Final report

Applied Data Science

Capstone Project

"Battle of the Neighborhoods"

Aom Sank

Introduction/Business Problem

Restaurant is always the top choice for those who want to run their own business. There were studies state that on an alley in a middle to big city, there is always at least on restaurant locates. Mr.A has just retired from a company and been thinking to open a small restaurant where traditional Thai food and desserts are served. The location should attract enough customers to survive and compete with the local restaurants. This restaurant is more likely to be open in New York city, USA.

Data

To accommodate the aforementioned problem, the city neighborhoods and their location data are required. Them the dataframe can be used to input the nearby venue from Foursquare API and search for the restaurant location in those neighborhood.

Methodology

There are some libraries that are required to be downloaded prior conducting the search. The list is shown in Table1 below. We use **wget** command to access and download the data in .json form. Then we performed data cleaning and analyzed it.

No.	Library’s name
1.	pandas
2.	numpy
3.	geocoder
4.	folium
5.	matplotlib
6.	seaborn
7.	sklearn

Table 1: List of imported libraries used in this study

Results

We, first, explore the number of neighborhood of New York city and found that the Queen borough has the highest number as shown in Fig.1. Next, we search for the number of Thai restaurants in the city of New York and sum up for each borough.

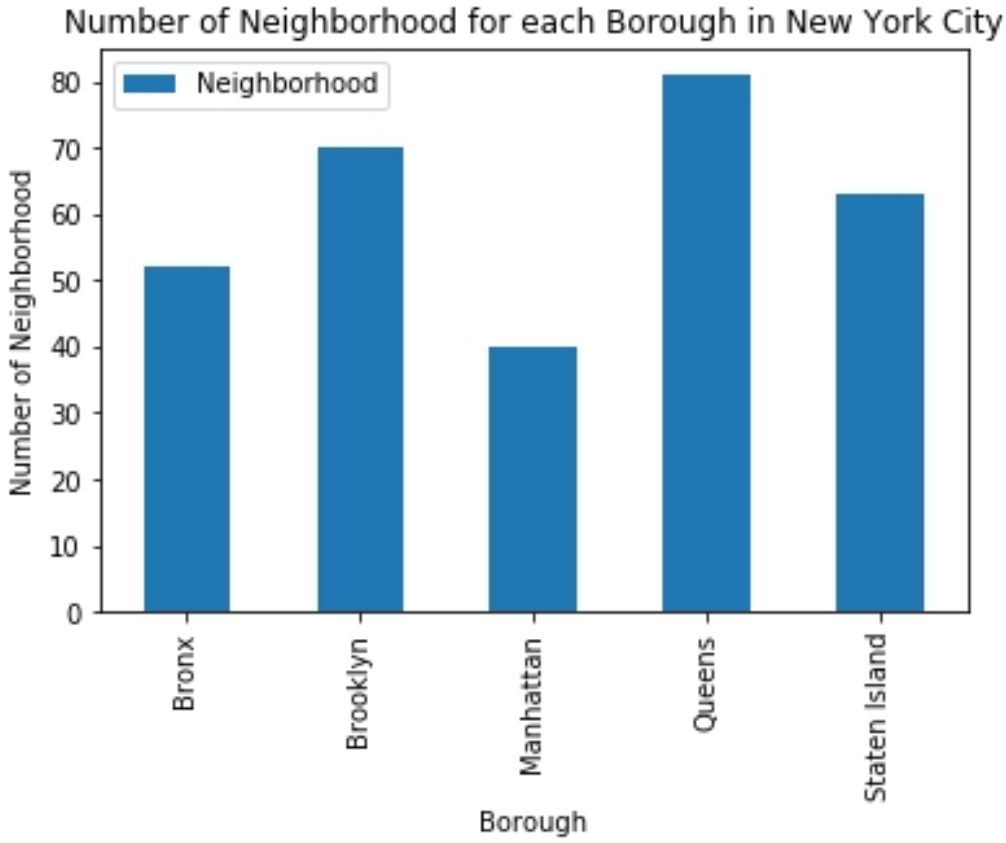


Figure 1: Number of neighborhood of each Borough in New York city

The result is shown in Fig.2. As one can clearly see that the majority of Thai restaurants are located in Queen borough. We further investigate on the number of Thai restaurants in NYC but this time we search based on the neighborhood. The result is shown in Fig.3

