Battle of the Neighborhoods- Mediterranean Restaurants in New York City!

1. Introduction

1.1 Background

New York City is a melting pot for cultures and cuisines. You should be able to find any type of cuisines you can imagine in NYC.

One of the most delicious and diverse cuisines is Persian (Iranian) food. Persian cuisine's diversity comes from the variety of cultures in Iran. There are endless varieties of dishes and breads; made with ingredients that are native to Iran, such as saffron, pistachios and walnuts.

When you Google 'Persian Restaurants in New York' a good number of them show up. When you check the Category of the restaurant, they are mostly listed as "Mediterranean Cuisine"! Persian and Mediterranean have a lot of common ground but there are many authentic Iranian dishes that are usually not available in most Mediterranean restaurants. However, I believe since the Mediterranean cuisines are more known in America, Persian restaurant businesses label themselves as such so they appear more in searches! Thus, in order to have a wider search in this project I am going to request and analyze data related to the Mediterranean restaurants.

1.2 Business Problem and Interest

This project can be helpful for all the investors looking for great business opportunities in the restaurant industry. Opening a Persian restaurant in general is a great business idea since it has something to offer for every taste! However, in this project I am about to dig deep into New York City's neighborhoods to find the best location to open a new Persian restaurant. I am also going to find out where we can find the best Mediterranean food in NYC today! Understanding how current businesses are doing in different neighborhoods can lead us to a better decision on where to open a new one.

2. Data Required

In order to tackle the problem statement, we would need a very thorough data on New York City. In addition to NYC boroughs and neighborhoods, we would need the latitude and longitude values of each area to be able to use visualization maps and achieve a better analysis. We would also need detail of each venue and Mediterranean restaurant, such as the ratings, number of likes and tips given by customers.

3. Methodology and Data Sources

Many online sources provide data on different locations around the world. In this project, I am going to use data from http://cocl.us/new_york_dataset to get the data on New York City's

boroughs and neighborhoods. The geographical coordination (latitude and longitude) of each neighborhood can then be accesses through Python package called Geocoder. In addition, Folium can be used to create the visualization maps.

Foursquare has a large database including different venues information. Here, we are interested in restaurants' data. Getting access to the Foursquare API we can access information on restaurants in New York City's different neighborhoods. We can also get access to restaurants ratings, and other details such as number of likes and tips given on Foursquare!
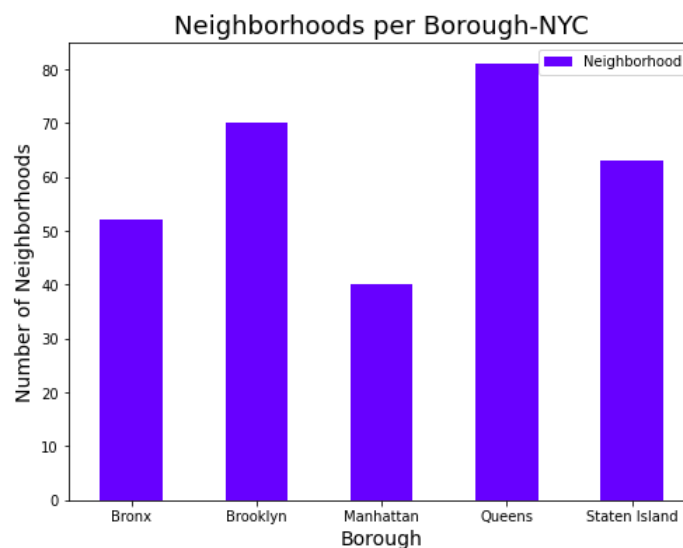
After the location data is collected it will be processed into dataframe. Foursquare will be used to add restaurants details. Some data types will be converted to 'float64' to be able to perform the analysis techniques. I will then sort the data using statistical methods to find the high rating Mediterranean restaurants in different neighborhoods. I will also compare different neighborhoods average Mediterranean ratings to see which areas have a higher rate of success! At the end, I will use Folium to create maps and show the findings on an interactive map.

