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BATTLE OF THE NEIGHBORHOODS:

**WHERE TO OPEN ITALIAN
RESTAURANT IN NEW YORK CITY**



INTRODUCTION:

This final project explores the best locations for opening an Italian Restaurant in New York City and its five major Boroughs. New York City has long been considered as one of the Food Capitals of the World and it is also the place, I call home for the last 11 years. NYC is a major metropolitan area with more than 8 million people living within city limits. It is one of the most diverse cities worldwide and considered a safe haven for immigrants.

This report explores which neighborhoods and boroughs in New York City have the most and the best Italian restaurants.

We will try to answer the questions:

- Where are the best places to open an Italian Restaurant? And
- Where should one go for a taste of the best Italian food in the city?"

DATA:

To answer those questions, we will use different datasets related to New York City neighborhoods as well FourSquare API data to obtain the required restaurant likes, ratings and tips.

The main data sources will be some URL open source data available to us like:

- https://cocl.us/new_york_dataset , which will give us data about New York City neighborhoods and boroughs and their latitudes, and longitudes.
- <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm> - This dataset contains neighborhood boundaries and other additional information related to the issues at hand.

as well as:

- FourSquare API requests that will be used to obtain categories, restaurant ratings, tips, likes etc.

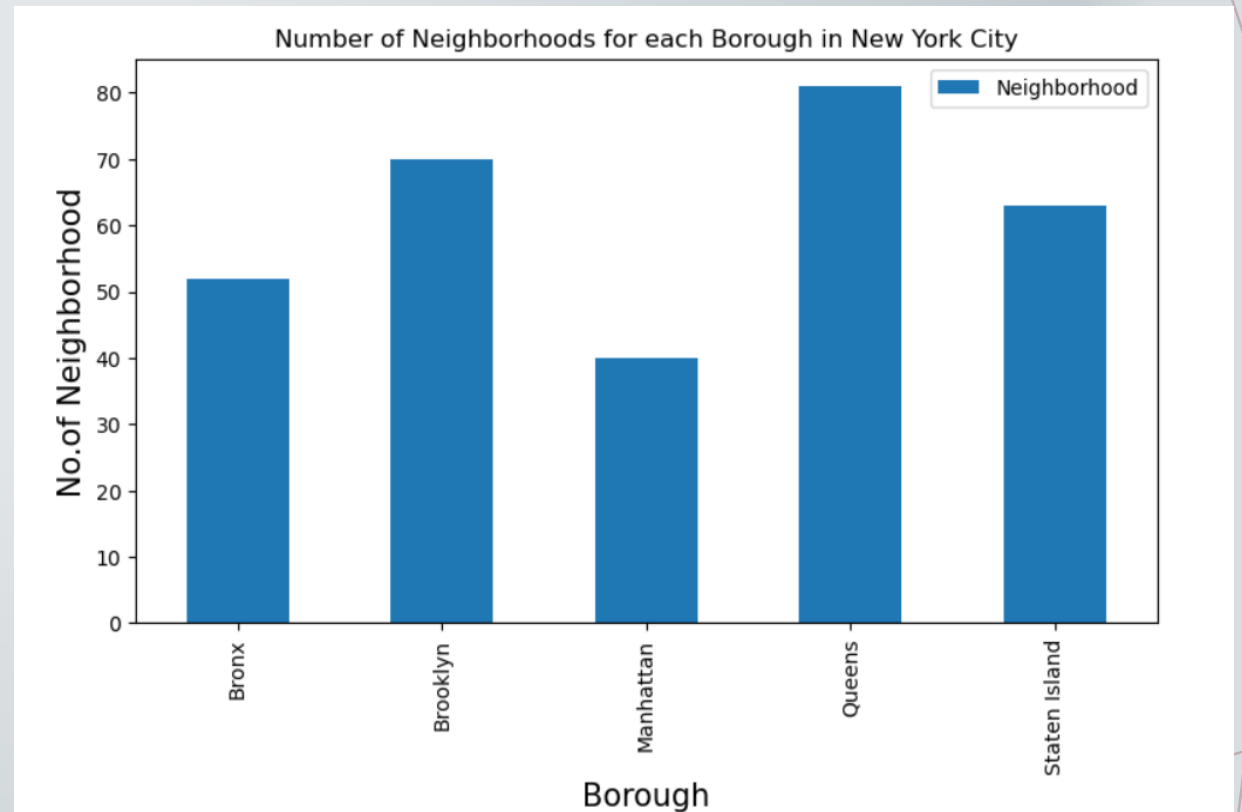
DATA ANALYSIS

NEIGHBORHOOD DATA:

