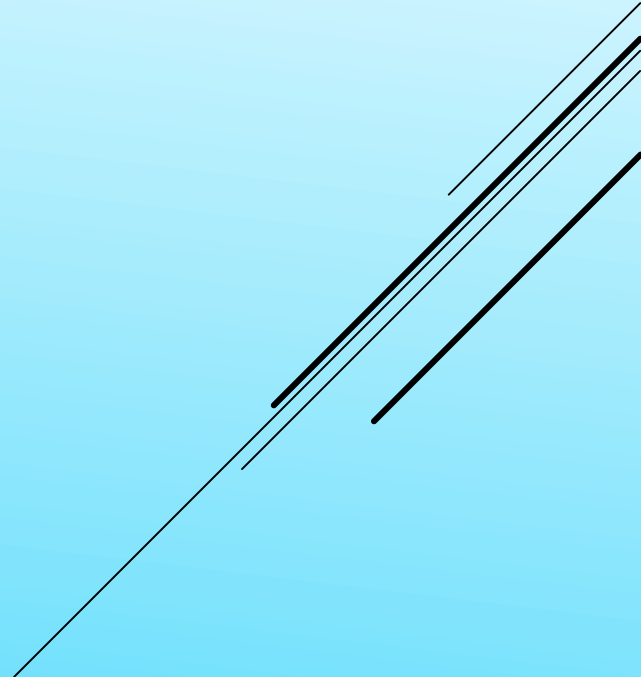


NEW RESTAURANT LOCATION IN BROOKLYN

Alisa Glaskin-Clay

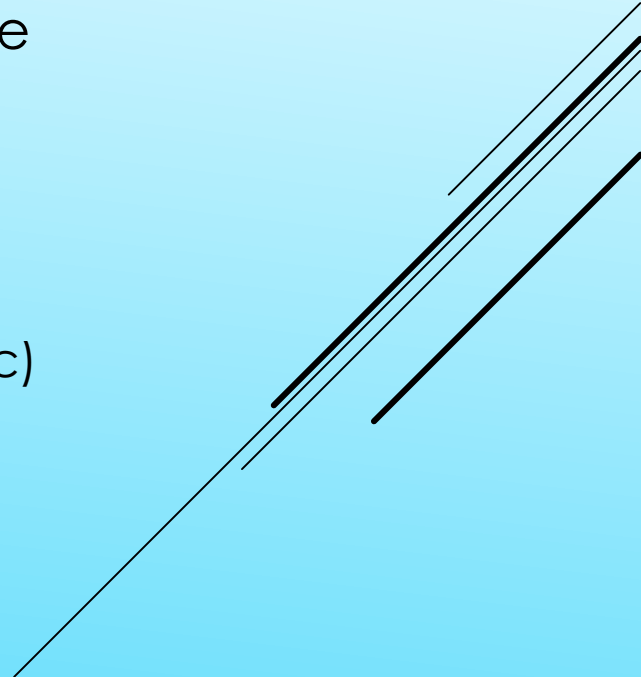


TABLE OF CONTENTS

- Introduction: Business Problem
 - Data
 - Methodology
 - Analysis
 - Results and Discussion
 - Conclusion
- 

INTRODUCTION: BUSINESS PROBLEM

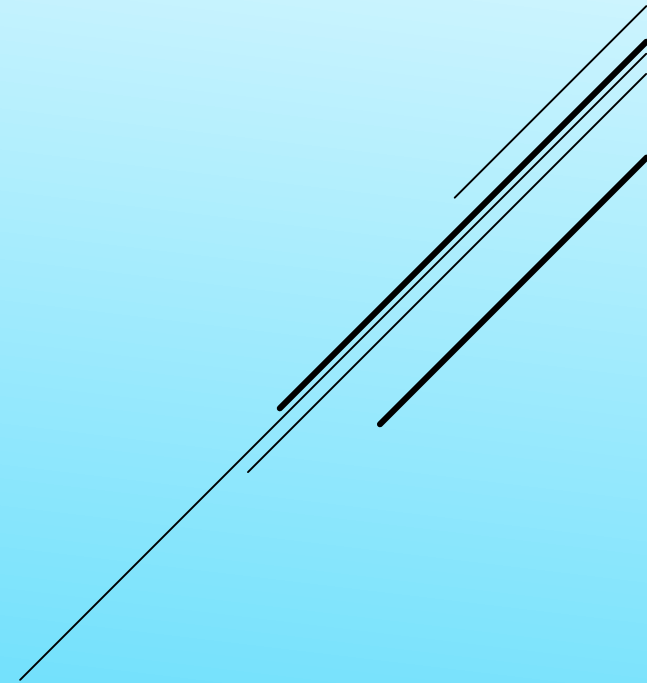
- ▶ Choosing a restaurant location is one of the more permanent choice a restaurant owner can make. Helping new restaurant owner find the right restaurant Location in Brooklyn can be challenging due to the size of the borough. The Brooklyn data needs be analyzed to find the right location for the new restaurant.
- ▶ Evaluate a new site location for a restaurant by:
 - ▶ Looking at Brooklyn Demographics
 - ▶ Identifying Popular Venues in Brooklyn (hotels, entertainment, shops, etc)



