

IBM Data Science Professional Certificate



**Capstone Project – coursera
The Battle of Neighborhoods**

PREDICTING THE BEST LOCATION TO OPEN AN ITALIAN RESTAURANT IN NEW YORK

By Mohamed Ali JENAYEH



What is the best location to Open Italian Restaurant in New York ?

Data Science Project

INTRODUCION

Thousands of people dream of starting and owning a successful restaurant. The key word, of course, is "successful."

In this Project we are going to use Data Science skills to find the best location in York to Open an Italian Restaurants

Description of the problem and a discussion of the background

In almost every case the path to entrepreneurial success starts with choosing the right location for their new restaurant. Clearly that's not easy, though, since every year thousands of restaurants fail. In this case study we will help investors, entrepreneur and business owners choose the best location to open an Italian Restaurant in New York. We will use Data Science methodology to analyze and visualize Data to find the best successful location and answer the question: Which neighborhoods are best to open an Italian Restaurant in New York?

Description of the data and how it will be used to solve the problem

What we will need to resolve this business Problem!

- New York City Data : neighborhoods, boroughs, latitude, longitude, restaurants
- Data source: https://cocl.us/new_york_data_set
- FourSquare API utilized via the Request library in Python.

Methodology



A

Data collection and cleaning from into a data frame

https://cocl.us/new_york_dataset



C

Data will be sorted based on rankings.



B

we will use Foursquare to locate all venues and we will filter Italian restaurants. By Ratings, tips, and likes by users will be counted and added to the data frame.



D

Data Visualization using graphing from Python libraries

Problem Statement



•What are the best locations for Eating Italian Food in New York City?

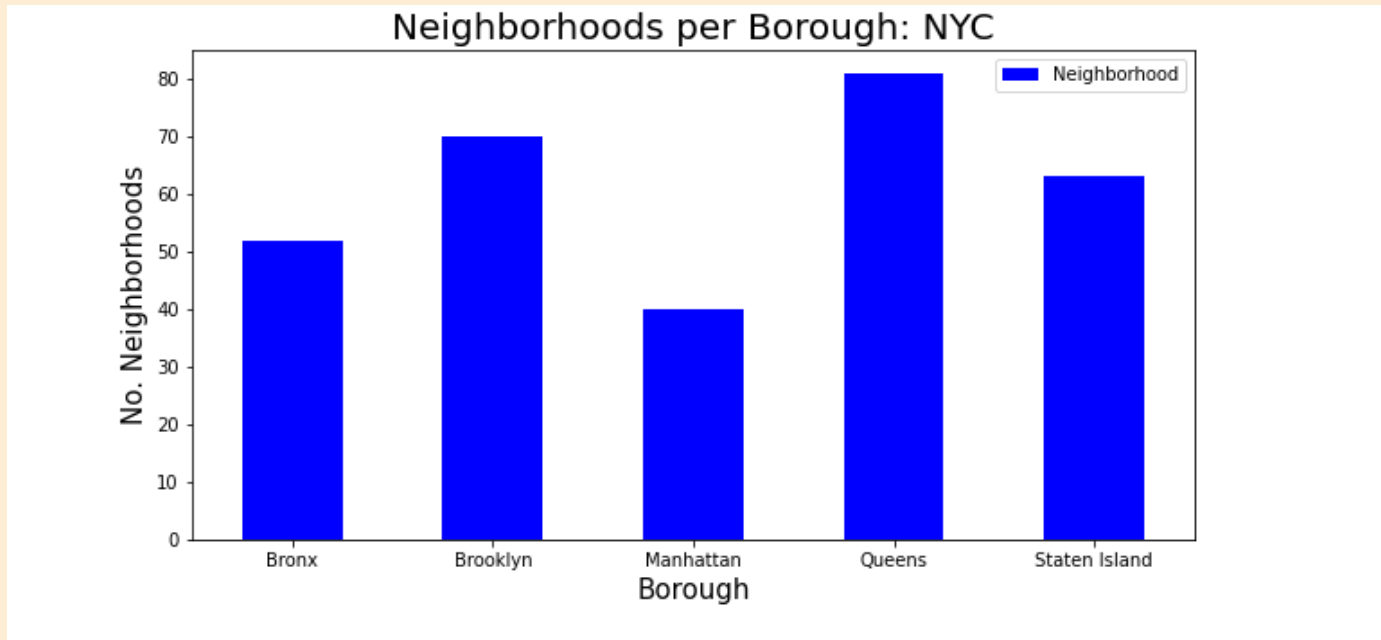


•What are the best Neighborhoods for investor to open an Italian restaurant?