Panda Dataframe of Neighborhood data –
Latitude and Longitude:

	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

Number of Neighborhoods in each Borough:



- UTILIZING THE FOURSQUARE API TO EXPLORE THE NEIGHBORHOODS AND SEGMENT THEM.

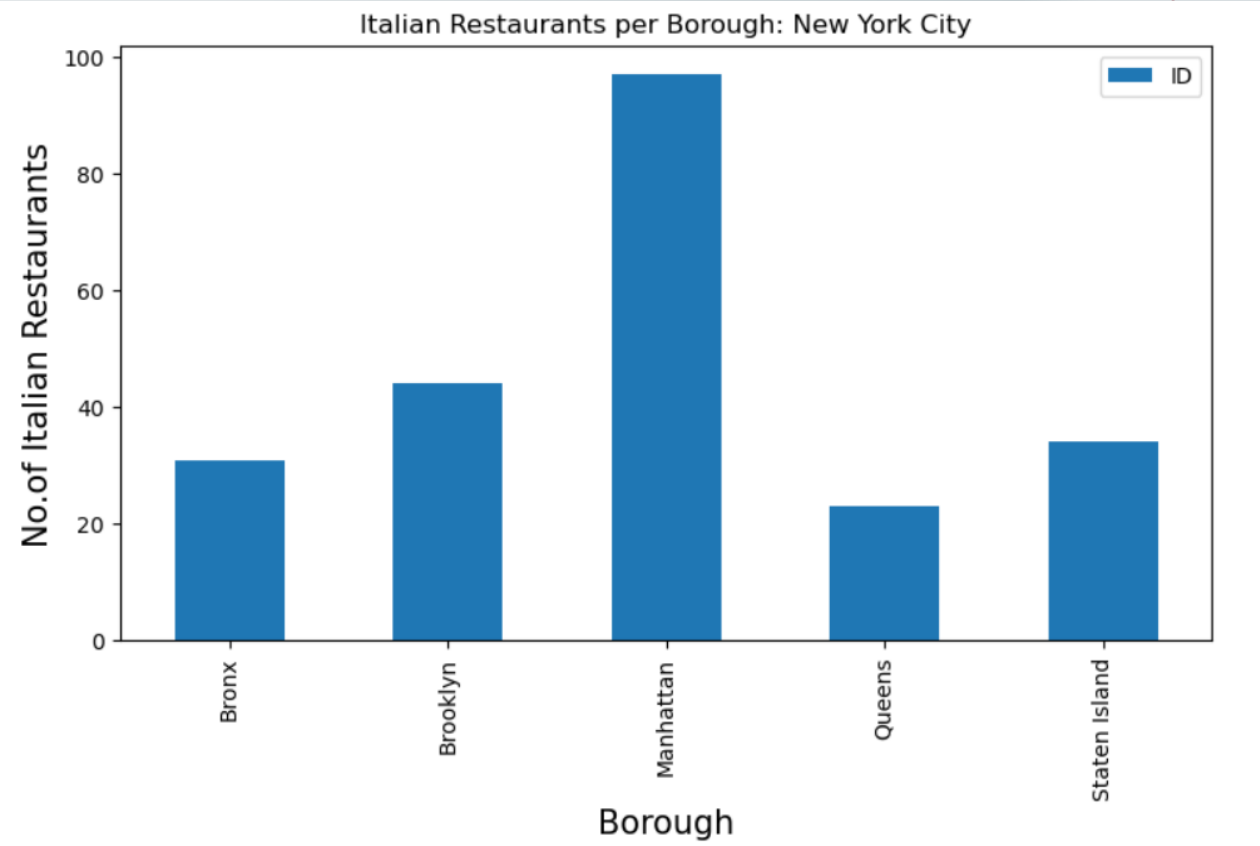
THIS REPORT WILL SHOW HOW MANY ITALIAN RESTAURANTS THERE ARE AND WHERE ARE THEY LOCATED IN THE CITY(WHICH NEIGHBORHOOD).