DATA

Brooklyn is one of 5 boroughs of New York City. New York City Data will be analyzed as follows:

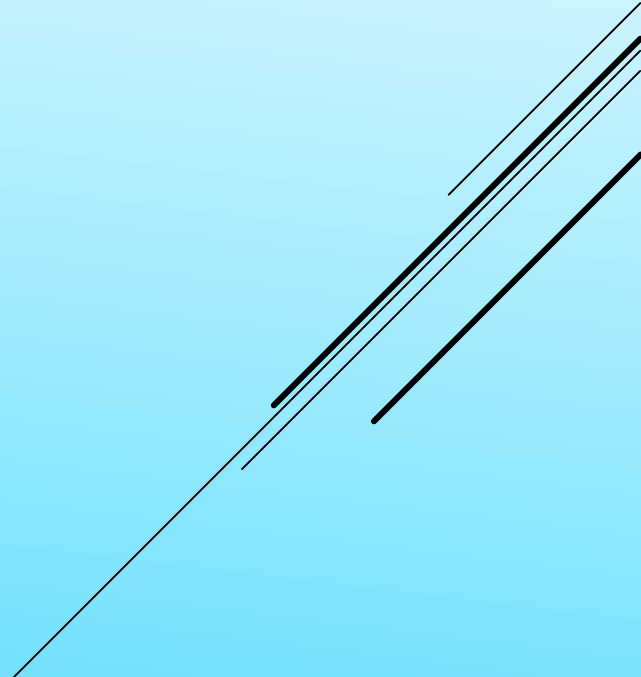
- dataset: https://geo.nyu.edu/catalog/nyu_2451_34572
- Foursquare Data will be used to leverage existing Brooklyn venues information for analysis.
- I used Foursquare API to get the most common venues of given Neighborhood in Brooklyn.



METHODOLOGY

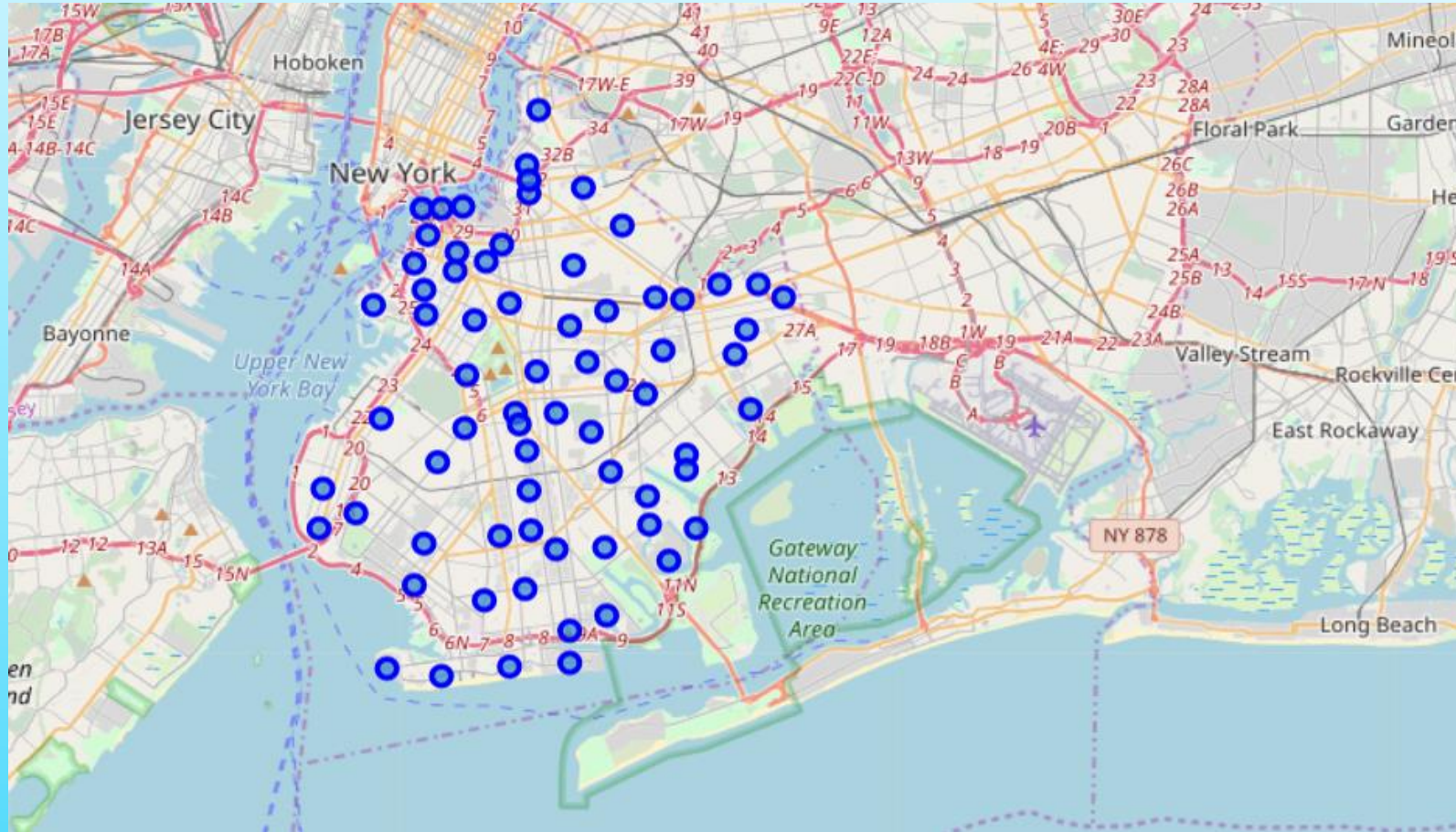
The following will be analyzed:

- Python Folium library to visualize geographic details of Brooklyn and its neighborhoods
- K-Means algorithm is one of the most common cluster method
 - 10 Most Common Venues per cluster
 - First Most Common Venue in each cluster will be considered
 - First Most Common Venue overall in Brooklyn



ANALYSIS

I used python folium library to visualize geographic details of Brooklyn and its neighborhoods. I created a New York map of Brooklyn neighborhoods composed of latitude and longitude values.



BROOKLYN'S NEIGHBORHOODS

The following data of 69 neighborhoods were used to generate Brooklyn foil map on previous slide

Borough	Neighborhood	Latitude	Longitude
0	Brooklyn	Bay Ridge	40.625801 -74.030621
1	Brooklyn	Bensonhurst	40.611009 -73.995180
2	Brooklyn	Sunset Park	40.645103 -74.010316
3	Brooklyn	Greenpoint	40.730201 -73.954241
4	Brooklyn	Gravesend	40.595260 -73.973471
5	Brooklyn	Brighton Beach	40.576825 -73.965094
6	Brooklyn	Sheepshead Bay	40.586890 -73.943186
7	Brooklyn	Manhattan Terrace	40.614433 -73.957438
8	Brooklyn	Flatbush	40.636326 -73.958401
9	Brooklyn	Crown Heights	40.670829 -73.943291
10	Brooklyn	East Flatbush	40.641718 -73.936103
11	Brooklyn	Kensington	40.642382 -73.980421
12	Brooklyn	Windsor Terrace	40.656946 -73.980073
13	Brooklyn	Prospect Heights	40.676822 -73.964859
14	Brooklyn	Brownsville	40.663950 -73.910235
15	Brooklyn	Williamsburg	40.707144 -73.958115
16	Brooklyn	Bushwick	40.698116 -73.925258
17	Brooklyn	Bedford Stuyvesant	40.687232 -73.941785
18	Brooklyn	Brooklyn Heights	40.695864 -73.993782
19	Brooklyn	Cobble Hill	40.687920 -73.998561
20	Brooklyn	Carroll Gardens	40.680540 -73.994654
21	Brooklyn	Red Hook	40.676253 -74.012759
22	Brooklyn	Gowanus	40.673931 -73.994441
23	Brooklyn	Fort Greene	40.688527 -73.972906

24	Brooklyn	Park Slope	40.672321 -73.977050
25	Brooklyn	Cypress Hills	40.682391 -73.876616
26	Brooklyn	East New York	40.669926 -73.880699
27	Brooklyn	Starrett City	40.647589 -73.879370
28	Brooklyn	Canarsie	40.635564 -73.902093
29	Brooklyn	Flatlands	40.630446 -73.929113
30	Brooklyn	Mill Island	40.606336 -73.908186
31	Brooklyn	Manhattan Beach	40.577914 -73.943537
32	Brooklyn	Coney Island	40.574293 -73.988683
33	Brooklyn	Bath Beach	40.599519 -73.998752
34	Brooklyn	Borough Park	40.633131 -73.990498
35	Brooklyn	Dyker Heights	40.619219 -74.019314
36	Brooklyn	Gerritsen Beach	40.590848 -73.930102
37	Brooklyn	Marine Park	40.609748 -73.931344
38	Brooklyn	Clinton Hill	40.693229 -73.967843
39	Brooklyn	Sea Gate	40.576375 -74.007873
40	Brooklyn	Downtown	40.690844 -73.983463
41	Brooklyn	Boerum Hill	40.685683 -73.983748
42	Brooklyn	Prospect Lefferts Gardens	40.658420 -73.954899
43	Brooklyn	Ocean Hill	40.678403 -73.913068
44	Brooklyn	City Line	40.678570 -73.867976
45	Brooklyn	Bergen Beach	40.615150 -73.898556
46	Brooklyn	Midwood	40.625596 -73.957595