Putting all the information together we can have a good idea of the number of Mediterranean restaurants in each neighborhood and find the best rating Mediterranean restaurants in town. Having all the information discussed in previous sections help the investors decide where is the best location to open a new Mediterranean restaurant. Moreover, by looking at the statistical data on current businesses they can project how successful their business will be in the future!
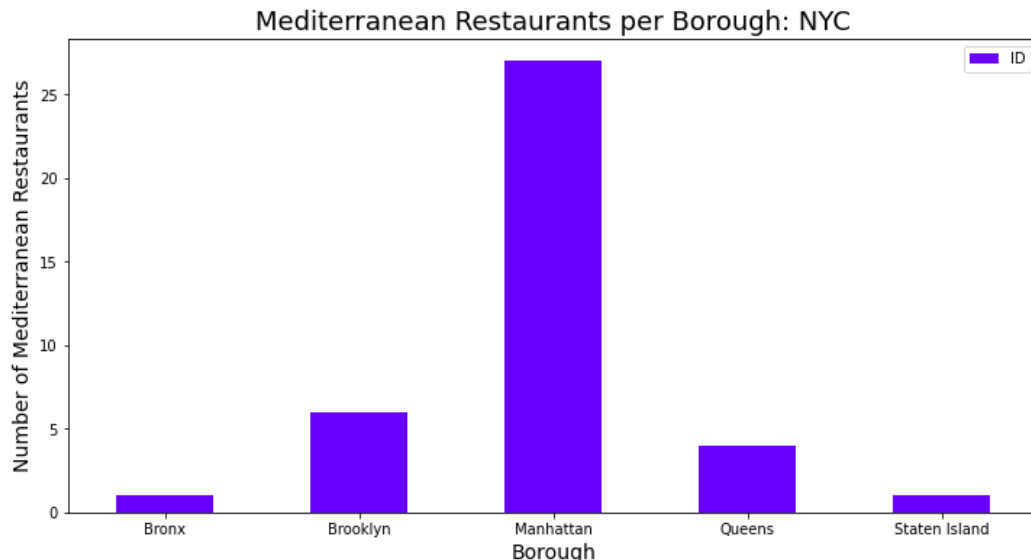
4. Results

Here are some results and insights based on the analysis in this project:

- First, I needed some insight about NYC's boroughs and neighborhoods. Bar graphs are used to show different boroughs in New York and the number of neighborhoods in each:
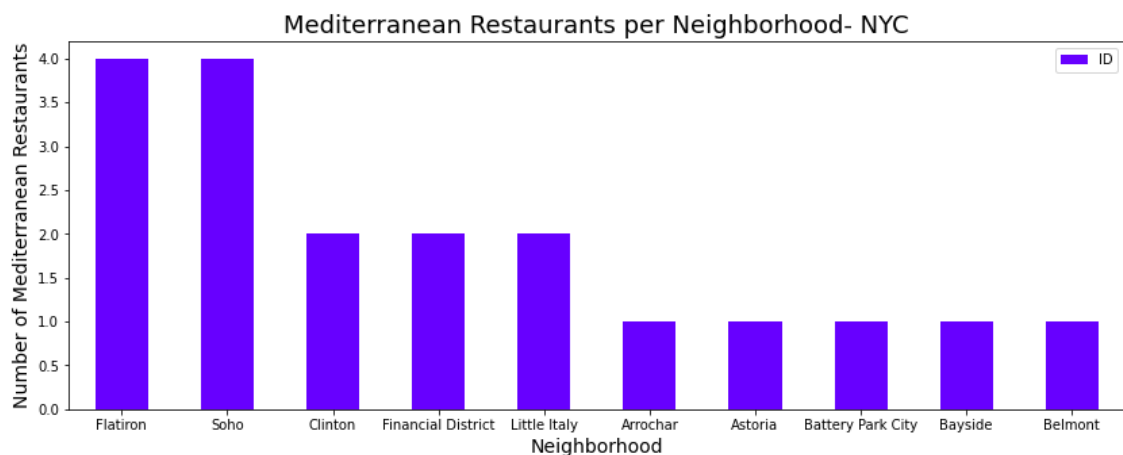
Queens with around 80 neighborhoods has the greatest number of neighborhoods in NYC! Manhattan on the other hand has the least number of neighborhoods (around 40).

