

Where in NYC do you want to eat?



Bronx



Queens



Manhattan



Brooklyn



Staten Island

Introduction

- Background
 - People who want to come to New York City always ask the same question. What neighborhood is best to eat in New York City?
- Problem
 - New York City attracts all kinds of people all over the world and they all have the same thing in common, they do not know the venues around the neighborhood of New York City.
- Interest
 - I used to live in New York City but I do not know all the neighborhoods and what kind of venues it entails.

Goal

This capstone project is to help people find places to eat in any neighborhood in New York City.

Which will then help them to decide which neighborhood to stay depending on the surrounding venues.

Data

- Using data from the link:

https://geo.nyu.edu/catalog/nyu_2451_34572

- Foursquare API
 - to explore neighborhoods in New York City



I will use the *k*-means clustering algorithm to complete this task and the Folium library to visualize the neighborhoods in New York City and their emerging clusters

Report

- opened the json file of the date and transform it into a pandas dataframe
- called the Foursquare API to start preparing to get the dataset of venues in New York City's neighborhood
- count to see how many venues in each neighborhood
- find the most common venues and limit that to the top 10 venues for each neighborhood
- ran k-mean to cluster 5 neighborhoods
- geolocator to get New York City's latitude and longitude, then create a map of New York City with different color markers

Result

- The data from New York University catalog that we used to get New York City's boroughs, neighborhoods, latitude, and longitude showed that we have 5 boroughs and 306 neighborhoods.
- The data from Foursquare shows all the venues in each neighborhoods, which yield many results that I had to only limit it to the top 10 venues for each neighborhoods and created 5 clusters of the neighborhoods.
- The latitude and longitude of New York City is 40.7127281, -74.0060152.
- The map of New York City shows the 5 markers with different color to identify the different cluster. The colors are: Red = Cluster 1 (cluster 0 on map), Purple = Cluster 2 (cluster 1 on map), Blue = Cluster 3 (cluster 2 on map), Green = Cluster 4 (cluster 3 on map), Orange = Cluster 5 (cluster 4 on map).

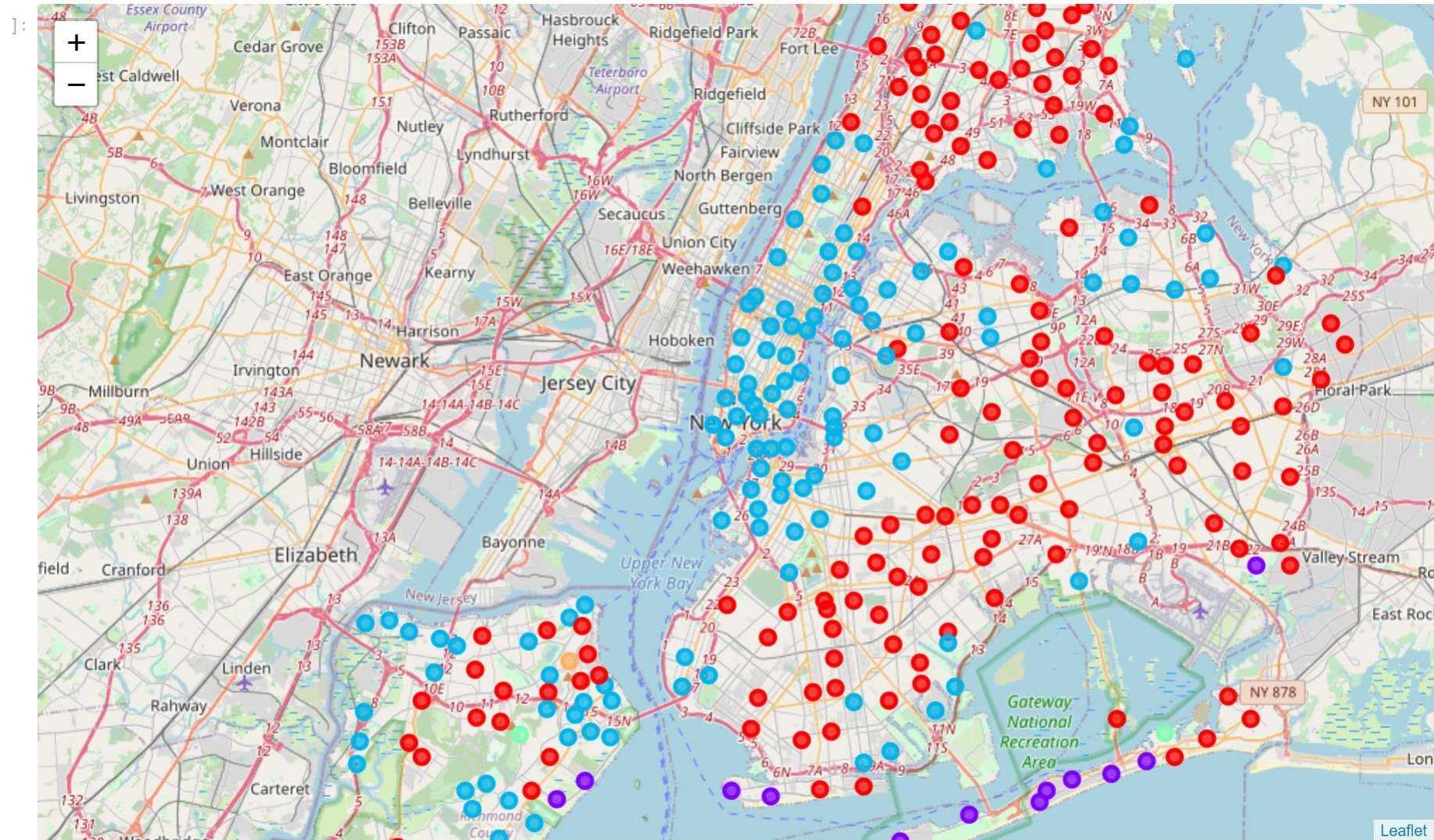
Sample count of Venues in each Neighborhood

