

Neighborhoods in New York City with Restaurants Nearby

Background:

New York City rank number 1 populous city in the United States, most visited tourist city, has many districts and landmarks are well known. It has 5 boroughs: The Bronx, Brooklyn, Manhattan, Queens and Staten Island. New York City has plenty of neighborhoods: 306 neighborhoods. Planning to move to New York City is exciting and challenging at the same time due to its many of neighborhoods.

Problem:

This project is to determine which neighborhood has plenty of restaurants nearby.

Target Audience:

For those who is looking for neighborhood that has plenty of restaurants nearby.

Data Source:

New York City boroughs, neighborhoodhhoods, longtitude and latitude data from https://cocl.us/new_york_dataset. Below showed the sample of the Boroughs, Neighborhoods, longtitude and latitude.

	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

The venue data specifically restaurants are drawn from Four Square API with its longitude and latitude with radius of 500 as shown below.

----Allerton----

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venue freq
0 Chinese Restaurant 0.50
1 Fast Food Restaurant 0.25
2 Spanish Restaurant 0.25
3 Afghan Restaurant 0.00
4 Scandinavian Restaurant 0.00

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----Annadale----

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venue freq
0 Restaurant 1.0
1 Afghan Restaurant 0.0
2 Scandinavian Restaurant 0.0
3 Romanian Restaurant 0.0
4 Ramen Restaurant 0.0

```

----Arlington----

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venue freq
0 Caribbean Restaurant 0.5
1 American Restaurant 0.5
2 North Indian Restaurant 0.0
3 Russian Restaurant 0.0
4 Romanian Restaurant 0.0

```

Clustering:

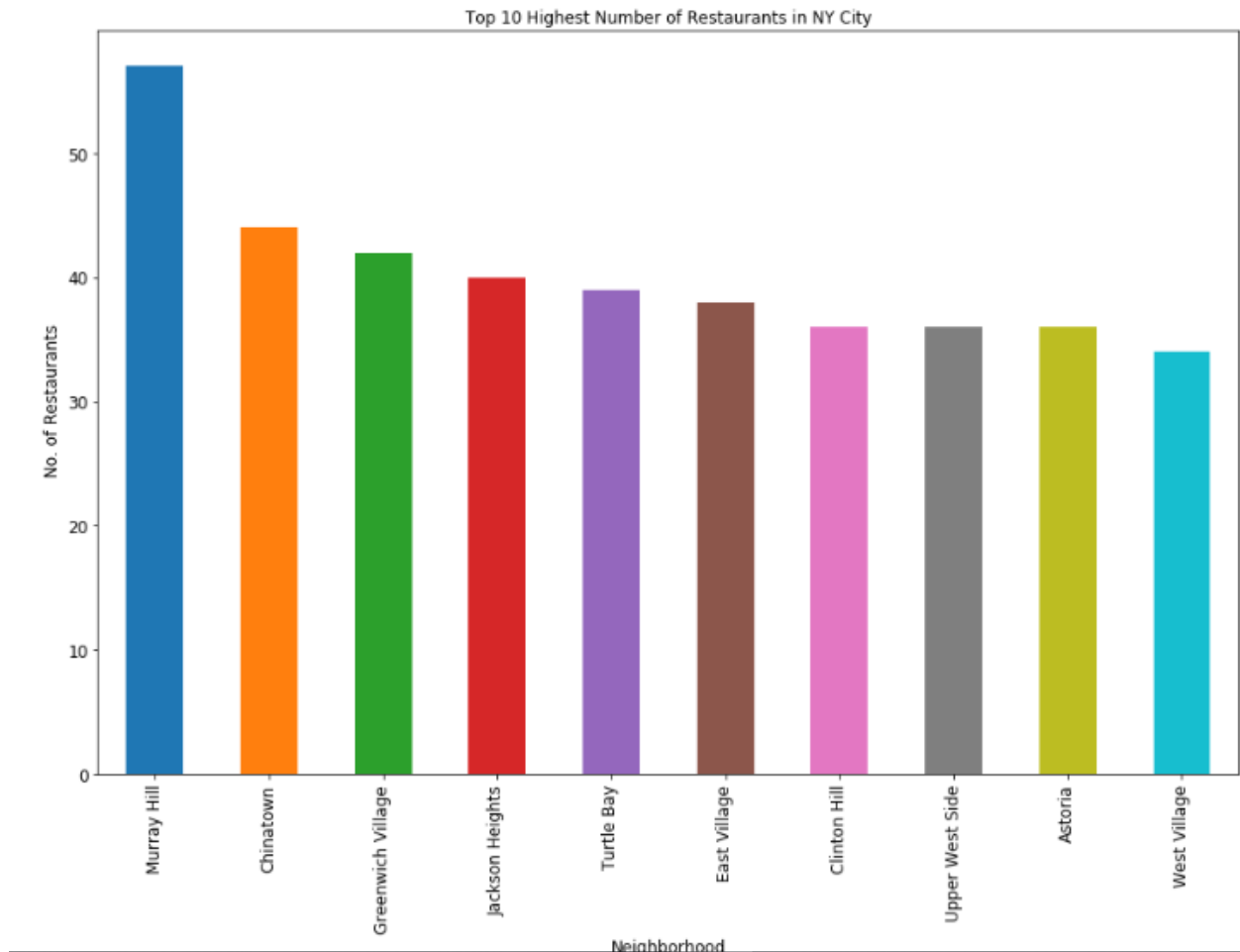
Using K-means method, it clusters the neighborhoods in to 20 clusters. Notice some of the cluster has a value of 0 which mean that the neighborhood is cluster to a single neighborhood.