• After getting the Mediterranean data from Foursqure, I found out there are total of 39 restaurants that have identified themselves are Mediterranean. The bar chart below shows the number of Mediterranean restaurants in each borough:

As it is shown, although Manhattan has the least number of neighborhoods, it seems that it has the greatest number of Mediterranean restaurants (27 restaurants).

• Here is a bar chart showing the number of Mediterranean restaurants in each neighborhood:

Flatiron and Soho have the most number of Mediterranean restaurants (4 each).

- The results also showed that there are 32 unique restaurants, which means the rest are chain restaurants. 'CAVA' is one of the chain Mediterranean restaurants that has 5 different locations all in Manhattan:

	Borough	Neighborhood	ID	Name
12	Manhattan	Midtown	5b9fe1ef93bd63002c3bbb7b	CAVA
17	Manhattan	Little Italy	59e0ee84f0ca95526b7fce9f	CAVA
21	Manhattan	Soho	59e0ee84f0ca95526b7fce9f	CAVA
25	Manhattan	Financial District	5cf62af9cb3fd2002c8e8a4c	CAVA
34	Manhattan	Flatiron	5c5869388b98fd002c5de209	CAVA

- Just to get a broader view, the boroughs were sorted based on the average ratings of the Mediterranean restaurants as well:

	Borough	Avg. Rating
2	Manhattan	8.529630
1	Brooklyn	7.916667
3	Queens	6.950000
4	Staten Island	6.800000
0	Bronx	0.000000

As you can see Manhattan has the average rating of 8.53 and is the highest rating among the boroughs.

- Then the neighborhoods were sorted based on their average ratings of Mediterranean restaurants to be able to identify high rating neighborhoods:
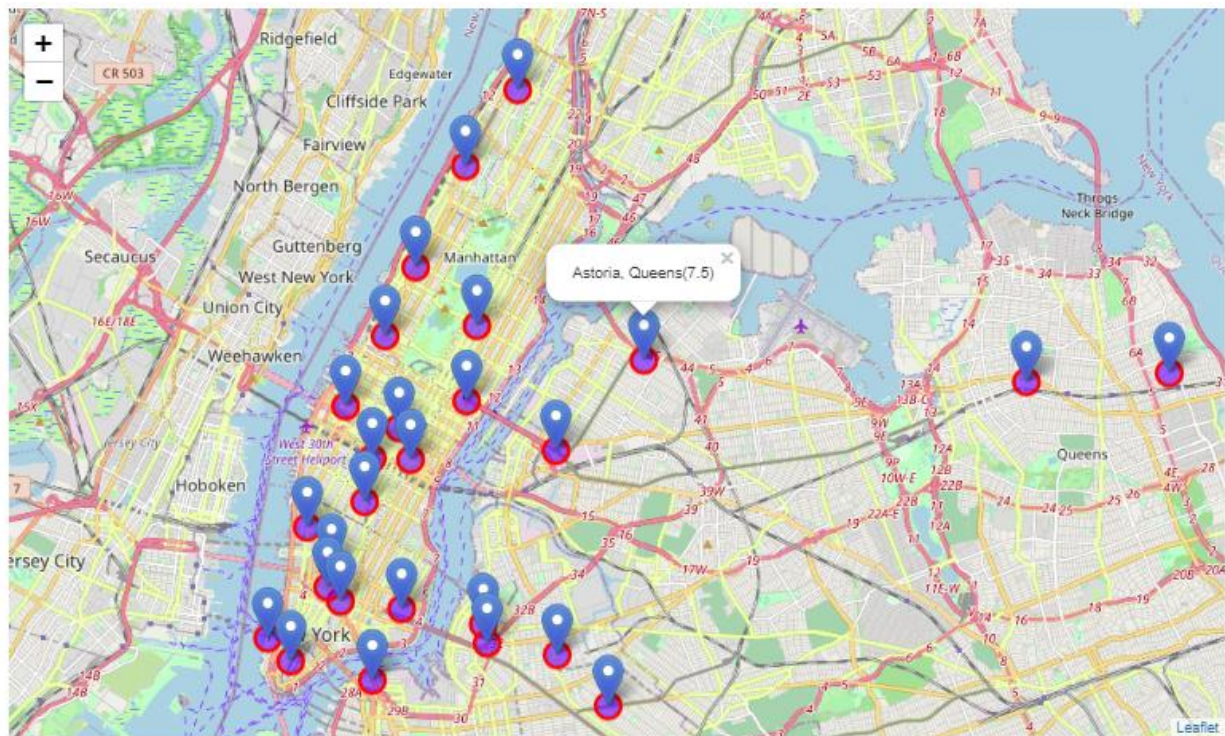
The results show that West Village has the highest average rating among the Mediterranean restaurant (average rating of 9.30). On the other hand, Rockaway Park has the lowest average rating of 6.2. Soho that is one of the neighborhoods with highest number of Mediterranean restaurants has an average rating of 8.90.