	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Neighborhood						
Allerton	29	29	29	29	29	29
Annadale	9	9	9	9	9	9
Arden Heights	5	5	5	5	5	5
Arlington	5	5	5	5	5	5
Arrochar	23	23	23	23	23	23
Arverne	20	20	20	20	20	20
Astoria	100	100	100	100	100	100
Astoria Heights	13	13	13	13	13	13
Auburndale	20	20	20	20	20	20
Bath Beach	49	49	49	49	49	49
Battery Park City	69	69	69	69	69	69
Bay Ridge	83	83	83	83	83	83
Bay Terrace	51	51	51	51	51	51
Baychester	19	19	19	19	19	19
Bayside	78	78	78	78	78	78
Bayswater	2	2	2	2	2	2
Bedford Park	36	36	36	36	36	36
Bedford Stuyvesant	29	29	29	29	29	29
Beechhurst	17	17	17	17	17	17

Sample of top 10 venues

Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
Wakefield	40.894705	-73.847201	0	Pharmacy	Donut Shop	Gas Station	Laundromat	Ice Cream Shop	Sandwich Place	Dessert Shop	Deli / Bodega	Factory	Falafel Restaurant
Co-op City	40.874294	-73.829939	0	Bus Station	Baseball Field	Pizza Place	Supermarket	Fast Food Restaurant	Grocery Store	Park	Basketball Court	Bagel Shop	Pharmacy
Eastchester	40.887556	-73.827806	0	Caribbean Restaurant	Deli / Bodega	Diner	Bus Station	Automotive Shop	Bowling Alley	Bakery	Chinese Restaurant	Pizza Place	Convenience Store
Fieldston	40.895437	-73.905643	0	Plaza	Music Venue	River	Bus Station	Fish & Chips Shop	Eye Doctor	Factory	Falafel Restaurant	Farm	Farmers Market
Riverdale	40.890834	-73.912585	0	Park	Baseball Field	Bank	Bus Station	Gym	Home Service	Plaza	Film Studio	Eye Doctor	Factory

Map of New York City



Observation

- From the data, it shows that New York City has many neighborhoods that are enriched with many different venues.
- In the map, cluster 1 (cluster 0,), cluster 2 (cluster 1,) and cluster 3 (cluster 2,) has the most venues in their area.

Recommendation

If you are visiting New York City or moving to different neighborhood, the best borough to stay that have a lot of venues are within Manhattan and Brooklyn.



There you cannot go wrong in finding any venues that suit your needs since the neighborhoods in those two boroughs have the most venues which you will find something that satisfy you.

Conclusion

New York City is a very diverse place full of culture and food. Every neighborhoods are full of different restaurants, cafes, bars, etc for you to choose from and they are open early to accommodate early birds and close at a much later time to accommodate those who work graveyard shift or for those who are just coming out of the clubs or bars.

So no matter what neighborhood you are in at anytime of day or night, there will always be venue that is open to accept you when you are hungry.

Notebook

To see the full results with codes, please go to my github repository, the link is:

[https://github.com/SokobLC/Coursera_Capstone/blob/master/The%20Battle%20of%20Neighborhoods%20\(week%202\).ipynb](https://github.com/SokobLC/Coursera_Capstone/blob/master/The%20Battle%20of%20Neighborhoods%20(week%202).ipynb)

This conclude my presentation.

Thank you!