# IBM Applied Data Science Capstone

# The Battle of Neighborhoods

## Problem:

If someone is looking to open a Chinese restaurant in New York City, which neighbors or borough should he open it?

## Background:

New York City is one of the most popular and largest cities in the United States. Many restaurants and buildings are being constructed for business. The audience is looking to find a location that is best suit for Chinese restaurant. My job is to conduct a business analysis of New York City neighborhood and boroughs to find the best location.

## Data:

The data that will used for this problem is New York City neighborhood and boroughs. The dataset should also contain with latitude, longitude, and venue. The URL I used for data collection is from Wikipedia and here is the link: https://cocl.us/new_york_dataset. I included four columns in the dataset, which are borough, neighborhood, latitude, and longitude. Here is the dataset:
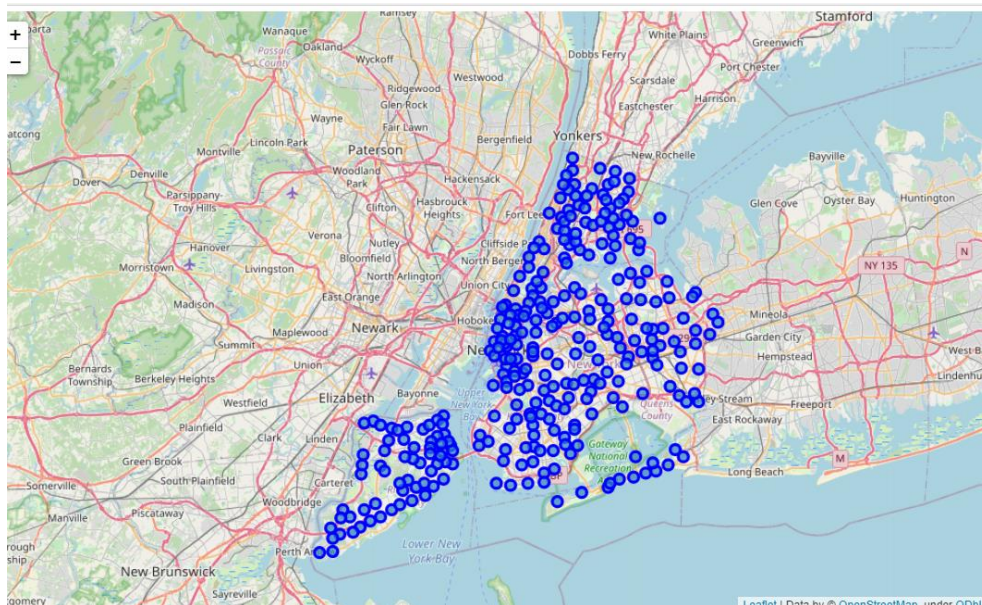
| | Borough | Neighborhood | Latitude | Longitude |
|---|---------|--------------|----------|-----------|
| 0 | Bronx | Wakefield | 40.894705 | -73.847201 |
| 1 | Bronx | Co-op City | 40.874294 | -73.829939 |
| 2 | Bronx | Eastchester | 40.887556 | -73.827806 |
| 3 | Bronx | Fieldston | 40.895437 | -73.905643 |
| 4 | Bronx | Riverdale | 40.890834 | -73.912585 |

## Methodology:

- Data cleaning/ data preprocessing

- Map visualization

- Four Square API

## Discussion:

After data cleaning, there are total of 306 neighborhoods and 5 boroughs in the dataset. The geographical coordinate of NYC is 40.7127281, -74.0060152. Here is a map of New York contains neighborhoods and boroughs.