- Next, we took the number of likes of each Mediterranean restaurant from Foursquare. After sorting out the data 'Jack's Wife Freda' located in Soho (Manhattan) has the highest

number of likes. This restaurant has 1,720 likes! The ranting of this restaurant is 8.7 out of 10.

The ratings were sorted too and one of the 'CAVA' restaurants (located in Little Italy in Manhattan) has the highest ranking of 9.3 out of 10.

- Finally, the neighborhoods with average rating of 8.5 (out o 10) and higher were selected. Then Folium was used to create the map. Labels were made in order to show each neighborhood, the borough in which they belong to, and the average rating of the Mediterranean restaurants:

5. Discussions

Based on our data analysis, there are total of 39 Mediterranean restaurants listed in Foursquare API in the city of New York! With 27 Mediterranean restaurants, Manhattan has the highest number among other boroughs! Soho and Flatiron neighborhoods have highest number of Mediterranean restaurants (5 each!). After filtering results, I found out there are 32 unique restaurants, and the remaining 7 are all chain restaurants.

Then I dug into the restaurant's details; By changing some of the data type values from 'object' to 'float64', I was able to perform some statistical analysis. The restaurant with the highest rating is 'CAVA'- located in Little Italy, Manhattan. This location has a rating of 9.30 out of 10. The Jack's Wife Freda located in Soho, Manhattan, has the highest number of 'Likes'! (total of 1,720)

After sorting the neighborhoods based on their Mediterranean restaurants' average ratings, West Village has the highest average rating (9.30). Rockaway has the lowest average rating of 6.20 amongst other neighborhoods. There are some neighborhoods with no Mediterranean restaurant ratings such as Belmont! The Mediterranean restaurants in Manhattan have the highest average rating!

Finally, Folium was used to create an interactive map to put most of the data together. Visualization maps help data analysis a lot! However, when the Jupyter notebook was transferred to Github, unfortunately the maps will not show! (error: Make this Notebook Trusted to load map: File -> Trust Notebook). Even when I made the Jupyter notebook trusted, it still did not work. The solution to this issue is to use nbviewer to be able to see the maps!

6. Conclusion

In conclusion, I would suggest the investors to open their new Persian restaurant in Manhattan and in Soho neighborhood! Although Soho has 5 other Mediterranean restaurant it seems that they all have a high rate of success! It seems that due to high demand, Manhattan has many restaurants and majority are successful! Based on the name of the restaurants, unfortunately I did not detect any Persian restaurants! Which might be a great news to the investors since it shows there is a huge opportunity in opening a brand-new Persian restaurant in the heart of Soho! I would also make sure I try out the Jack's Wife Freda next time in town! Finally, I would suggest a more thorough analysis using multiple location data sources! All the analysis in this report depend on the Foursquare data accuracy and limitations!