From the table we can see that there are 229 Italian Restaurants in New York City

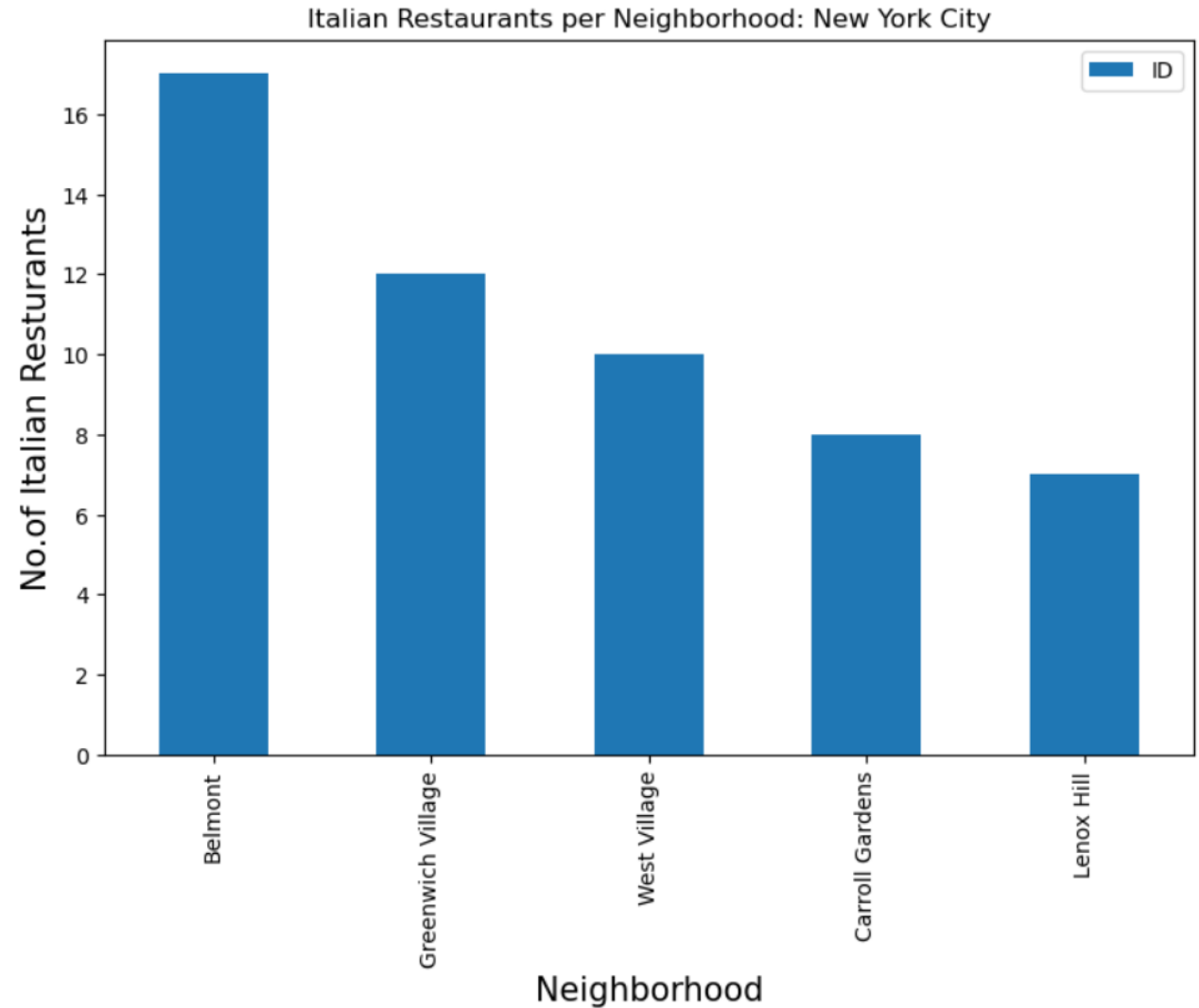
	Unnamed: 0	Borough	Neighborhood	ID	Name
224	224	Manhattan	Flatiron	4b741ab4f964a5202cc82de3	Novità Cucina Creativa
225	225	Brooklyn	Fulton Ferry	593c0d2262420b7feccc3048	Cecconi's
226	226	Brooklyn	Dumbo	593c0d2262420b7feccc3048	Cecconi's
227	227	Staten Island	Prince's Bay	4c091311a1b32d7f5efb96f0	Certo's Gourmet Foods & Caterers
228	228	Staten Island	Lighthouse Hill	5079ccdc4b065f1dd8155ad	Casa verde

