Coursera Capstone Project – Battle of Neighbourhoods
French restaurants in New York City
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1. Introduction:

1.1. Background

New York City, one of the biggest cities in the United States and one of the liveliest, has always been known for their restaurants, who are happy to serve both residents as well as tourists. There are more than 27,043 restaurants in New York City, which makes the competition very hard, and it will become more and more fierce once restaurants will be able to reopen, after quarantine is over. French Cuisine has always been of interests for Americans, and it has been back in style in recent years. Many French cooks, such as Alain Ducasse or Gilles Verot, have open restaurant in the Big Apple, and their restaurants are almost always full of reservations.

1.2. Problem

Using analytics, restaurants are able to make strategic decisions based on insights gained on a specific region or city. Because of the high price of the menus, that often comes in hand with the sophistication of this cuisine, it is of utmost important to find the right place for people to come and eat. Therefore, this project will be able to identify an ideal business location for a French restaurant by considering areas that have a low frequency of other French restaurants.

1.3. Interest

Obviously, a restaurant owner looking to open a new French restaurant will be the primary target for this project. But this project can also serve the purpose of answering the question: "where is the best place to stay, in order to enjoy French cuisine?". The methodology could also be replicable for any kind of restaurants or cuisine.

2. Data acquisition

In order to do so, I will need to access the following data:

- The main data resource will come from the Foursquare API. It will allow to find and filter all the different French restaurants in each neighbourhood. With this API, I will be able to also find ratings, tips, and like count for each restaurant.

- A New York City data *(https://cocl.us/new_york_dataset)* that contains list of Boroughs and neighbourhoods, along with their latitude and longitude, to explore the various neighbourhoods of New York City.

- The Geospace data *(https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm)* will be useful to create boundaries between the borough, to have a better visualization on maps created.

3. Methodology:

3.1. Approach

First, I collected the New York City data, to better understand the different neighbourhoods and boroughs. I then use the Foursquare API to find all the venues and filter to only the French restaurants. Then I connected with the API to find the ratings, tips and like count for each restaurant. I sorted the data according to the rating, which is the most important factor, and then I visualize that ranking compared to the neighbourhoods using the folium library.
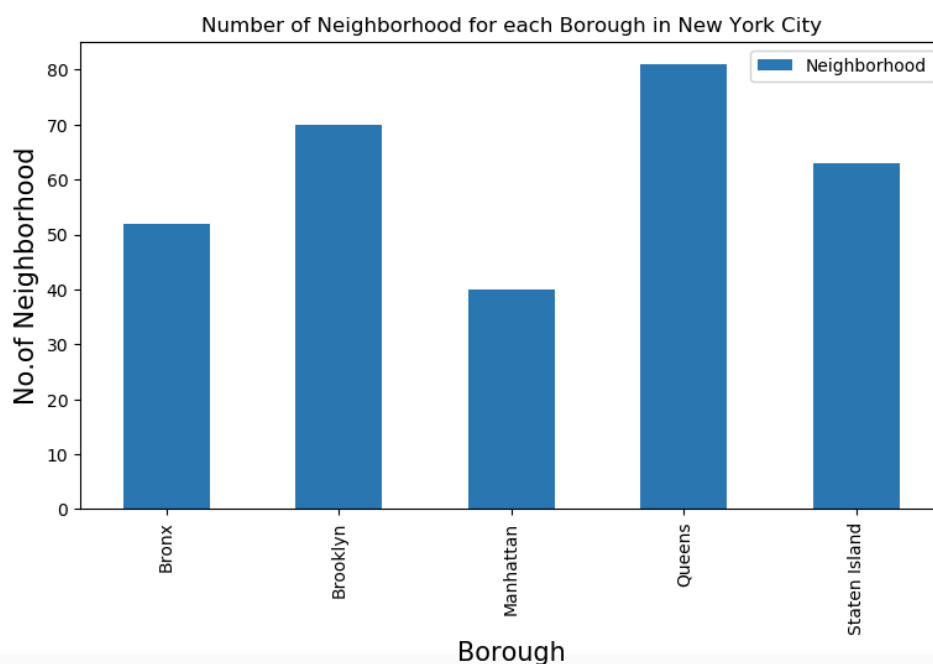
3.2. Code

