

FINAL REPORT

Capstone Project - The Battle of Neighbourhoods

Introduction:

NYC is the cultural center of the world. Visitors from around the country and all over the world come here to enjoy the many different types of cultural amenities. The lifestyle of the people within the city is, itself, a culture form. The energy, the bustle, the array of stores serving every income level and ethnic group, the mix of languages and newspapers, are all part of its living culture.

NYC's indisputable status as the cultural capital of the world is based, in part, on the wealth of museums and art galleries that afford every visitor the opportunity to revel in a wide array of works from all over the world. Within the five boroughs of NYC, there are over 170 museums including zoos and specialized public libraries, and over 1,000 art galleries.

NYC is a center of the performing arts with three theatrical categories, including Broadway, Off-Broadway and Off-Off Broadway productions. There are 40 theaters officially classified as "Broadway," 100+ Off-Broadway and more than 400 Off-Off Broadway. Because of the large number and disparity of Off-Off Broadway performance spaces, they are not listed in this compilation.

The vast and diverse cultural and entertainment activities located in NYC have cast the City with an influential role in the presentation of historical and current art, music and cultural endeavors in the world.

There are countless choices in terms of restaurants and cuisines in NYC. As a Chinese food lover, in this project, I will help you identify where to find the best Chinese food.

Problem:

To find the answers to the following questions:

Q1) List and visualize all good Chinese restaurant in NYC

Q2) Where should you live if you enjoy Chinese food in NYC?

Data Section:

The vast and diverse cultural and entertainment activities located in NYC have cast the City with an influential role in the presentation of historical and current art, music and cultural endeavours in the world.

For this project we need the following data:

- NYC 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 needed info. And it will be used to explore various neighbourhoods of NYC
- Chinese food in each neighbourhood of NYC.
 - 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 the ones good Chinese food.
- 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 NYC Borough boundaries that will help us visualize choropleth map.

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

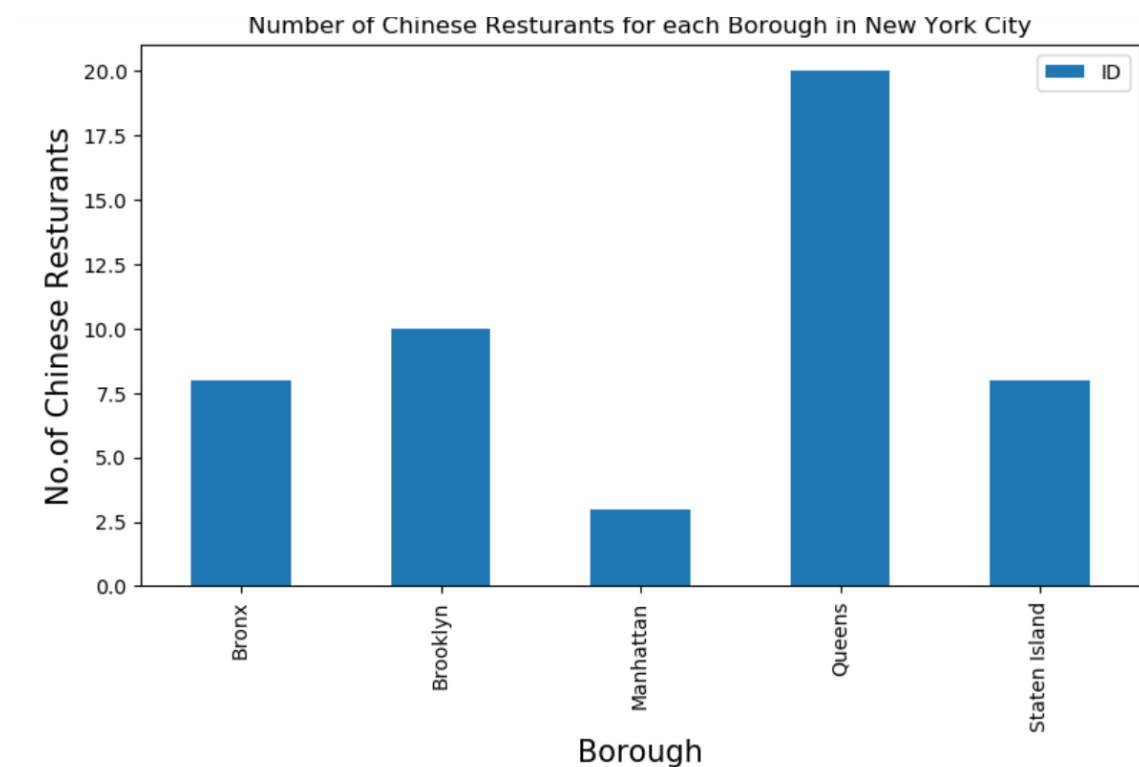
```
In [6]: new_york_data=get_new_york_data()

In [7]: 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 |

```
In [8]: new_york_data.shape
Out[8]: (306, 4)
```

The above result shows that there are 306 different Neighborhoods in New York.



3. We will then filter out all venues with Chinese restaurant for further analysis.