In order to do Foursquare API, here is my account information:

Your credentails:
CLIENT_ID: QO10I4YFZUOR3JFMPFZUWESFPAMLD4SKEQ1QQQHYH5SL5MDE
CLIENT_SECRET:A5L3JKC2JYCEWC4KJNUL1TFBOOTOAD4YZESDOONNEN1ZY2DG

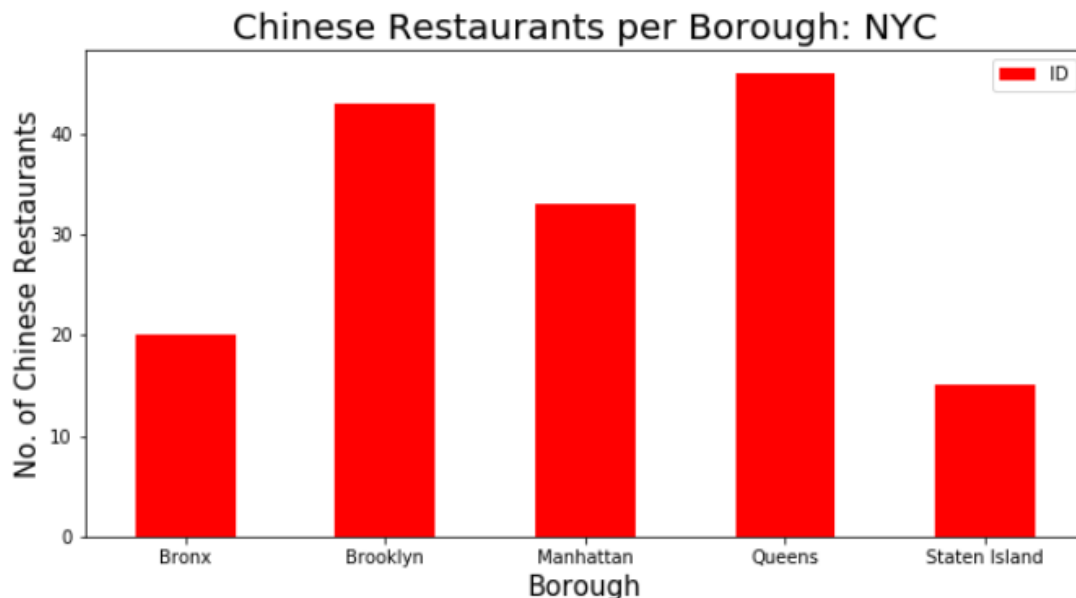In order to find all the Chinese restaurants, I need to find additional information from Foursquare. I added two additional columns which is name and ID. Here is the new table after adding two more columns.
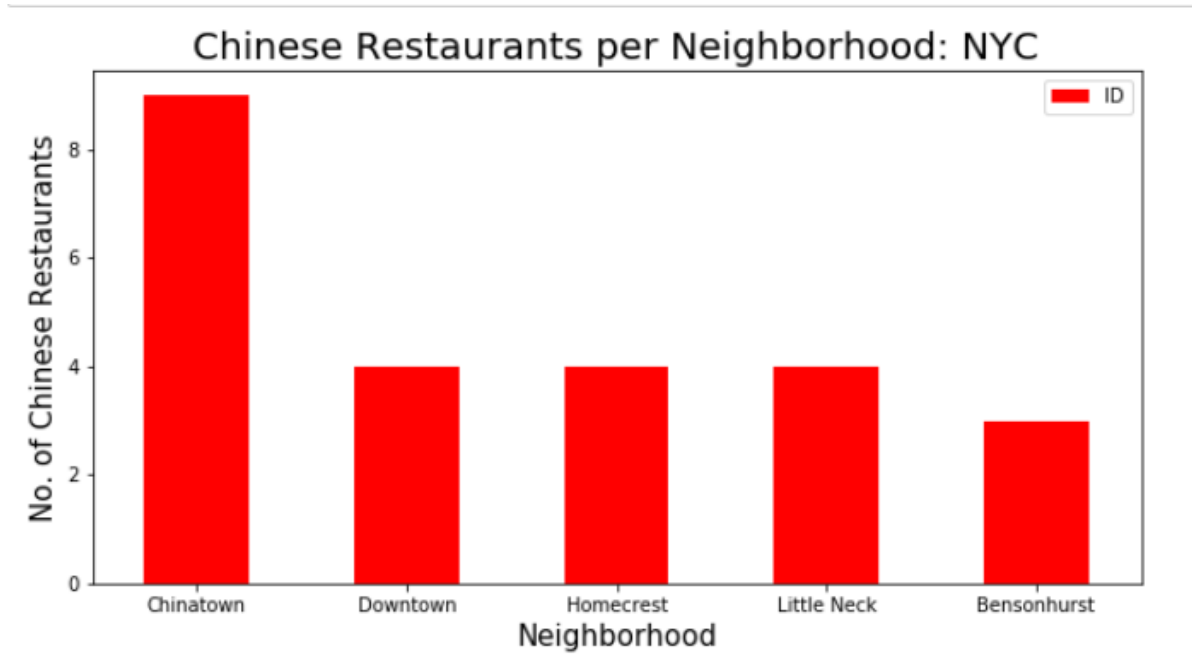
[48]:

