

# THE BATTLE OF NEIGHBORHOODS

## Introduction:

For a place like New York City that prides itself on its culinary diversity, it's amazing to see how far the offerings have come in the last few years. There are many restaurants in New York City, each belonging to different categories like Chinese, Indian, and French etc.

New York has a long lineage of Chinese restaurants showcasing the culinary traditions of nearly every province in China, as well as the fusion fare created by immigrants in the United States. Whether you're looking to sample fiery Szechuan fare or experience a classic weekend dim sum brunch, the city has got you covered. From white-clothed Midtown restaurants to hole-in-the-wall Chinatown restaurants, find the best Chinese restaurant NYC has to offer.

## Problem:

To find the answers to the following questions:

1. List and visualize all major parts of New York City that has great Chinese restaurants.
2. what is best location in New York City for Chinese Cuisine?
3. which areas have potential Chinese Restaurant Market?
4. which all areas lack Chinese Restaurants?
5. which is the best place to stay if you prefer Chinese Cuisine?

## Data Section:

For this project we need the following data:

- New York City data that contains list Boroughs, Neighbourhoods along with their latitude and longitude.
  - Data source : [https://cocl.us/new\\_york\\_dataset](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
- Chinese 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 Chinese 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:

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

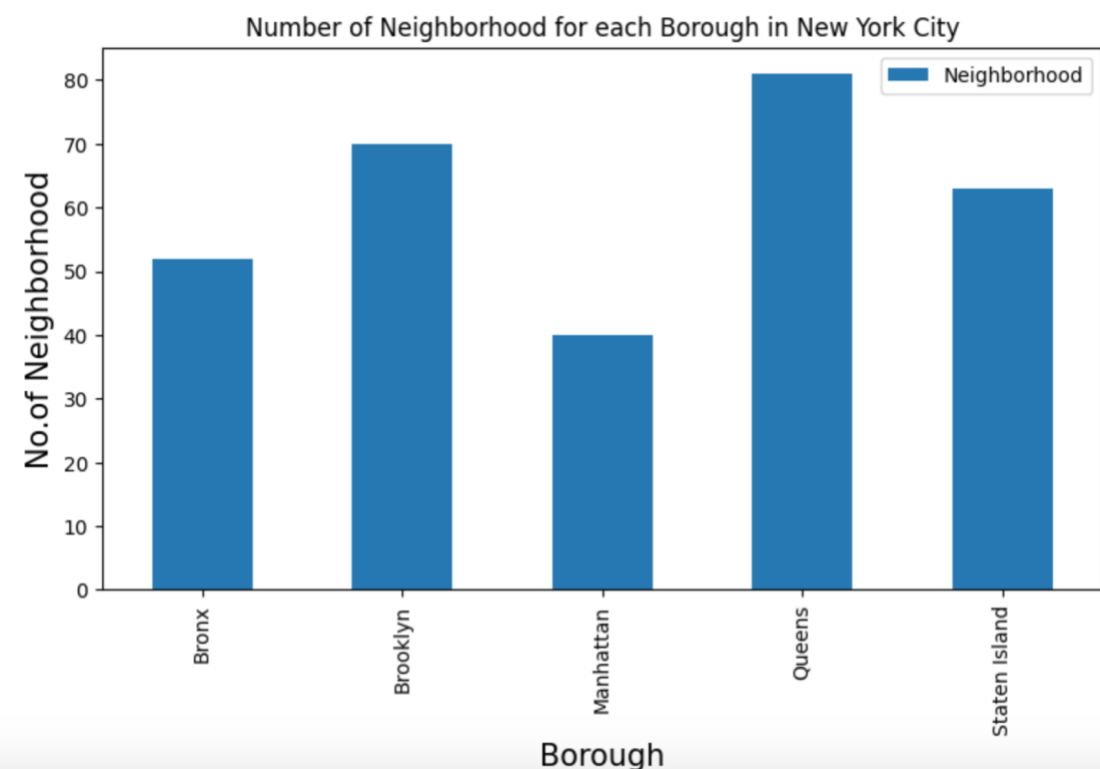
```
In [19]: new_york_data=get_new_york_data()  
new_york_data.head()
```

```
Out[19]:
```

	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 [20]: new_york_data.shape
```