•Where can Customers go in New York City to eat Best Italian foods?

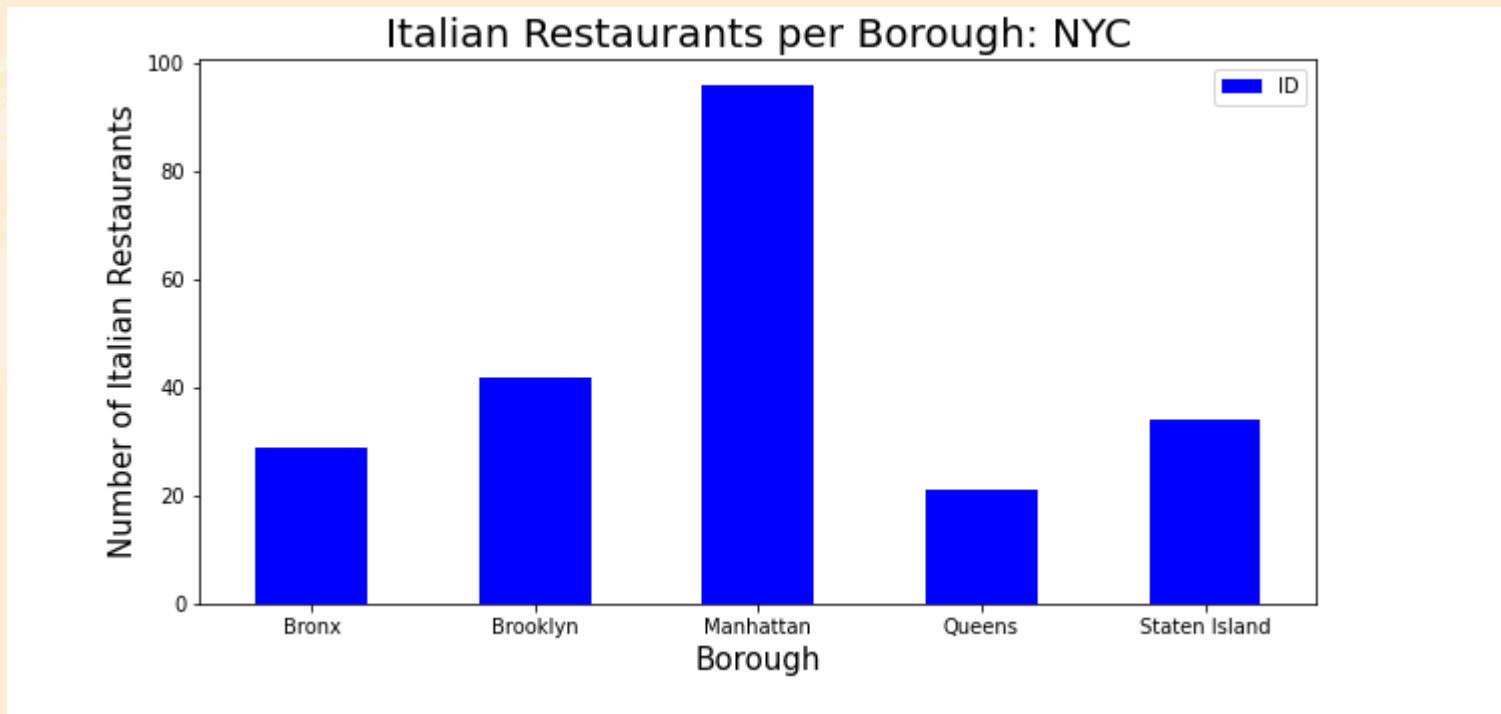
Analyzing Data

As we can see that Queens has the highest number of neighborhoods



ITALIAN RESTAURANT IN NEW YORK

- There are 222 Italian Restaurants In New York



- Manhattan has the highest number of Italian restaurants per Borough