47	Brooklyn	Prospect Park South	40.647009 -73.962613
48	Brooklyn	Georgetown	40.623845 -73.916075
49	Brooklyn	East Williamsburg	40.708492 -73.938858
50	Brooklyn	North Side	40.714823 -73.958809
51	Brooklyn	South Side	40.710861 -73.958001
52	Brooklyn	Ocean Parkway	40.613060 -73.968367
53	Brooklyn	Fort Hamilton	40.614768 -74.031979
54	Brooklyn	Ditmas Park	40.643675 -73.961013
55	Brooklyn	Wingate	40.660947 -73.937187
56	Brooklyn	Rugby	40.655572 -73.926882
57	Brooklyn	Remsen Village	40.652117 -73.916653
58	Brooklyn	New Lots	40.662744 -73.885118
59	Brooklyn	Paerdegat Basin	40.631318 -73.902335
60	Brooklyn	Mill Basin	40.615974 -73.915154
61	Brooklyn	Fulton Ferry	40.703281 -73.995508
62	Brooklyn	Vinegar Hill	40.703321 -73.981116
63	Brooklyn	Weeksville	40.675040 -73.930531
64	Brooklyn	Broadway Junction	40.677861 -73.903317
65	Brooklyn	Dumbo	40.703176 -73.988753
66	Brooklyn	Homecrest	40.598525 -73.959185
67	Brooklyn	Highland Park	40.681999 -73.890346
68	Brooklyn	Madison	40.609378 -73.948415
69	Brooklyn	Erasmus	40.646926 -73.948177

10 MOST COMMON VENUES PER CLUSTER: FIRST CLUSTER

Second cluster

	Neighborhood	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
2	Sunset Park	Bakery	Latin American Restaurant	Pizza Place	Bank	Mexican Restaurant	Fried Chicken Joint	Mobile Phone Shop	Gym	Grocery Store	Italian Restaurant
8	Flatbush	Coffee Shop	Mexican Restaurant	Deli / Bodega	Caribbean Restaurant	Plaza	Middle Eastern Restaurant	Lounge	Sandwich Place	Gastropub	Juice Bar
10	East Flatbush	Food & Drink Shop	Chinese Restaurant	Department Store	Pharmacy	Print Shop	Moving Target	Park	Hardware Store	Caribbean Restaurant	Supermarket
25	Cypress Hills	Latin American Restaurant	Fried Chicken Joint	Donut Shop	Ice Cream Shop	Fast Food Restaurant	Spanish Restaurant	Baseball Field	Gas Station	Supermarket	Liquor Store
27	Starrett City	Supermarket	Pizza Place	American Restaurant	Pharmacy	Caribbean Restaurant	Donut Shop	Field	Factory	Falafel Restaurant	Farm
29	Flatlands	Pharmacy	Fast Food Restaurant	Caribbean Restaurant	Fried Chicken Joint	Bar	Paper / Office Supplies Store	Electronics Store	Chinese Restaurant	Lounge	Dry Cleaner
32	Coney Island	Caribbean Restaurant	Baseball Stadium	Brewery	Pharmacy	Beach	Theme Park Ride / Attraction	Skating Rink	Cosmetics Shop	Park	Monument / Landmark
34	Borough Park	Bank	Deli / Bodega	Pizza Place	Pharmacy	Bistro	American Restaurant	Hotel	Chinese Restaurant	Men's Store	Restaurant
44	City Line	Pharmacy	Donut Shop	Clothing Store	Shoe Store	Pizza Place	Liquor Store	Fried Chicken Joint	South American Restaurant	Latin American Restaurant	Lingerie Store
47	Prospect Park South	Caribbean Restaurant	Pizza Place	Grocery Store	Mobile Phone Shop	Fast Food Restaurant	Bank	Latin American Restaurant	Fried Chicken Joint	Mexican Restaurant	Donut Shop
48	Georgetown	Bank	Donut Shop	Pharmacy	Frozen Yogurt Shop	Japanese Restaurant	Clothing Store	Chinese Restaurant	Supplement Shop	Supermarket	Pizza Place
56	Rugby	Caribbean Restaurant	Supermarket	Bank	Pizza Place	Grocery Store	Fried Chicken Joint	Seafood Restaurant	Sandwich Place	Chinese Restaurant	Mobile Phone Shop
57	Remsen Village	Caribbean Restaurant	Fast Food Restaurant	Breakfast Spot	Auto Dealership	Deli / Bodega	Donut Shop	Salad Place	Sandwich Place	Fish Market	Fried Chicken Joint
58	New Lots	Grocery Store	Pizza Place	Metro Station	Spanish Restaurant	Fried Chicken Joint	Plaza	Bus Station	Breakfast Spot	Furniture / Home Store	Latin American Restaurant
66	Homecrest	Bank	Chinese Restaurant	Donut Shop	Pizza Place	Grocery Store	Mexican Restaurant	Sandwich Place	Cosmetics Shop	Restaurant	Fast Food Restaurant
69	Erasmus	Caribbean Restaurant	Yoga Studio	Gym / Fitness Center	Bus Line	Food Truck	Music Venue	Supermarket	Furniture / Home Store	Donut Shop	Bank