```
Out[20]: (306, 4)
```



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

```
In [21]: chinese_rest_ny.head()
```

```
Out[21]:
```

	Borough	Neighborhood	ID	Name
0	Bronx	Wakefield	4edbac4e775bcc53fc0ed5f8	Hong Kong China King
1	Bronx	Co-op City	4c9d5f2654c8a1cd2e71834b	Guang Hui Chinese Restaurant
2	Bronx	Co-op City	4c66dcfae593955a74d0	Chinese Buffet
3	Bronx	Eastchester	4dabc3dc93a04642f09ccabd	Xing Lung Chinese Restaurant
4	Bronx	Eastchester	4e4df7aabd4101d0d79f4760	Best Chinese Restaurant

```
In [22]: chinese_rest_ny.shape
```

```
Out[22]: (410, 4)
```

4. Next using Foursquare API, we will find the Ratings, Tips, and Number of Likes for all the Chinese Restaurants.

```
In [56]: chinese_rest_stats_ny_csv.head()
```

```
Out[56]:
```

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Wakefield	0		0	0.0	0
1	Bronx	Co-op City	0		0	0.0	0
2	Bronx	Co-op City	4c66dcfaaebea593955a74d0	Chinese Buffet	7	5.0	10
3	Bronx	Eastchester	0		0	0.0	0
4	Bronx	Eastchester	0		0	0.0	0

```
In [58]: chinese_rest_stats_ny.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 410 entries, 0 to 409
Data columns (total 7 columns):
Borough      410 non-null object
Neighborhood  410 non-null object
ID           410 non-null object
Name         410 non-null object
Likes        410 non-null object
Rating       410 non-null object
Tips         410 non-null object
dtypes: object(7)
memory usage: 22.5+ KB
```

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

```
Out[92]:
```

	Neighborhood	Average Rating
83	Greenpoint	9.00
113	Marine Park	8.90
137	North Side	8.90
106	Lower East Side	8.85
131	Murray Hill	8.80
120	Midtown South	8.80
119	Midtown	8.80
32	Chelsea	8.80
135	Noho	8.70
54	East Village	8.70

```
Out[94]:
```

	Borough	Average Rating
2	Manhattan	8.100000
1	Brooklyn	4.553125
3	Queens	4.489542
4	Staten Island	3.327083
0	Bronx	2.046032

6. Next we will consider all the neighbourhoods with average rating greater or equal 8.0 to visualize on map.

```
Out[92]:
```

	Neighborhood	Average Rating
83	Greenpoint	9.00
113	Marine Park	8.90
137	North Side	8.90
106	Lower East Side	8.85
131	Murray Hill	8.80
120	Midtown South	8.80
119	Midtown	8.80
32	Chelsea	8.80
135	Noho	8.70
54	East Village	8.70

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

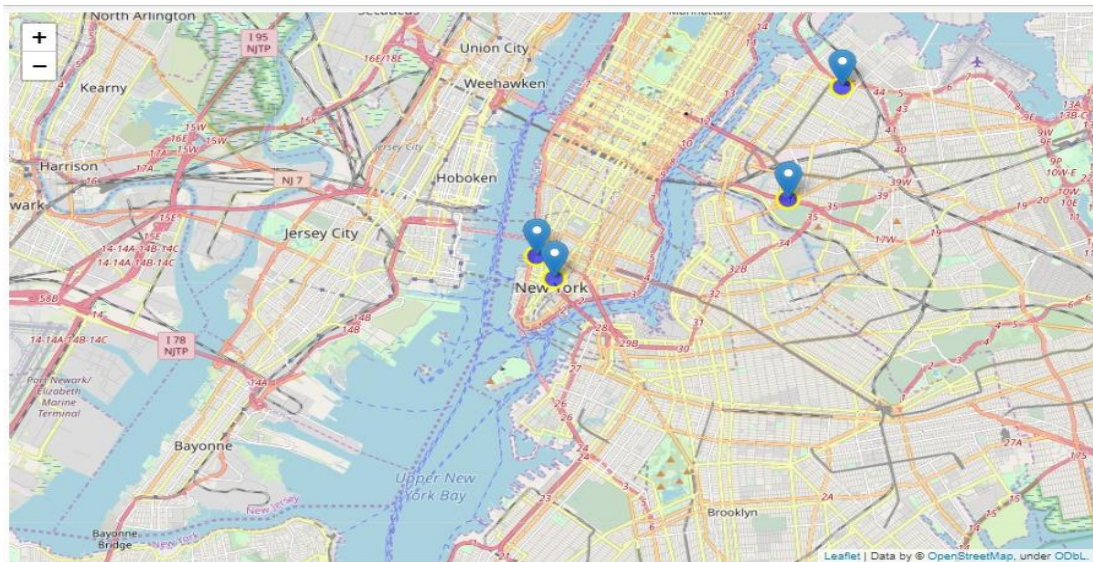
```
In [102]: ny_neighborhood_stats
```