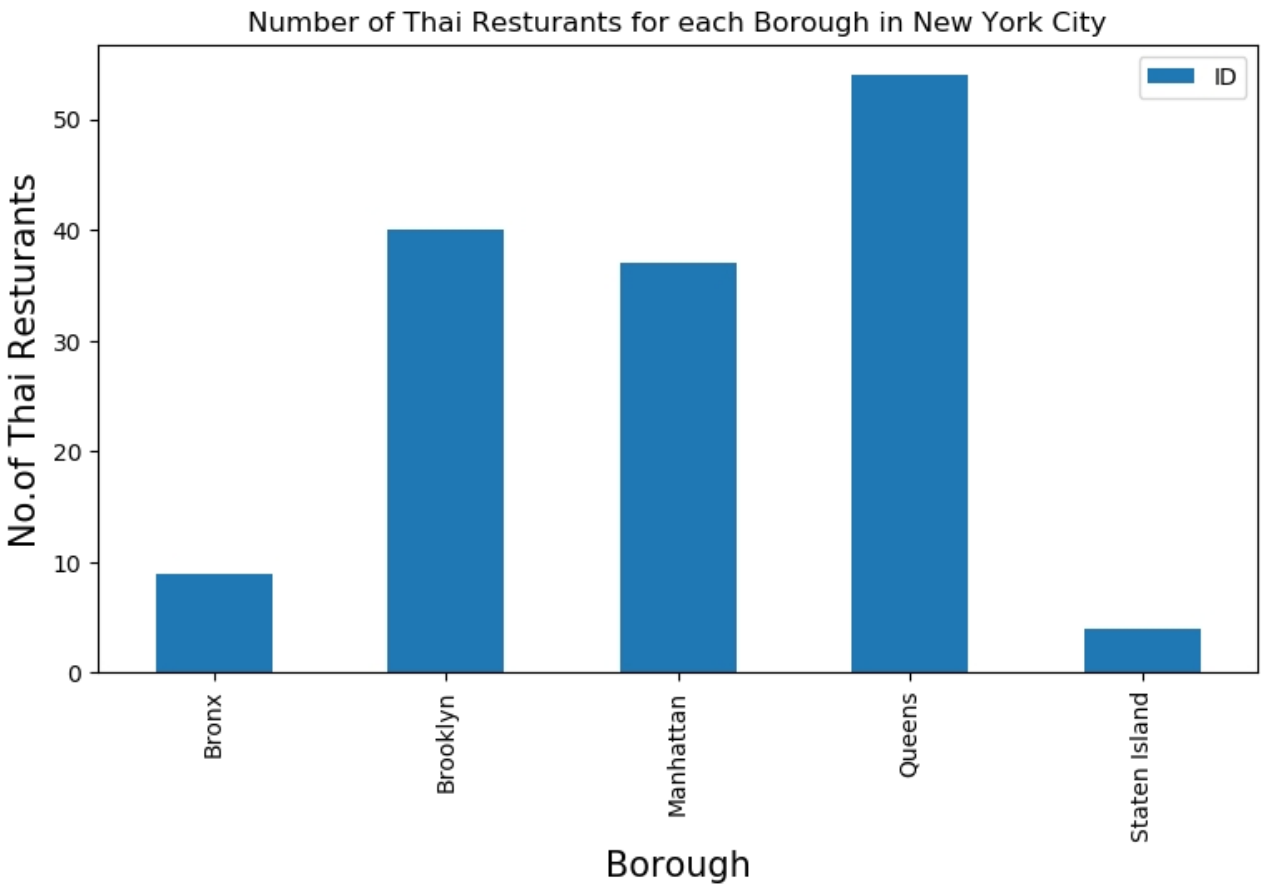


Figure 2: Number of Thai restaurant for each borough in New York city

As we expected, the highest is in a neighbor of Queen borough name “Elmhust” as shown in Fig.3. The top three neighbors are all in Queen borough.