The ranking, Likes, Tips of each restaurant

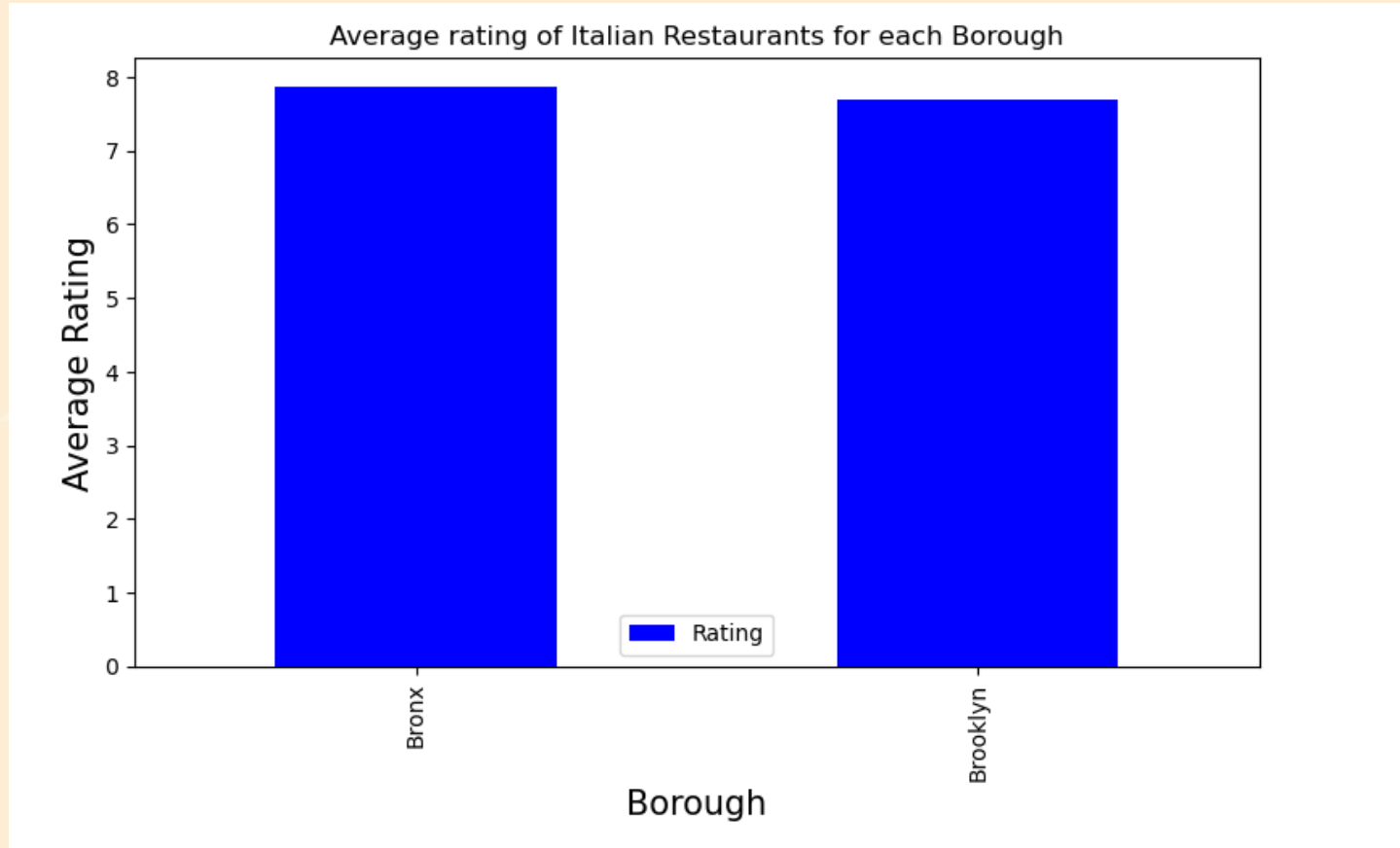
	Likes	Rating	Tips
count	50.000000	50.000000	50.000000
mean	38.220000	7.788000	17.600000
std	35.159282	0.803726	13.201731
min	3.000000	5.700000	1.000000
25%	12.000000	7.300000	6.250000
50%	26.000000	7.900000	14.000000
75%	50.500000	8.200000	26.750000
max	147.000000	9.300000	48.000000