Using [matplotlib](#) to visualize where exactly are they situated by Borough and Neighborhood:

Manhattan has the most Italian Restaurants even though it the Borough with the least number of Neighborhoods. That means that the concentration of Italian Restaurants in Manhattan is much higher that any other Neighborhood.



THE TOP 3 NEIGHBORHOODS WITH THE BIGGEST CONCENTRATION OF ITALIAN RESTAURANTS ARE BELMONT, GREENWICH VILLAGE AND WEST VILLAGE WHICH ARE IN THE BOROUGH OF THE BRONX AND MANHATTAN. FROM THEM GREENWICH VILLAGE AND WEST VILLAGE ARE LOCATED IN AN AREA OF THE CITY THAT IS POPULAR WITH BOTH TOURISTS AND LOCALS ALIKE WITH GREENWICH VILLAGE HAVING THE MOST RESTAURANTS.



	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
219	Manhattan	Turtle Bay	4acfb632f964a52076d520e3	Ristorante Grifone	15.0	7.1	6.0
220	Manhattan	Flatiron	5cc3adaa838e59002cb4629d	Rezdôra	86.0	8.8	22.0
221	Manhattan	Flatiron	4e72a19945dd1ac617629a71	Il Pesce	125.0	8.6	49.0
222	Manhattan	Flatiron	3fd66200f964a520bce51ee3	Basta Pasta	435.0	8.4	149.0
223	Manhattan	Flatiron	53370455498e18d7e6607a1d	La Pizza & La Pasta	199.0	8.5	57.0
224	Manhattan	Flatiron	4b741ab4f964a5202cc82de3	Novità Cucina Creativa	110.0	8.7	40.0
225	Brooklyn	Fulton Ferry	593c0d2262420b7feccc3048	Cecconi's	339.0	8.8	73.0
226	Brooklyn	Dumbo	593c0d2262420b7feccc3048	Cecconi's	339.0	8.8	73.0
227	Staten Island	Prince's Bay	0	0	0.0	0.0	0.0
228	Staten Island	Lighthouse Hill	5079ccdce4b065f1dd8155ad	Casa verde	8.0	7.8	3.0

THE TABLE ABOVE SHOWS THE RANKING OF EACH RESTAURANT. I SET THE FOURSQUARE API **CATEGORY TO ITALIAN RESTAURANTS** AND EXTRACTED THE **VENUE_DETAILS(ID)** OF **LIKES, RATING AND TIPS** FOR EACH **ID**. WE CAN SEE THAT THERE IS A CORRELATION BETWEEN THE NUMBER OF LIKES AND THE RATING – THE RESTAURANTS WITH MORE LIKES ALSO HAVE HIGHER RATING. IN REGARDS OF THAT INFORMATION I DECIDED CONTINUING AHEAD TO CONCENTRATE SOLELY ON THE RATINGS.