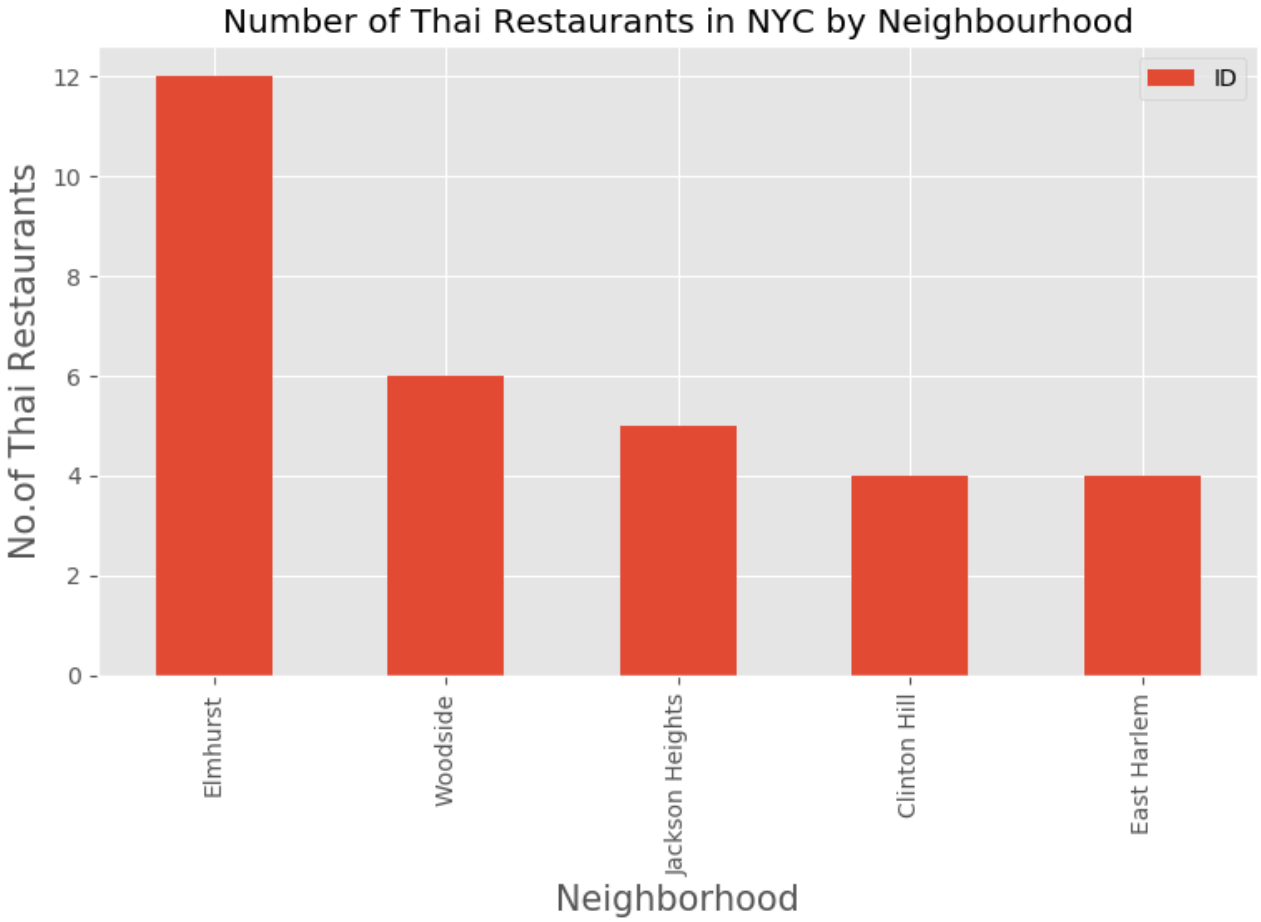


Figure 3: Number of Thai restuarants in NYC sorted by neighbourhood

Next, we import data about rating, likes and tips from foursquare and average it as shown in Table2.