10 MOST COMMON VENUES PER CLUSTER:

SECOND CLUSTER: SLIDE 1 OF 2

	Neighborhood	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
0	Bay Ridge	Spa	Italian Restaurant	Pizza Place	Greek Restaurant	Bar	American Restaurant	Chinese Restaurant	Bagel Shop	Thai Restaurant	Ice Cream Shop
1	Bensonhurst	Italian Restaurant	Donut Shop	Ice Cream Shop	Sushi Restaurant	Cha Chaan Teng	Grocery Store	Chinese Restaurant	Bakery	Bagel Shop	Noodle House
3	Greenpoint	Bar	Pizza Place	Cocktail Bar	Coffee Shop	Yoga Studio	Mexican Restaurant	Café	Record Shop	French Restaurant	Sandwich Place
4	Gravesend	Pizza Place	Italian Restaurant	Bakery	Lounge	Bus Station	Martial Arts Dojo	Pharmacy	Metro Station	Diner	Baseball Field
5	Brighton Beach	Eastern European Restaurant	Beach	Russian Restaurant	Restaurant	Gourmet Shop	Bank	Mobile Phone Shop	Sushi Restaurant	Pharmacy	Donut Shop
6	Sheepshead Bay	Turkish Restaurant	Dessert Shop	Boat or Ferry	Sandwich Place	Yoga Studio	Café	Russian Restaurant	Restaurant	Pizza Place	Deli / Bodega
7	Manhattan Terrace	Pizza Place	Donut Shop	Ice Cream Shop	Bagel Shop	Eastern European Restaurant	Jazz Club	Chinese Restaurant	Organic Grocery	Mobile Phone Shop	Coffee Shop
9	Crown Heights	Pizza Place	Café	Museum	Deli / Bodega	Bagel Shop	Pharmacy	Moving Target	Candy Store	Supermarket	Salon / Barbershop
11	Kensington	Grocery Store	Thai Restaurant	Sandwich Place	Pharmacy	Ice Cream Shop	Pizza Place	Park	Nail Salon	Mexican Restaurant	Pub
12	Windsor Terrace	Deli / Bodega	Plaza	Grocery Store	Park	Café	Diner	Antique Shop	Italian Restaurant	Bar	Coffee Shop
13	Prospect Heights	Bar	Mexican Restaurant	Cocktail Bar	Thai Restaurant	Wine Shop	Gourmet Shop	Café	Bakery	Ice Cream Shop	New American Restaurant
14	Brownsville	Restaurant	Chinese Restaurant	Moving Target	Park	Convenience Store	Fried Chicken Joint	Farmers Market	Trail	Spanish Restaurant	Discount Store
15	Williamsburg	Bar	Coffee Shop	Pizza Place	Bagel Shop	Taco Place	Breakfast Spot	Burger Joint	Café	Restaurant	Clothing Store
16	Bushwick	Bar	Deli / Bodega	Coffee Shop	Mexican Restaurant	Bakery	Thrift / Vintage Store	Discount Store	Pizza Place	Vegetarian / Vegan Restaurant	Italian Restaurant
17	Bedford Stuyvesant	Café	Bar	Pizza Place	Coffee Shop	Deli / Bodega	Japanese Restaurant	Fried Chicken Joint	Boutique	New American Restaurant	Gourmet Shop
18	Brooklyn Heights	Yoga Studio	Park	Deli / Bodega	Italian Restaurant	Gym	Cosmetics Shop	Bakery	Pizza Place	Pet Store	Coffee Shop
19	Cobble Hill	Deli / Bodega	Bar	Coffee Shop	Pizza Place	Playground	Yoga Studio	Ice Cream Shop	Italian Restaurant	Cocktail Bar	Mediterranean Restaurant
20	Carroll Gardens	Italian Restaurant	Coffee Shop	Bakery	Pizza Place	Cocktail Bar	Wine Shop	Bar	Gym / Fitness Center	Spa	Thai Restaurant
21	Red Hook	Seafood Restaurant	Park	American Restaurant	Bar	Art Gallery	Ice Cream Shop	Flower Shop	Farm	New American Restaurant	Bagel Shop
22	Gowanus	Bar	Italian Restaurant	Furniture / Home Store	Gym / Fitness Center	Pizza Place	Chinese Restaurant	Coffee Shop	Wine Shop	Hardware Store	Mexican Restaurant
23	Fort Greene	Italian Restaurant	Coffee Shop	Pizza Place	Theater	French Restaurant	Flower Shop	Opera House	Performing Arts Venue	Cocktail Bar	Playground
24	Park Slope	Coffee Shop	Burger Joint	Pizza Place	American Restaurant	Italian Restaurant	Bagel Shop	Mexican Restaurant	Pet Store	Bakery	Spa
26	East New York	Deli / Bodega	Spanish Restaurant	Fried Chicken Joint	Fast Food Restaurant	Plaza	Latin American Restaurant	Pizza Place	Convenience Store	Metro Station	Event Service
28	Canarsie	Deli / Bodega	Caribbean Restaurant	Grocery Store	Gym	Chinese Restaurant	Asian Restaurant	Bus Line	Thai Restaurant	Fish Market	Fish & Chips Shop
31	Manhattan Beach	Bus Stop	Café	Beach	Ice Cream Shop	Food	Playground	Home Service	Sandwich Place	Harbor / Marina	Fast Food Restaurant
33	Bath Beach	Pharmacy	Pizza Place	Italian Restaurant	Bubble Tea Shop	Chinese Restaurant	Fast Food Restaurant	Donut Shop	Sushi Restaurant	Surf Spot	Gas Station
35	Dyker Heights	Plaza	Dance Studio	Golf Course	Burger Joint	Grocery Store	Bagel Shop	School	Park	Farm	Eye Doctor
36	Gerritsen Beach	Ice Cream Shop	Bar	Pizza Place	Park	Event Space	Liquor Store	Skating Rink	Grocery Store	Bagel Shop	Seafood Restaurant
37	Marine Park	Deli / Bodega	Athletics & Sports	Pizza Place	Basketball Court	Soccer Field	Chinese Restaurant	Gym	Baseball Field	Ice Cream Shop	Distillery
38	Clinton Hill	Italian Restaurant	Pizza Place	Thai Restaurant	Wine Shop	Mexican Restaurant	Restaurant	Japanese Restaurant	Yoga Studio	Indian Restaurant	Pet Store
39	Sea Gate	IT Services	Home Service	Beach	Bus Station	Spa	Flower Shop	Flea Market	Fishing Store	Fish Market	Food