To find the explanation of the data analysis, please click on the link to find the entire code commented:
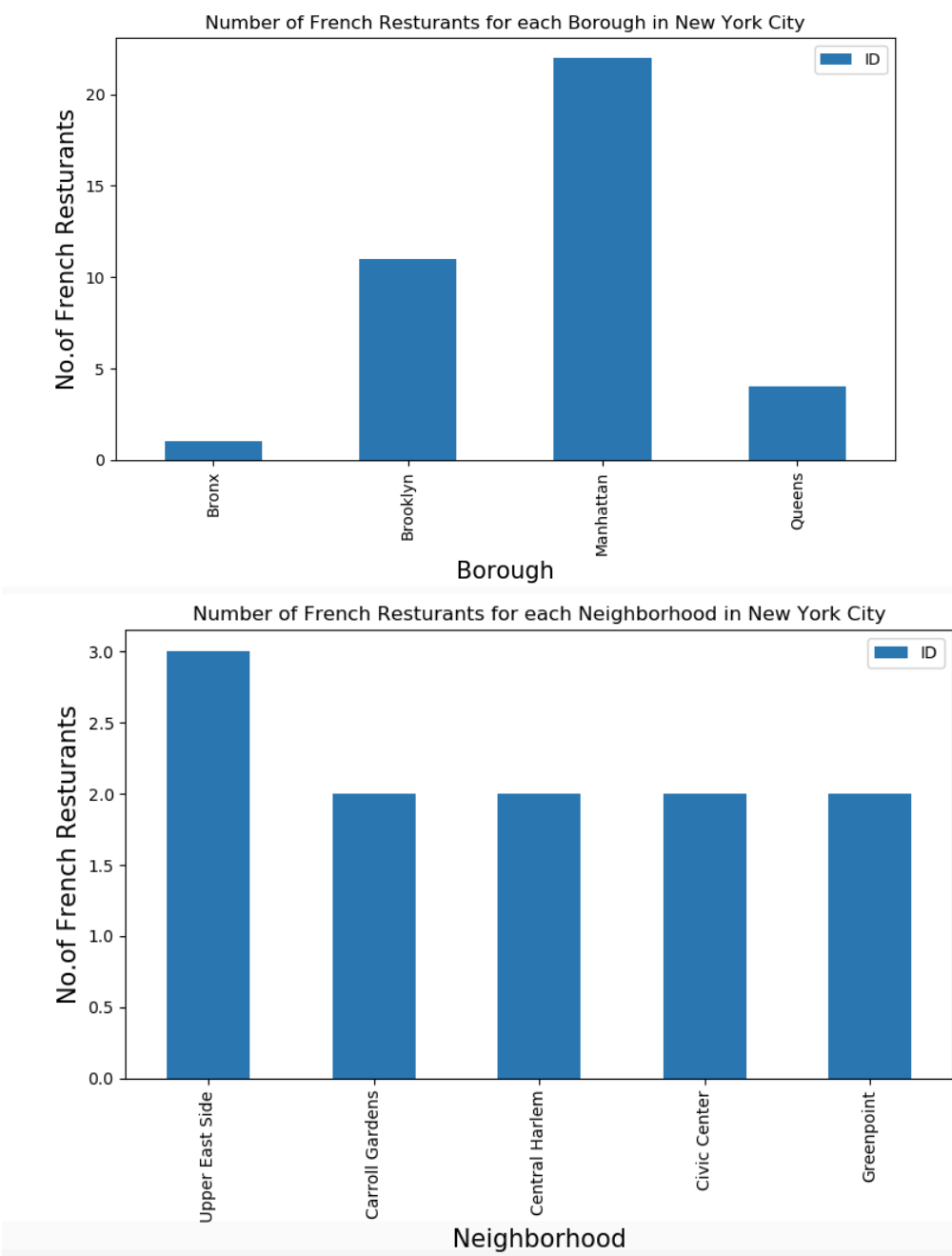
4. Conclusion:

4.1. Results

First, we can see that Queens is the borough with the highest number of neighbourhoods.

But most French restaurants are located in Manhattan, despite having the least number of neighbourhoods in all five boroughs, especially in the Upper East Side. Manhattan and Brooklyn have the best rated French restaurants on average. Queens and The Bronx have the least number of French restaurants per neighbourhood.

Number of French Resturants for each Borough in New York City

Number of French Resturants for each Neighborhood in New York City

We can also see that most restaurants are also highly rated, with more than 50% of all French restaurants with a rating higher than 8.2.

More specifically, the highest average rating for French restaurant are located in East Harlem, and more broadly in Manhattan.