- Now that we have that information let's see which are the Boroughs and Neighborhoods with the highest Average Rating using the **.groupby** function:

	Borough	Average Rating
2	Manhattan	8.312371
1	Brooklyn	7.445455
0	Bronx	7.377419
3	Queens	6.569565
4	Staten Island	4.661765

	Neighborhood	Average Rating
13	Bushwick	9.200
11	Boerum Hill	9.100
45	Hamilton Heights	9.100
87	Tribeca	9.100
8	Bedford Stuyvesant	9.000
36	Fort Greene	8.800
21	Clinton Hill	8.800
38	Fulton Ferry	8.800
28	Dumbo	8.800
44	Greenwich Village	8.725

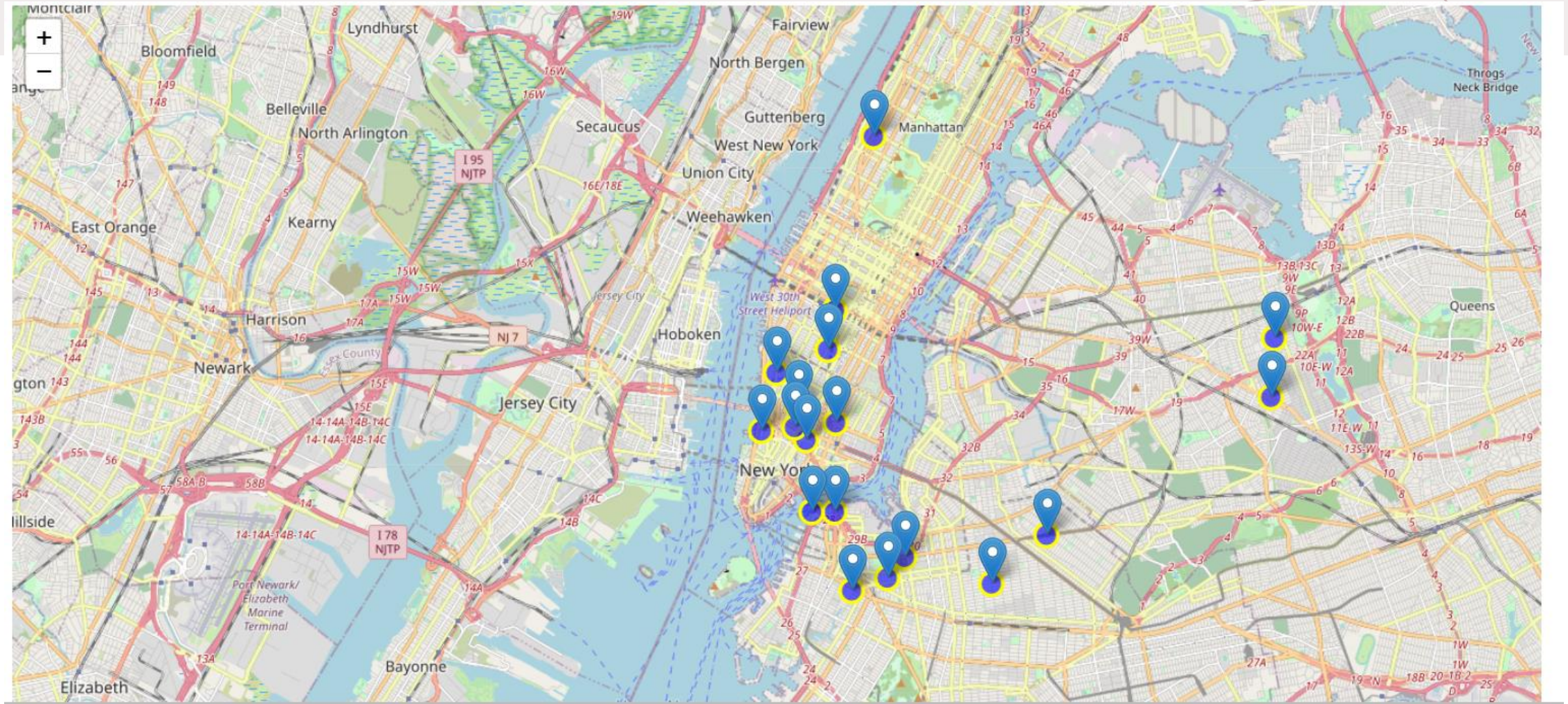
RESTAURANTS WITH AVERAGE RATING ≥ 8.5 :