| | Unnamed: 0 | Borough | Neighborhood | ID | Name |
|---|---|---|---|---|---|
| 152 | 152 | Brooklyn | Homecrest | 4d064e228620224b0490b240 | Kowloon Island |
| 153 | 153 | Staten Island | Prince's Bay | 4bb7d282b35776b0b83dc801 | Island Taste |
| 154 | 154 | Bronx | Allerton | 4c7dbf7f10916dcba78e2a96 | Chef King |
| 155 | 155 | Bronx | Kingsbridge Heights | 4d965fd061a3a1cde4989a42 | Lucky Star Chinese Restaurant |
| 156 | 156 | Brooklyn | Erasmus | 4e10c87122713f7d7bcb9d1d | Kam Man Chinese Food |

There are 157 restaurants total in New York.



Queen and Brooklyn are the top two boroughs in New York City that contains the most chinese restaurant.

Chinatown has the highest number of chinese restaurant in NYC.

Here are the names of chinese restaurants:

| | Borough | Neighborhood | ID | Name |
|---|---|---|---|---|
| 48 | Manhattan | Chinatown | 4db3374590a0843f295fb69b | Spicy Village |
| 49 | Manhattan | Chinatown | 5894c9a15e56b417cf79e553 | Xi'an Famous Foods |
| 50 | Manhattan | Chinatown | 4a96bf8ff964a520ce2620e3 | Wah Fung Number 1 Fast Food 華豊快餐店 |
| 51 | Manhattan | Chinatown | 5c965dad5455b2002c058659 | Yi Ji Shi Mo Noodle Corp |
| 52 | Manhattan | Chinatown | 4afff2b4f964a520583a22e3 | Sun Hing Lung Ho Fun Tofu |
| 53 | Manhattan | Chinatown | 59d828f0916bc1155fde2c04 | Hwa Yuan |
| 54 | Manhattan | Chinatown | 4c7ab2ac2d3ba143bb1d92d0 | Sun's Organic Tea Shop |
| 55 | Manhattan | Chinatown | 3fd66200f964a520ceea1ee3 | Deluxe Green Bo Restaurant |
| 56 | Manhattan | Chinatown | 3fd66200f964a520ede41ee3 | Big Wong King 大旺 |

# Results:

There are total of 157 chinese restarants in NYC. Queen and Brooklyn are the two most popular boroughs in NYC. Chinatown is the most popular neighborhood in NYC that contains the highest number of chinese food, which is 9.

## Conclusion:

In conclusion, in order to find the best location to start a chinese restaurant, Chinatown is a good option since it is the most popular neighborhood that contains the largest number of chinese restaurant. Boroughs such as Queens and brooklyn can also be good options to start a chinese restaurant. Even though Manhattan is also popular, the land price will be much more expensive to other neighborhoods.