[20]:

	Likes	Rating	Tips
count	38.000000	38.000000	38.000000
mean	187.342105	8.073684	64.473684
std	317.882800	1.464846	92.017547
min	0.000000	0.000000	0.000000
25%	17.250000	7.900000	10.250000
50%	101.500000	8.200000	34.500000
75%	221.000000	8.600000	77.250000
max	1851.000000	9.300000	519.000000

	Neighborhood	Average Rating
10	East Harlem	9.3
27	West Village	9.2
23	Soho	9.2
17	Little Italy	9.2
21	Noho	9.1
13	Greenwich Village	8.9
22	North Side	8.8
18	Lower East Side	8.7
14	Hunters Point	8.5
8	Cobble Hill	8.4

Average rating of French Resturants for each Neighborhood
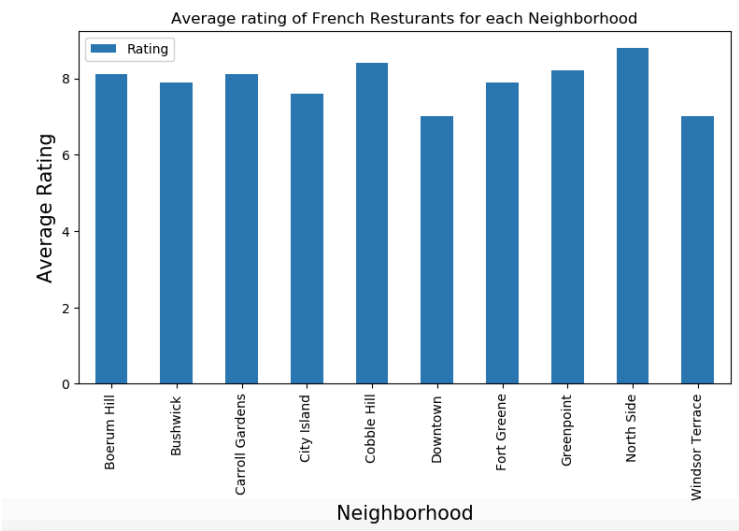
	Borough	Average Rating
2	Manhattan	8.545455
1	Brooklyn	7.972727
0	Bronx	7.600000
3	Queens	5.875000