	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	Afghan Restaurant	African Restaurant	American Restaurant	Arepa Restaurant	Argentinian Restaurant	Asian Restaurant	Australian Restaurant
0	Bronx	Wakefield	40.894705	-73.847201	2.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1	Bronx	Co-op City	40.874294	-73.829939	1.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	Bronx	Eastchester	40.887556	-73.827806	2.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
5	Bronx	Kingsbridge	40.881687	-73.902818	0.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
6	Manhattan	Marble Hill	40.876551	-73.910660	6.0	0.000000	0.000000	0.500000	0.000000	0.000000	0.000000	0.000000
7	Bronx	Woodlawn	40.898273	-73.867315	3.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
8	Bronx	Norwood	40.877224	-73.879391	0.0	0.000000	0.000000	0.142857	0.000000	0.000000	0.000000	0.000000
9	Bronx	Williamsbridge	40.881039	-73.857446	2.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10	Bronx	Baychester	40.866858	-73.835798	0.0	0.000000	0.000000	0.250000	0.000000	0.000000	0.000000	0.000000
11	Bronx	Pelham Parkway	40.857413	-73.854756	3.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
12	Bronx	City Island	40.847247	-73.786488	6.0	0.000000	0.000000	0.166667	0.000000	0.000000	0.000000	0.000000
13	Bronx	Bedford Park	40.870185	-73.885512	4.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
14	Bronx	University Heights	40.855727	-73.910416	4.0	0.000000	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000

Results:

Murray Hill neighborhood has highest restaurant concentration of nearby restaurants.

	Venue Category
Neighborhood	
Murray Hill	57
Chinatown	44
Greenwich Village	42
Jackson Heights	40
Turtle Bay	39
East Village	38
Clinton Hill	36
Upper West Side	36
Astoria	36
West Village	34



Discussion:

Murray Hill neighborhood is standout like sore thumb from the rest of neighborhoods such as Chinatown, Greenwich village, etc. The rest of top 10 neighborhoods have almost the same restaurant concentration.

Conclusion:

Murray Hill neighborhood is number one recommendation for this category. Murray Hill is located in Manhattan borough which also the most dense borough in the New York City. The Empire State, Times Square and Broadway are located in Manhattan borough too.