```
Out[102]:
```

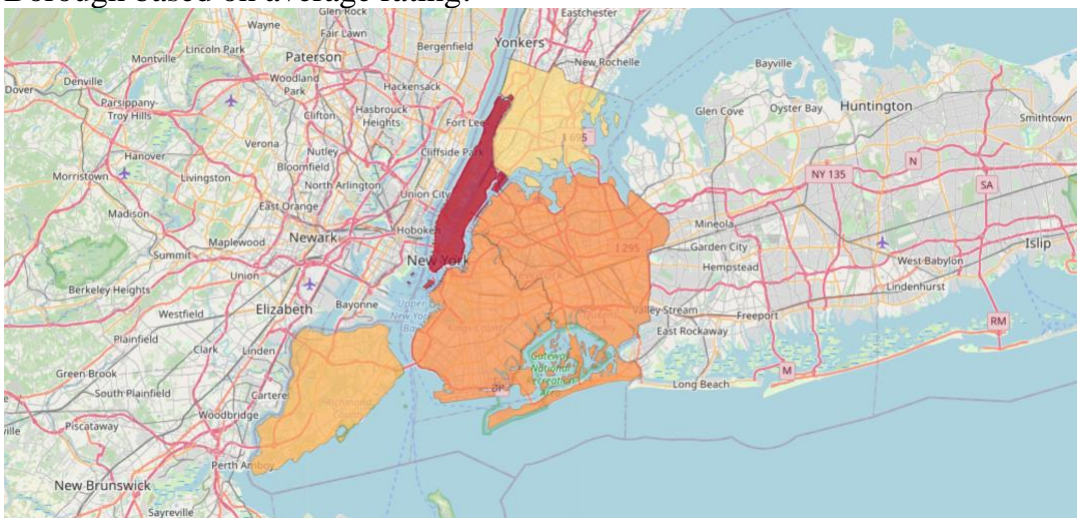
	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Queens	Bayswater	40.611322	-73.765968	8.400
1	Brooklyn	Boerum Hill	40.685683	-73.983748	8.600
2	Manhattan	Chelsea	40.744035	-74.003116	8.800
3	Staten Island	Chelsea	40.594726	-74.189560	8.800
4	Manhattan	Chinatown	40.715618	-73.994279	8.200
5	Manhattan	Civic Center	40.715229	-74.005415	8.500
6	Staten Island	Dongan Hills	40.588673	-74.096399	8.100
7	Brooklyn	Downtown	40.690844	-73.983463	8.600
8	Manhattan	East Village	40.727847	-73.982226	8.700
9	Queens	Elmhurst	40.744049	-73.881656	8.025
10	Manhattan	Gramercy	40.737210	-73.981376	8.500

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

Neighbourhoods based on average rating:



Borough based on average rating:



## Result:

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

Answers:

1. The following top 10 locations in New York City has great Chinese restaurants.

Out[92]:

	Neighborhood	Average Rating
83	Greenpoint	9.00
113	Marine Park	8.90
137	North Side	8.90
106	Lower East Side	8.85
131	Murray Hill	8.80
120	Midtown South	8.80
119	Midtown	8.80
32	Chelsea	8.80
135	Noho	8.70
54	East Village	8.70

2. Greenpoint(Queens), Marine Park (Queens), North Side (Manhattan) are some of the best neighbourhoods for Chinese cuisine.
3. Manhattan have potential Chinese Restaurant Market.
4. Bronx ranks last in average rating of Chinese Restaurants.
5. Manhattan is the best place to stay if you prefer Chinese Cuisine.

## 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.