THE BOROUGH WITH THE HIGHEST AVERAGE OF 9.1 RATING IS MANHATTAN. THE NEIGHBORHOODS OF TRIBECA (MANHATTAN), HAMILTON HEIGHTS (MANHATTAN) AND BUSHWICK (BROOKLYN) ARE SOME OF THE BEST NEIGHBORHOODS FOR ITALIAN CUISINE WITH AVERAGE RATING AND 9.2.

	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Brooklyn	Bedford Stuyvesant	40.687232	-73.941785	9.000
1	Brooklyn	Boerum Hill	40.685683	-73.983748	9.100
2	Brooklyn	Bushwick	40.698116	-73.925258	9.200
3	Brooklyn	Clinton Hill	40.693229	-73.967843	8.800
4	Queens	Corona	40.742382	-73.856825	8.700
5	Brooklyn	Dumbo	40.703176	-73.988753	8.800
6	Manhattan	Flatiron	40.739673	-73.990947	8.580
7	Brooklyn	Fort Greene	40.688527	-73.972906	8.800
8	Brooklyn	Fulton Ferry	40.703281	-73.995508	8.800
9	Manhattan	Greenwich Village	40.726933	-73.999914	8.725
10	Manhattan	Hamilton Heights	40.823604	-73.949688	9.100
11	Manhattan	Little Italy	40.719324	-73.997305	8.600
12	Manhattan	Midtown South	40.748510	-73.988713	8.500
13	Bronx	Morris Park	40.847549	-73.850402	8.500
14	Bronx	Pelham Gardens	40.862966	-73.841612	8.600
15	Queens	Rego Park	40.728974	-73.857827	8.600
16	Manhattan	Soho	40.722184	-74.000657	8.725
17	Manhattan	Tribeca	40.721522	-74.010683	9.100
18	Manhattan	Upper West Side	40.787658	-73.977059	8.650
19	Manhattan	Washington Heights	40.851903	-73.936900	8.500

Italian Restaurants with Average Rating higher than 8.5

Folium Map:



RESULTS / CONCLUSION:

HERE ARE THE CONCLUSIONS THAT I MANAGE TO EXTRAPOLATE AFTER REVIEWING THE PROBLEM AND ANALYZING THE DATA:

- MANHATTAN AND BROOKLYN HAVE THE BEST RATED ITALIAN RESTAURANTS ON AVERAGE.
- TRIBECA (MANHATTAN), HAMILTON HEIGHTS (MANHATTAN) AND BUSHWICK (BROOKLYN) ARE SOME OF THE BEST NEIGHBORHOODS FOR ITALIAN CUISINE WITH AVERAGE RATING OF 9.1 AND 9.2. HOWEVER, FROM THOSE 3 ONLY TRIBECA IS LOCATED IN AN AREA OF THE CITY THAT IS POPULAR WITH BOTH TOURISTS AND LOCALS ALIKE THE OTHER TWO NEIGHBORHOODS ARE MOSTLY RESIDENTIAL.
- MANHATTAN IS ALSO THE NEIGHBORHOOD WITH THE BIGGEST CONCENTRATION OF ITALIAN RESTAURANTS AND HAVE BOOMING ITALIAN CUISINE MARKET
- IN CONCLUSION TRIBECA (MANHATTAN) IS THE BEST PLACE TO OPEN ITALIAN RESTAURANT.
- IF WE ARE JUST LOOKING FOR A SPOT TO ENJOY GOOD ITALIAN FOOD, WE SHOULD DEFINITELY CHECK OUT AND THE NEIGHBORHOODS OF HAMILTON HEIGHTS, BUSHWICK AND IF MY PERSONAL FAVORITE GREENWICH VILLAGE ALL WITH AVERAGE RATING OVER 8.5