10 MOST COMMON VENUES PER CLUSTER:

SECOND CLUSTER: **SLIDE 2 OF 2**

40	Downtown	Burger Joint	Coffee Shop	Sandwich Place	Bar	Chinese Restaurant	French Restaurant	Asian Restaurant	Cocktail Bar	Bakery	Pizza Place
41	Boerum Hill	Dance Studio	Coffee Shop	Bar	French Restaurant	Sandwich Place	Arts & Crafts Store	Furniture / Home Store	Grocery Store	Middle Eastern Restaurant	Bakery
42	Prospect Lefferts Gardens	Bakery	Café	Caribbean Restaurant	Pizza Place	Deli / Bodega	Ice Cream Shop	Indian Restaurant	Sushi Restaurant	Wine Shop	Chinese Restaurant
43	Ocean Hill	Deli / Bodega	Grocery Store	Bus Stop	Southern / Soul Food Restaurant	Food	Playground	Check Cashing Service	Coffee Shop	Supermarket	Fried Chicken Joint
45	Bergen Beach	Harbor / Marina	Playground	Donut Shop	Athletics & Sports	Baseball Field	Flea Market	Fishing Store	Fish Market	Fish & Chips Shop	Filipino Restaurant
49	East Williamsburg	Bar	Deli / Bodega	Coffee Shop	Cocktail Bar	Bakery	Café	Mexican Restaurant	Music Venue	Sandwich Place	Concert Hall
50	North Side	Coffee Shop	Wine Bar	Yoga Studio	American Restaurant	Pizza Place	Jewelry Store	Bakery	Bar	Seafood Restaurant	French Restaurant
51	South Side	Bar	Coffee Shop	Pizza Place	American Restaurant	Yoga Studio	Breakfast Spot	Chinese Restaurant	Wine Bar	Seafood Restaurant	Korean Restaurant
52	Ocean Parkway	Playground	Grocery Store	Steakhouse	Restaurant	Liquor Store	Eastern European Restaurant	General Entertainment	Donut Shop	Jewish Restaurant	Bagel Shop
53	Fort Hamilton	Sandwich Place	Deli / Bodega	Italian Restaurant	Pharmacy	Bank	Diner	Bagel Shop	Pub	Bus Stop	Chinese Restaurant
54	Ditmas Park	Women's Store	Pizza Place	Donut Shop	Business Service	Metro Station	Caribbean Restaurant	Japanese Restaurant	Grocery Store	Gym / Fitness Center	Hardware Store
55	Wingate	Fried Chicken Joint	Other Great Outdoors	Park	Nightclub	Liquor Store	Farmers Market	Fast Food Restaurant	Juice Bar	BBQ Joint	Donut Shop
60	Mill Basin	Japanese Restaurant	Pizza Place	Pharmacy	Sushi Restaurant	Cosmetics Shop	Bank	Bagel Shop	Pet Store	Supermarket	Liquor Store
61	Fulton Ferry	Park	American Restaurant	Scenic Lookout	Pizza Place	Bar	Bakery	Ice Cream Shop	Coffee Shop	Food & Drink Shop	Breakfast Spot
62	Vinegar Hill	Food Truck	Café	Art Gallery	Wine Shop	Coffee Shop	Factory	Latin American Restaurant	Bookstore	Bar	Bakery
63	Weeksville	Discount Store	Chinese Restaurant	Juice Bar	Gas Station	Liquor Store	American Restaurant	Department Store	History Museum	Lounge	Park
64	Broadway Junction	Donut Shop	Diner	Deli / Bodega	Pizza Place	Metro Station	Bus Station	Fried Chicken Joint	Gas Station	Caribbean Restaurant	Sandwich Place
65	Dumbo	Coffee Shop	Park	Scenic Lookout	Bakery	Café	Gym	Ice Cream Shop	Italian Restaurant	Japanese Restaurant	Pizza Place
67	Highland Park	Liquor Store	Deli / Bodega	Gym / Fitness Center	Metro Station	Spanish Restaurant	Fried Chicken Joint	Supermarket	Big Box Store	Garden	Latin American Restaurant
68	Madison	Bagel Shop	Deli / Bodega	Pilates Studio	Spa	Hobby Shop	Dessert Shop	Pizza Place	Insurance Office	Italian Restaurant	Candy Store