Average rating of French Resturants for each Borough
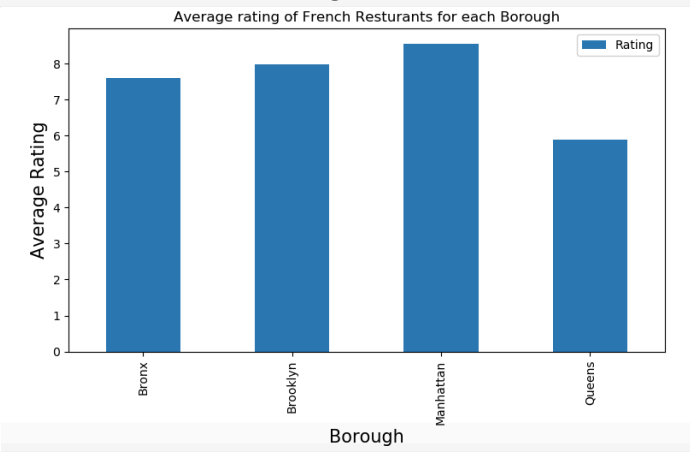
Here is the map with the best neighbourhoods in New York that has highest average rating for French Restaurants.
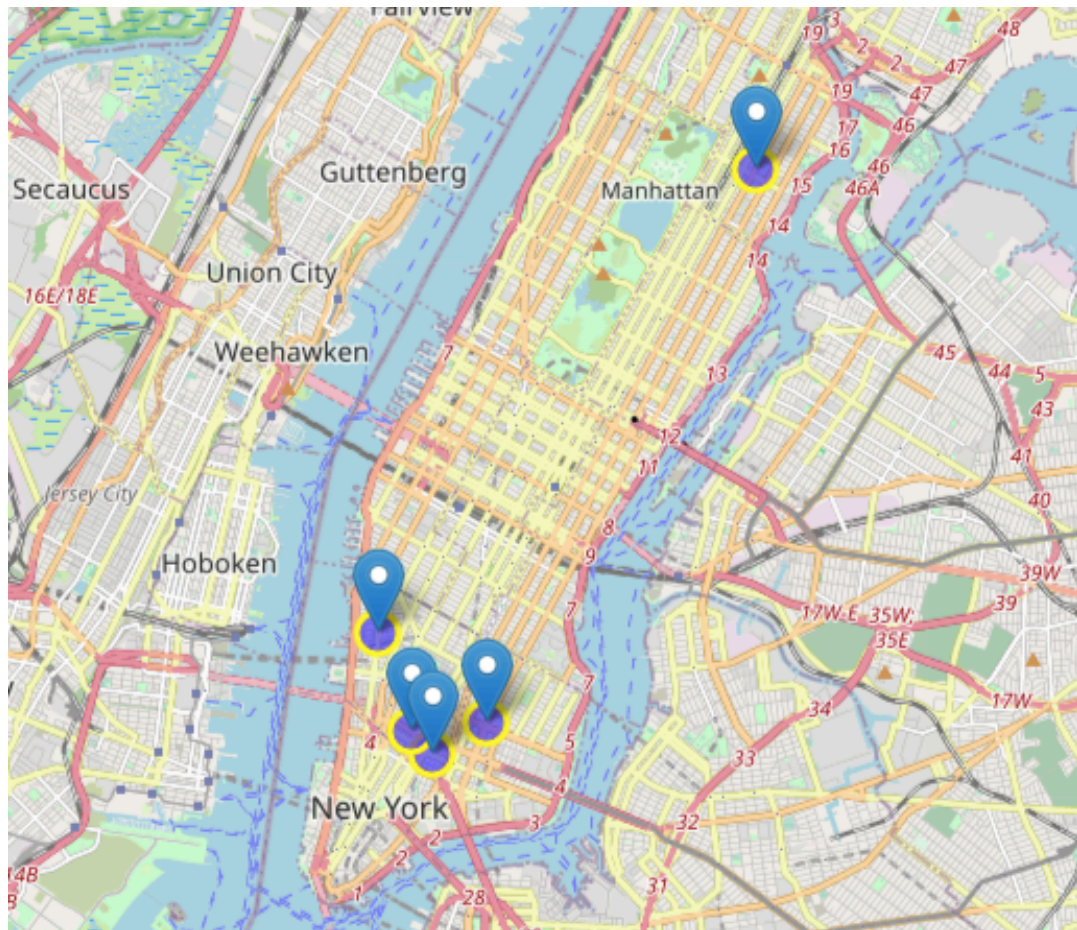
Finally, here is the final Borough Choropleth map based on average rating of French Restaurants.
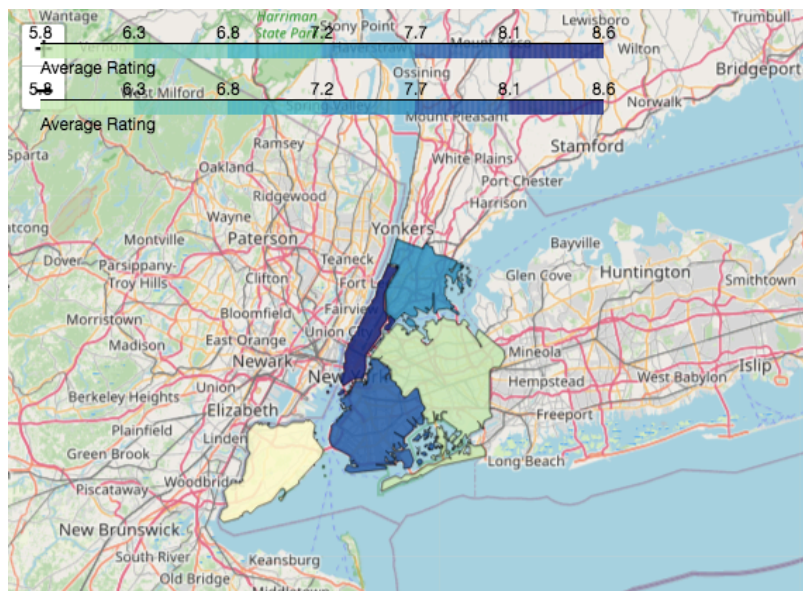
4.2.Recommendations

Based on this information, I would state that Manhattan and Brooklyn are the best locations for French cuisine in NYC. To have the best shot at success, I would open a French restaurant in Brooklyn, because it has multiple neighbourhoods with average ratings exceeding 8.0 of a scale of 1.0 to 10.0 and it doesn't have a high number of French restaurants, making competition easier than in other boroughs. Also, Queens has the lowest average ratings of French restaurants, so it can be good to look into opening a restaurant there, since competition will be bad.
If you just want to have the best French Cuisine, you should go to Buvette or Mountain Bird, or just stay in Manhattan, especially in East Harlem or the West Village.

4.3. Limitation

All of the above analysis is dependent of the accuracy of Foursquare data. I also think that they are not enough French restaurants in New York for the analysis to be very insightful. It could be food to use other location data source, such as Google Place API. Moreover, the whole analysis is based solely on ratings, which may not be the best predicator. A more comprehensive analysis and future work would need to incorporate data from other external databases.

4.4. Final conclusion

To conclude, this project has shown me how to answer a business problem analytically. We can say that Brooklyn is the best location for a new French restaurant, but it is better to stay in Manhattan to enjoy great French Cuisine. This project offers a great way to understand the many data provided by Foursquare. It can be easily applicable to different kind of problem, and does not limit itself to French restaurants. It can be a great tool for every kind of venue. Hopefully, venues will reopen soon, once the pandemic is over, so I will be able to use it on new and different datasets, to answer new business problem that could interest me.