Now let's identify and visualize neighborhood with the maximum average rating of restaurants

- The highest rate is in Bushwick 9.3
- The second highest rate is 9.0 in Bedford Stuyvesant
- Woodlawn has the third highest rate of 8.6

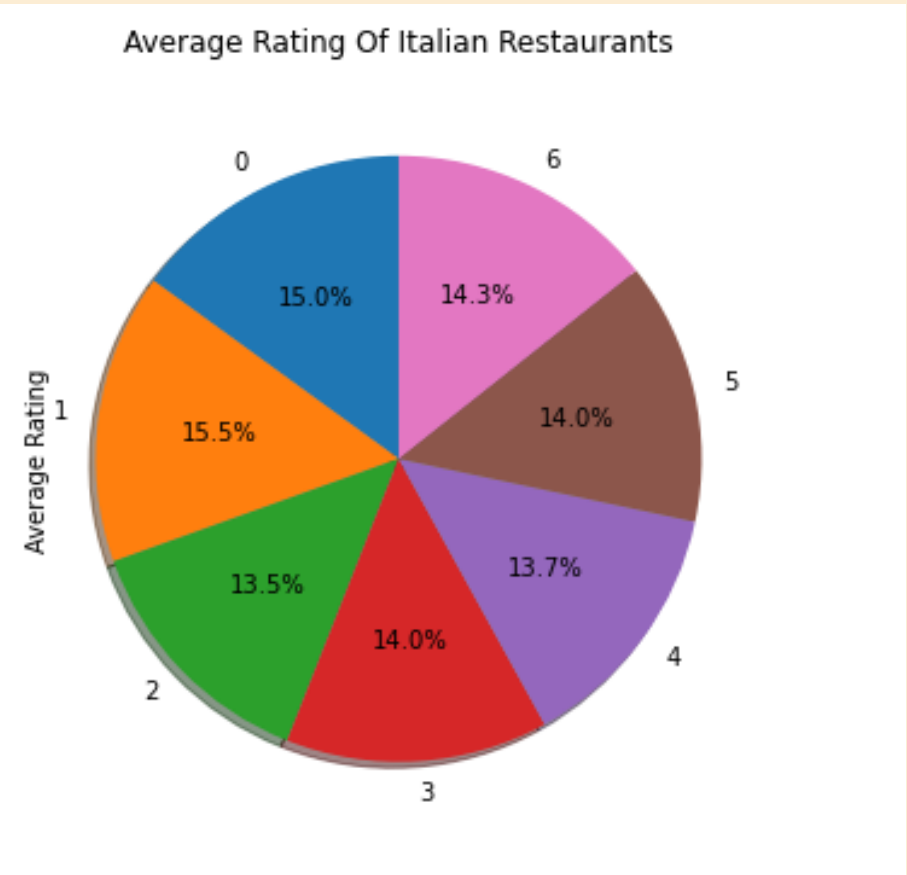
	Neighborhood	Average Rating
5	Bushwick	9.300000
2	Bedford Stuyvesant	9.000000
19	Woodlawn	8.600000
16	Pelham Gardens	8.400000
8	Cobble Hill	8.400000
13	Morris Park	8.200000
7	City Island	8.100000
3	Belmont	7.982353
11	Gravesend	7.900000
4	Bensonhurst	7.650000