10 MOST COMMON VENUES PER CLUSTER: THREE THROUGH 5 CLUSTERS

Third cluster:

	Neighborhood	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
30	Mill Island	Pool	Women's Store	Field	Eye Doctor	Factory	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant	Filipino Restaurant

Fourth cluster:

	Neighborhood	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
46	Midwood	Pizza Place	Ice Cream Shop	Pharmacy	Video Game Store	Convenience Store	Bakery	Bagel Shop	Candy Store	Women's Store	Fast Food Restaurant

Fifth cluster:

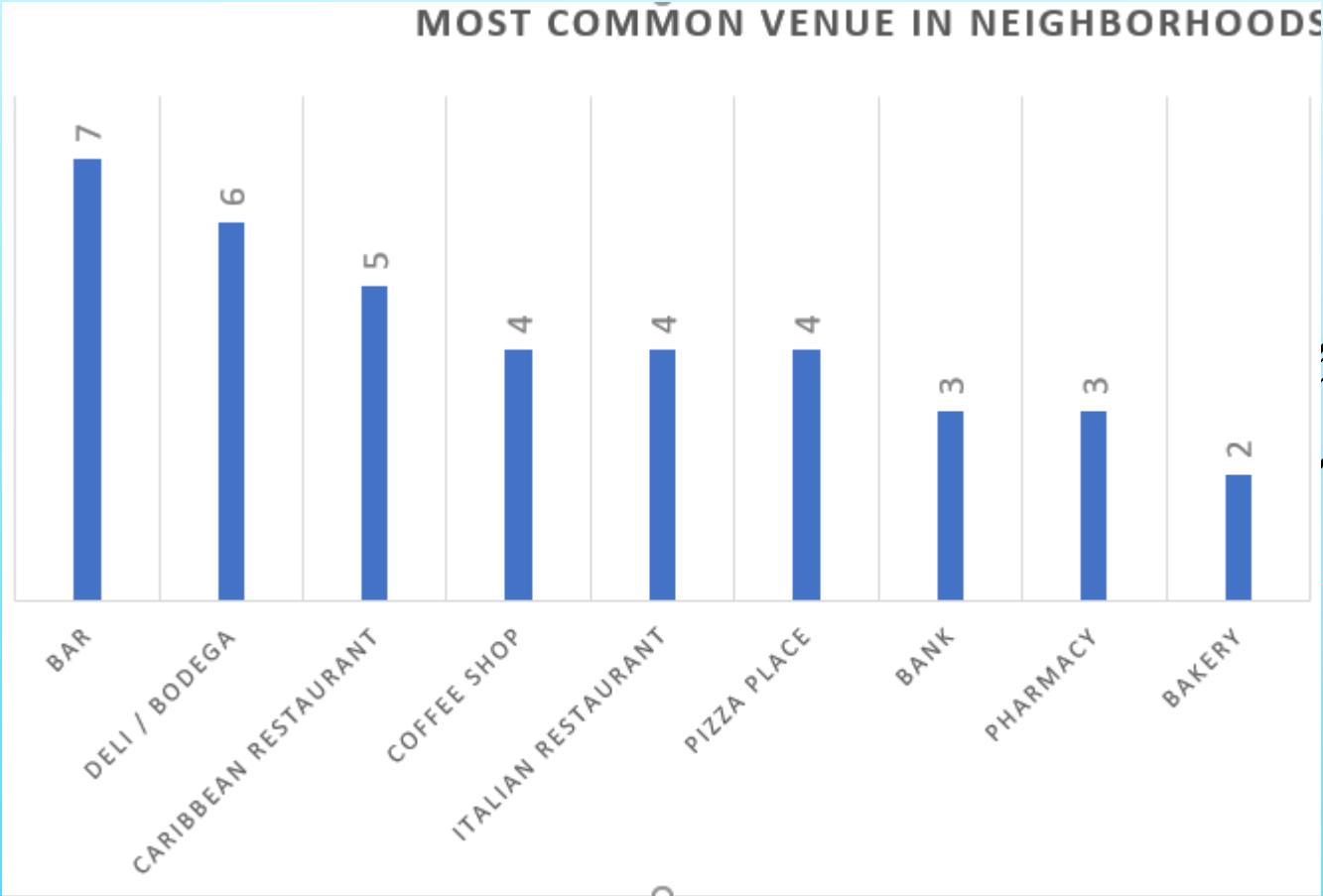
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
59	Paerdegat Basin	Asian Restaurant	Food	Bus Line	Harbor / Marina	Auto Garage	Women's Store	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant

