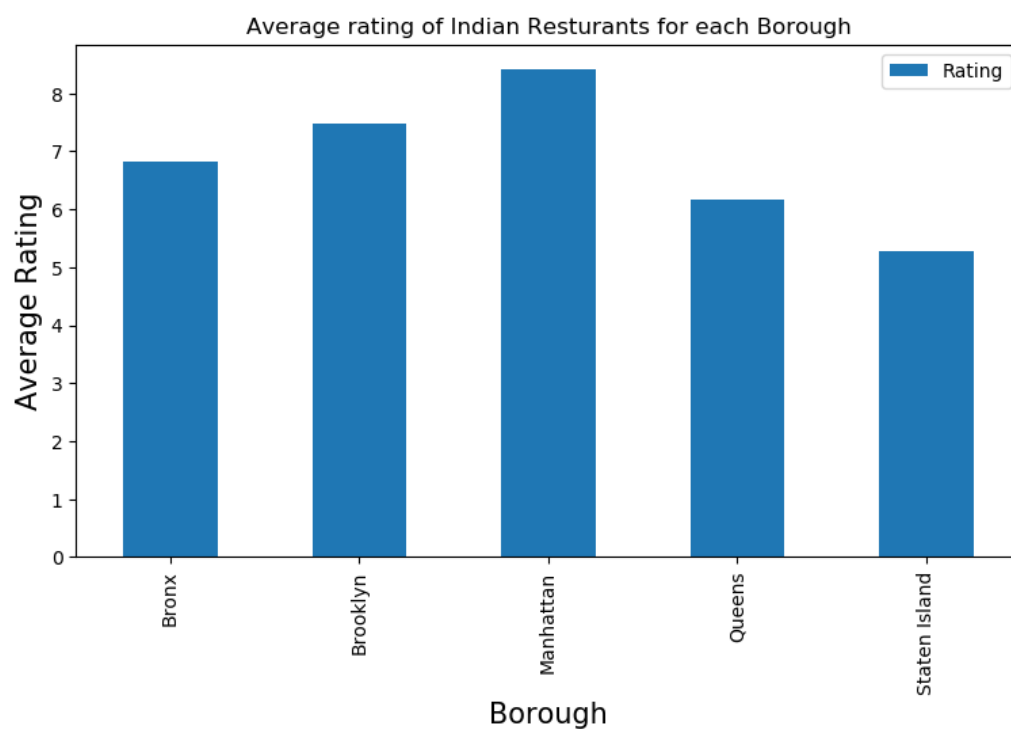

Statistical description of restaurants in New York City

- Inferential statistics

  The count for restaurants offering Indian cuisine in the New York City.

Number of Indian Resturants for each Borough in New York City

- Restaurants Rating

Average rating of Indian Resturants for each Borough

RESULTS

After k-means clustering we can access the each cluster with Indian restaurants in different neighborhood.

Neighborhoods with most number of Indian restaurants.

	Borough	Neighborhood	ID	Name
103	Queens	Floral Park	527ffc0811d2d329d5e49abd	Jackson Diner
104	Queens	Floral Park	4b647b56f964a520c4b62ae3	Usha Foods & Usha Sweets
105	Queens	Floral Park	4b787c49f964a5209cd12ee3	Santoor Indian Restaurant
106	Queens	Floral Park	4e4e3e22bd4101d0d7a5c2d1	Kerala Kitchen
107	Queens	Floral Park	4c0c01e0bbc676b00d6b4cd5	Mumbai Xpress
108	Queens	Floral Park	4c76ff35a5676dcb72671721	Flavor Of India
109	Queens	Floral Park	4df0f39dd4c04d0392c853ea	Sagar Chinese
110	Queens	Floral Park	571af96a498e9e392d8d3786	Namaste Authenic Indian Cuisine
111	Queens	Floral Park	51d84192498ea979a3c4f13d	Sunshine Grill & Restaurant

Restaurants with highest ratings

	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Queens	Astoria	40.768509	-73.915654	9.2
1	Queens	Blissville	40.737251	-73.932442	9.2
2	Manhattan	Civic Center	40.715229	-74.005415	9.2
3	Manhattan	Midtown	40.754691	-73.981669	9.0
4	Manhattan	Midtown South	40.748510	-73.988713	9.0
5	Queens	Sunnyside	40.740176	-73.926916	9.2
6	Staten Island	Sunnyside	40.612760	-74.097126	9.2
7	Queens	Sunnyside	40.740176	-73.926916	9.2
8	Staten Island	Sunnyside	40.612760	-74.097126	9.2
9	Queens	Sunnyside	40.740176	-73.926916	9.2
10	Staten Island	Sunnyside	40.612760	-74.097126	9.2
11	Queens	Sunnyside	40.740176	-73.926916	9.2
12	Staten Island	Sunnyside	40.612760	-74.097126	9.2
13	Manhattan	Tribeca	40.721522	-74.010683	9.2

CONCLUSION

- Best restaurants: Astoria (Queens), Blissville (Queens), Civic Centre (Manhattan).

- Potential market: Manhattan.

- Best stay: Manhattan.

LIMITATIONS

- The ranking is purely on basis of rating of restaurants.

- The accuracy of data depends purely depends on the data provided by FourSquare API.