Let's visualize the results Average of Italian Restaurants for each Borough



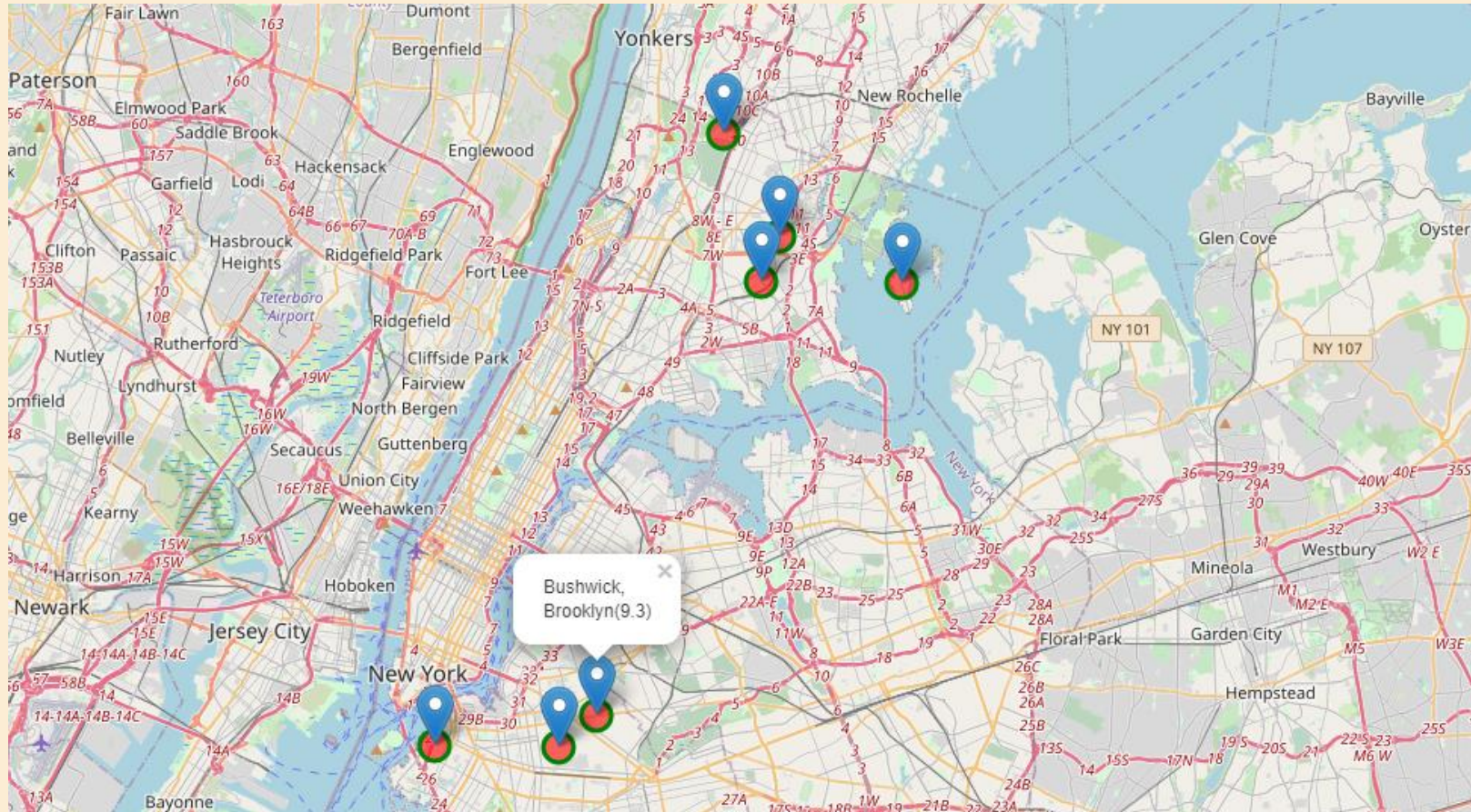
As we can see that **Bronx** and **Brooklyn** has the best rating per average of Italian restaurants for each Borough

I joined the Dataset to original New York data to get longitude and latitude



	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Brooklyn	Bedford Stuyvesant	40.687232	-73.941785	9.0
1	Brooklyn	Bushwick	40.698116	-73.925258	9.3
2	Bronx	City Island	40.847247	-73.786488	8.1
3	Brooklyn	Cobble Hill	40.687920	-73.998561	8.4
4	Bronx	Morris Park	40.847549	-73.850402	8.2
5	Bronx	Pelham Gardens	40.862966	-73.841612	8.4
6	Bronx	Woodlawn	40.898273	-73.867315	8.6

Map shows that Bronx and Brooklyn are the best locations for Italian restaurants in New York



We can see on the map the best location to open Italian restaurant if we consider the rating of customers and number of like done by our study.



CONCLUSION

- In This **Data Science** case study, I found that **Bronx** and **Brooklyn** have the best rate for Italian restaurants on average.
- Using data Science and machine Learning tools gave us the best predictive model to help restaurant owners or new investor understand better the marketplace for the Business to succeed.
- For investors it will be best to open an Italian restaurant in **Bronx** or **Brooklyn** in **NEW YORK**.



THANK YOU!

Mohamed Ali