FIRST MOST COMMON VENUE OVERALL IN BROOKLYN

There are 69 Neighborhoods in Brooklyn

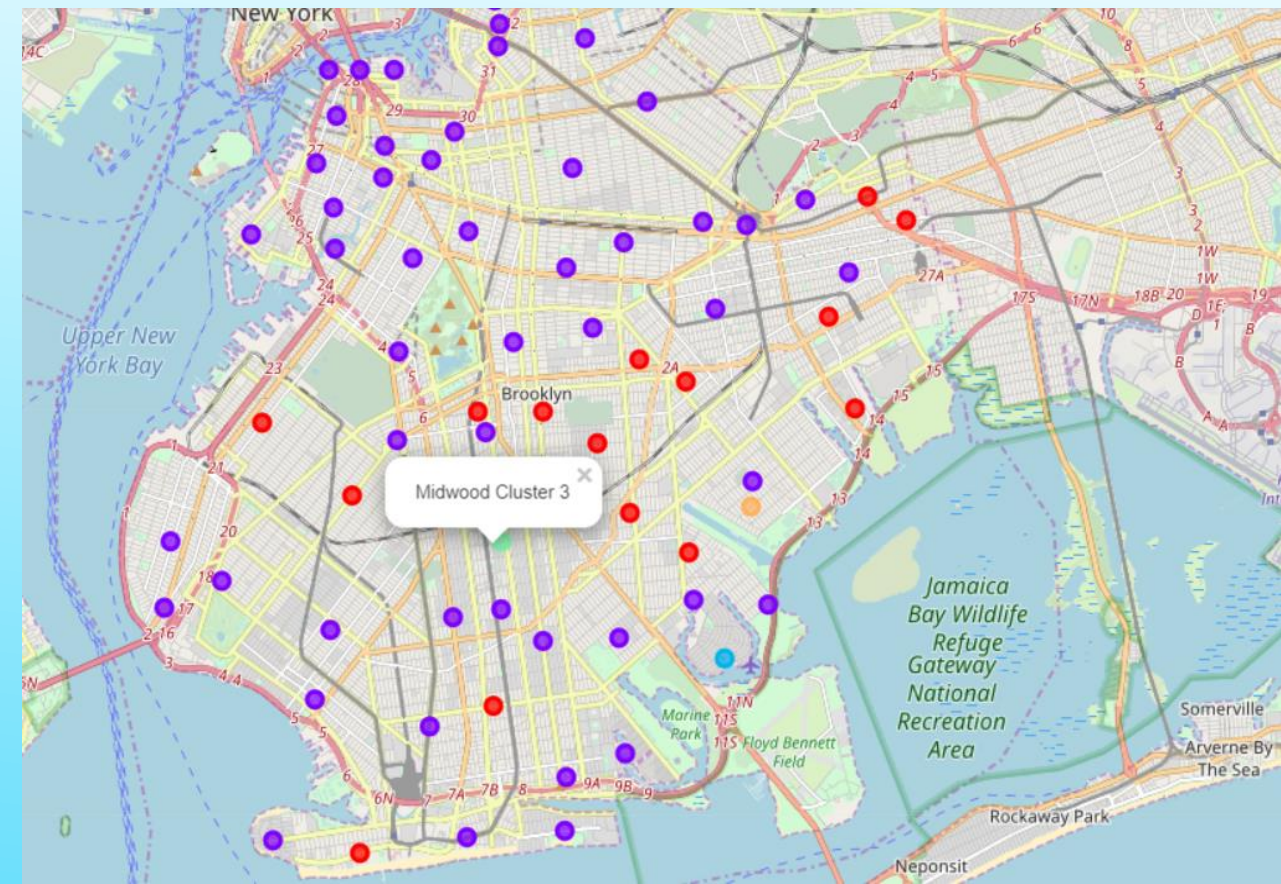
- Out of 69 the most common Venue is a Bar and it's located in seven neighborhoods.
- The second most common venue is Deli.

1st Most Common Venue	Venue Counts in Neighborhood
Bar	7
Deli / Bodega	6
Caribbean Restaurant	5
Coffee Shop	4
Italian Restaurant	4
Pizza Place	4
Bank	3
Pharmacy	3
Bakery	2



RESULTS AND DISCUSSION

The map represents 5 different clusters of Brooklyn Neighborhoods



Brooklyn neighborhoods were clustered to create grouping to narrow location of interest.

Recommended neighborhood should be only considered as a starting point for more detailed analysis which could eventually result in a different neighborhood location

Neighborhood	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
30 Mill Island	Pool	Women's Store	Field	Eye Doctor	Factory	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant	Filipino Restaurant

CONCLUSION

Purpose of this project was to identify Brooklyn neighborhood for new restaurant in order to aid stakeholders in narrowing down the search for optimal location for a new restaurant. Clustering of those locations was then performed in order to create recommendation.

Based on analysis recommendation is Mill Island's due to its unique characteristics.

Recommended neighborhood should be only considered as a starting point for more detailed analysis which could eventually result in a different neighborhood location.