Neighborhood	Average Rating
Noho	9.15
Chinatown	9.10
Little Italy	9.10
Lenox Hill	9.05
Downtown	9.00
Boerum Hill	9.00
Flatiron	9.00
Soho	8.95
Upper East Side	8.90
South Ozone Park	8.90

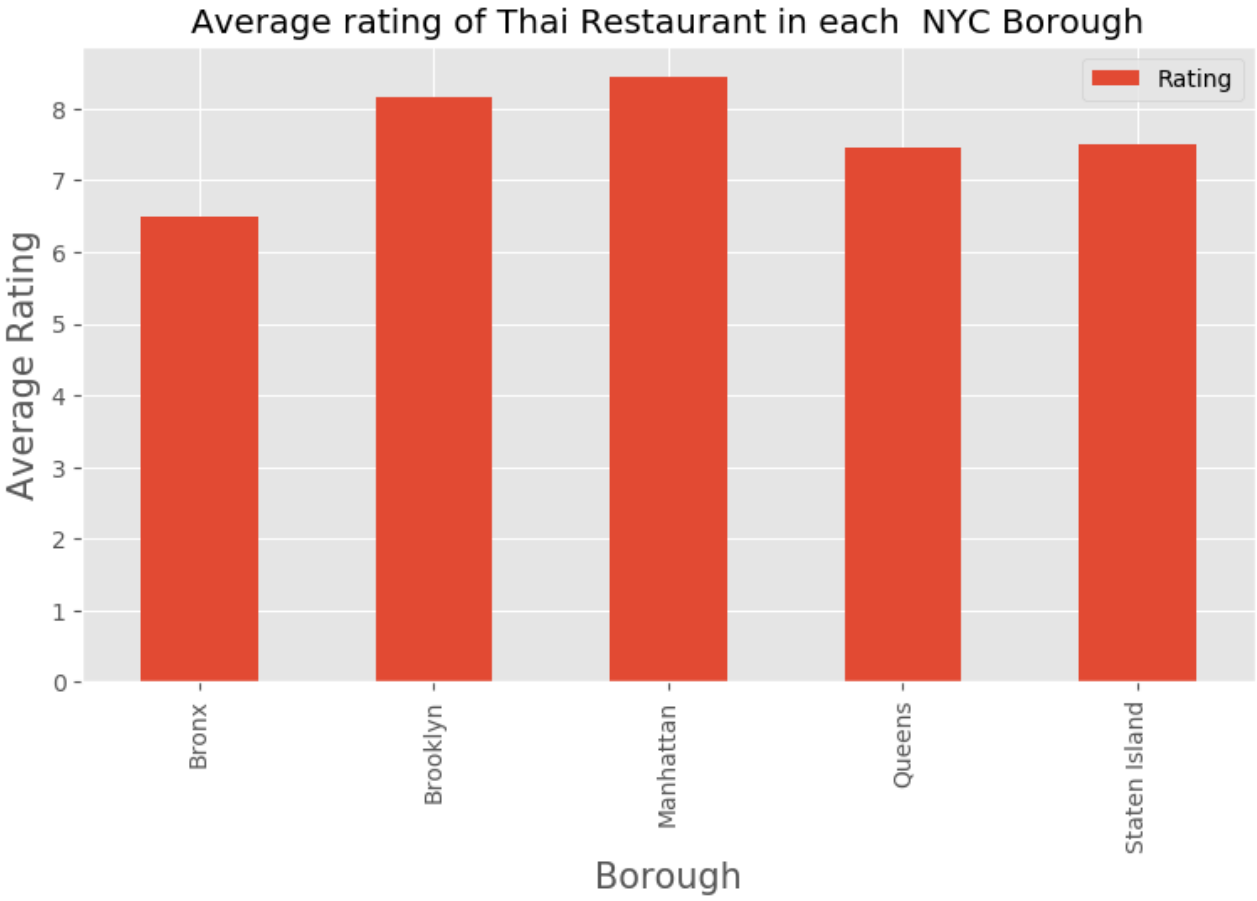
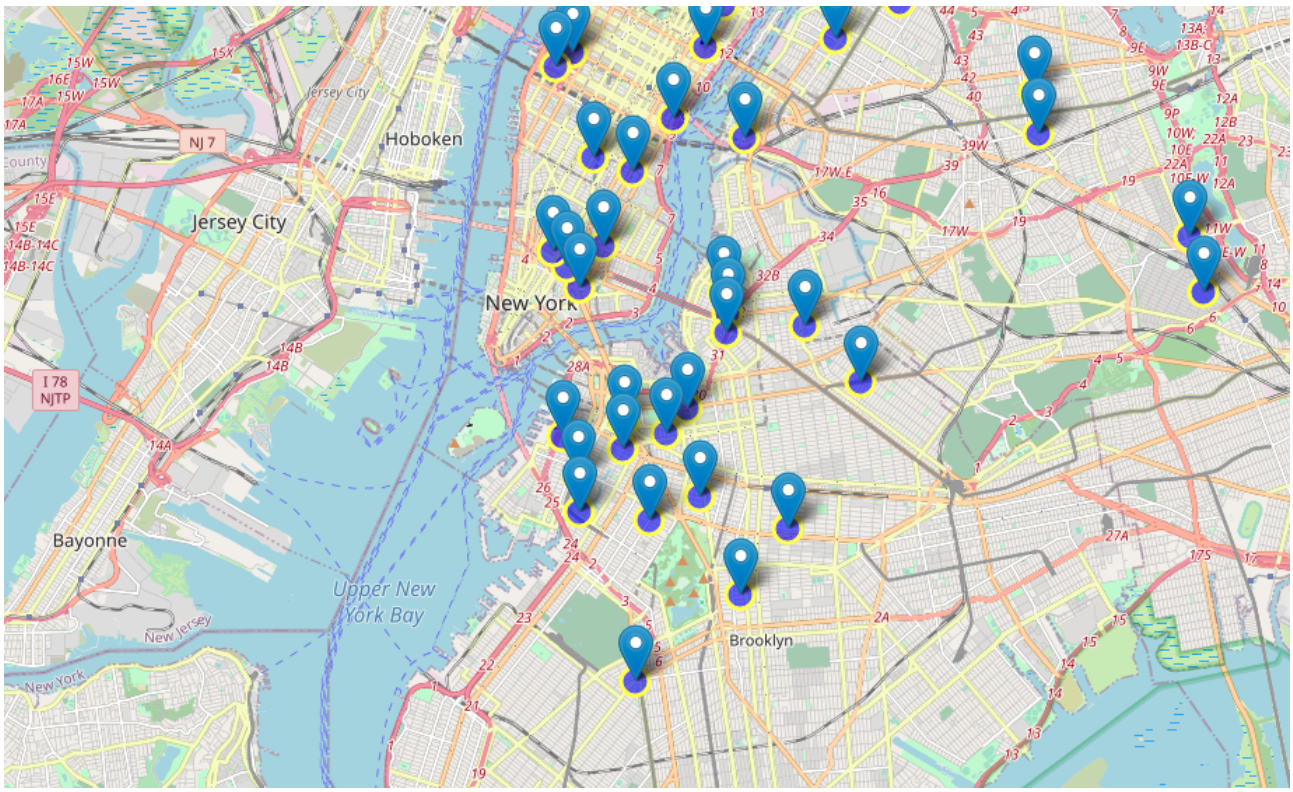


Figure 4: Average rating of Thai restaurant in each NYC borough

In Fig.4, we plot that average rating of Thai restaurants in each borough and found that the highest rated one is Manhattan followed by Brooklyn and Queens. Referred to Fig.2, Manhattan is ranked in the 3rd place based on the number of Thai restaurants. This reply that the restaurants in Manhattan are rated highly. Finally, we plot the map of the area where Mr.A can seek for starting his business which is around Manhattan area.


Jersey City
Hoboken
Jersey City
New York
Bayonne
Upper New
York Bay
Brooklyn
NJ 7
I 78
NJTP