```
( 1 / 306 ) Chinese food in Wakefield, Bronx:0
( 2 / 306 ) Chinese food in Co-op City, Bronx:0
( 3 / 306 ) Chinese food in Eastchester, Bronx:0
( 4 / 306 ) Chinese food in Fieldston, Bronx:0
( 5 / 306 ) Chinese food in Riverdale, Bronx:0
( 6 / 306 ) Chinese food in Kingsbridge, Bronx:0
( 7 / 306 ) Chinese food in Marble Hill, Manhattan:0
( 8 / 306 ) Chinese food in Woodlawn, Bronx:0
( 9 / 306 ) Chinese food in Norwood, Bronx:0
(10 / 306 ) Chinese food in Williamsbridge, Bronx:0
(11 / 306 ) Chinese food in Baychester, Bronx:0
(12 / 306 ) Chinese food in Pelham Parkway, Bronx:1
(13 / 306 ) Chinese food in City Island, Bronx:0
(14 / 306 ) Chinese food in Bedford Park, Bronx:0
(15 / 306 ) Chinese food in University Heights, Bronx:0
(16 / 306 ) Chinese food in Morris Heights, Bronx:0
(17 / 306 ) Chinese food in Fordham, Bronx:0
(18 / 306 ) Chinese food in East Tremont, Bronx:0
(19 / 306 ) Chinese food in West Farms, Bronx:0
(20 / 306 ) Chinese food in High Bridge, Bronx:0
(21 / 306 ) Chinese food in Melrose, Bronx:0
(22 / 306 ) Chinese food in Mott Haven, Bronx:0
(23 / 306 ) Chinese food in Port Morris, Bronx:0
(24 / 306 ) Chinese food in Longwood, Bronx:0
(25 / 306 ) Chinese food in Hunts Point, Bronx:0
(26 / 306 ) Chinese food in Morrisania, Bronx:0
(27 / 306 ) Chinese food in Soundview, Bronx:2
(28 / 306 ) Chinese food in Clason Point, Bronx:0
(29 / 306 ) Chinese food in Throgs Neck, Bronx:0
(30 / 306 ) Chinese food in Country Club, Bronx:0
(31 / 306 ) Chinese food in Parkchester, Bronx:1
(32 / 306 ) Chinese food in Westchester Square, Bronx:0
(33 / 306 ) Chinese food in Van Nest, Bronx:0
(34 / 306 ) Chinese food in Morris Park, Bronx:0
```

4. We will then sort Neighbourhoods and Borough the data keeping Ratings as the constraint.

[42]:

| | Neighborhood | Average Rating |
|----|-----------------|----------------|
| 26 | Lower East Side | 9.2 |
| 43 | Windsor Terrace | 8.9 |
| 31 | North Side | 8.9 |
| 6 | Chelsea | 8.8 |
| 41 | Upper West Side | 8.6 |
| 12 | Downtown | 8.6 |
| 42 | Weeksville | 8.1 |
| 9 | College Point | 8.1 |
| 17 | Flushing | 8.1 |
| 11 | Dongan Hills | 8.1 |

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

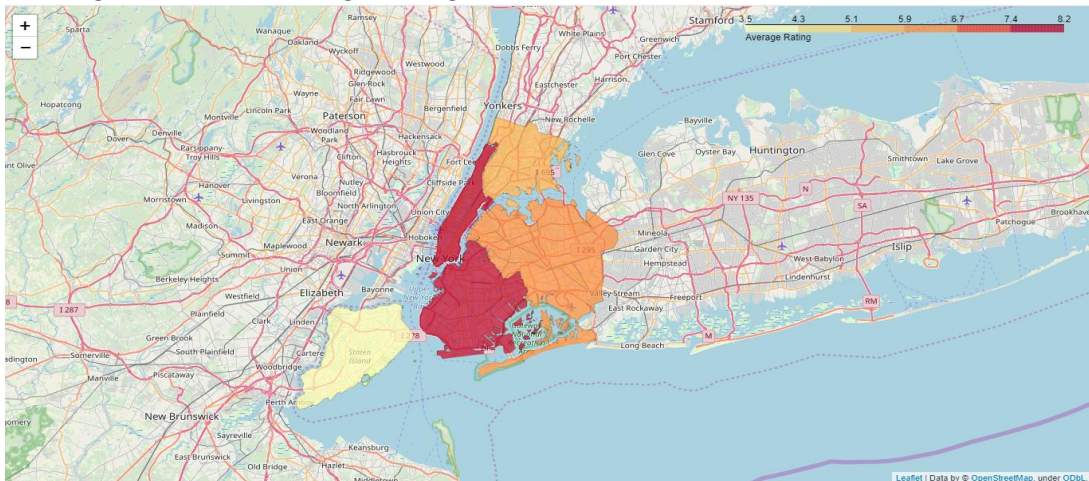
```
[43]: ny_neighborhood_stats=ny_neighborhood_stats[ny_neighborhood_stats['Average Rating']>=9.0]
ny_neighborhood_stats
```

```
[43]:
```

| | Neighborhood | Average Rating |
|----|-----------------|----------------|
| 26 | Lower East Side | 9.2 |

- We will join this dataset to original New York data to get longitude and latitude.

Borough based on average rating:



Result:

So now we can answer the questions asked above in the Questions section:

Answers:

- List and visualize all good Chinese restaurant in NYC.

```
[42]:
```

| | Neighborhood | Average Rating |
|----|-----------------|----------------|
| 26 | Lower East Side | 9.2 |
| 43 | Windsor Terrace | 8.9 |
| 31 | North Side | 8.9 |
| 6 | Chelsea | 8.8 |
| 41 | Upper West Side | 8.6 |
| 12 | Downtown | 8.6 |
| 42 | Weeksville | 8.1 |
| 9 | College Point | 8.1 |
| 17 | Flushing | 8.1 |
| 11 | Dongan Hills | 8.1 |

```
[43]: ny_neighborhood_stats=ny_neighborhood_stats[ny_neighborhood_stats['Average Rating']>=9.0]
ny_neighborhood_stats
```

```
[43]:
```

| | Neighborhood | Average Rating |
|----|-----------------|----------------|
| 26 | Lower East Side | 9.2 |

2. Where should you live if you enjoy Chinese food in NYC?

You should consider Lower East Side.

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.