



BATTLE OF NEIGHBORHOODS – RESTAURANTS IN NEW YORK

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BRIEF DESCRIPTION OF PROBLEM

- ❖ FINDING AN OPTIMUM LOCATION FOR SET UP OF A NEW INDIAN RESTAURANT DEPENDING ON THE FOLLOWING TWO FACTORS: -
 - CUISINE PREFERENCE OF THE PEOPLE RESIDING IN THAT BOROUGH
 - SATURATION RATE OF RESTAURANTS AT THE LOCATION

DATA

NEW YORK CITY NEIGHBORHOOD NAMES

NY SPATIAL DATA - [HTTPS://GEO.NYU.EDU/CATALOG/NYU_2451_34572](https://geo.nyu.edu/catalog/nyu_2451_34572)

	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

FacilityName	Service Category	Service_Type	Address	Address 2	Borough	ZipCode	Latitude	Longitude	AdditionalInfo	StartDate	EndDate	Monday	Tuesday	Wednesday	Thursday
0 Inwood Park Greenmarket	Farmers Markets and Food Boxes	Farmers Markets	Isham St bet Seaman & Cooper	NaN	Manhattan	10034	40.869009	-73.920320	Open year-round	NaN	NaN	NaN	NaN	NaN	NaN
1 82nd Street Greenmarket	Farmers Markets and Food Boxes	Farmers Markets	82nd St bet 1st & York Aves	NaN	Manhattan	10028	40.773448	-73.948954	Open year-round	NaN	NaN	NaN	NaN	NaN	NaN
3 125th Street Farmers Market	Farmers Markets and Food Boxes	Farmers Markets	125th St & Adam Clayton Powell Jr Blvd	NaN	Manhattan	10027	40.808981	-73.948327	Market open dates: 6/13/2017 to 11/21/2017	06/13/2017	11/21/2017	NaN	10am-7pm	NaN	NaN
4 170 Farm Stand	Farmers Markets and Food Boxes	Farmers Markets	170th St & Townsend Ave	NaN	Bronx	10452	40.840095	-73.916827	Market open dates: 7/5/2017 to 11/22/2017	07/05/2017	11/22/2017	NaN	NaN	2:30pm-6:30pm	NaN
5 175th Street Greenmarket	Farmers Markets and Food Boxes	Farmers Markets	175th St bet Wadsworth Ave & Broadway	NaN	Manhattan	10033	40.845956	-73.937813	Market open dates: 6/29/2017 to 11/30/2017	06/29/2017	11/30/2017	NaN	NaN	NaN	8am-5pm

<https://data.cityofnewyork.us/dataset/doeh-farmers-markets/8vwk-6iz2/data>

https://en.wikipedia.org/wiki/Cuisine_of_New_York_City

<https://www.grownyc.org/greenmarketco/foodbox>

FARMER MARKETS - A FARMERS' MARKET IS A PHYSICAL RETAIL MARKETPLACE INTENDED TO SELL FOODS DIRECTLY BY FARMERS TO CONSUMERS. FARMERS' MARKETS MAY BE INDOORS OR OUTDOORS AND TYPICALLY CONSISTING OF BOOTHS, TABLES OR STANDS WHERE FARMERS SELL THEIR HOMEGROWN PRODUCE, LIVE ANIMALS AND PLANTS, AND SOMETIMES PREPARED FOODS AND BEVERAGES.

NEW YORK POPULATION

NEW YORK CITY DEMOGRAPHICS

CUISINE OF NEW YORK

[HTTPS://EN.WIKIPEDIA.ORG/WIKI/NEW YORK CITY](https://en.wikipedia.org/wiki/New_York_City)

[HTTPS://EN.WIKIPEDIA.ORG/WIKI/ECONOMY_OF_NEW YORK CITY](https://en.wikipedia.org/wiki/Economy_of_New_York_City)

[HTTPS://EN.WIKIPEDIA.ORG/WIKI/PORTAL:NEW YORK CITY](https://en.wikipedia.org/wiki/Portal:New_York_City)

	New York City's five boroughs	Jurisdiction	Population	Gross Domestic Product	Land area	Density	Borough	County	Estimate (2017) [207]
0	The Bronx	Bronx	1,471,160	28.787	19,570	42.10	109.04	34,653	13,231
1	Brooklyn	Kings	2,648,771	63.303	23,900	70.82	183.42	37,137	14,649
2	Manhattan	New York	1,664,727	629.682	378,250	22.83	59.13	72,033	27,826
3	Queens	Queens	2,358,582	73.842	31,310	108.53	281.09	21,460	8,354
4	Staten Island	Richmond	479,458	11.249	23,460	58.37	151.18	8,112	3,132

- FOURSQUARE API TO EXPLORE NEIGHBORHOODS IN NEW YORK CITY

	Neighborhood	NeighborhoodLatitude	NeighborhoodLongitude	Venue	VenueLatitude	VenueLongitude	VenueCategory
0	Marble Hill	40.876551	-73.91066	Arturo's	40.874412	-73.910271	Pizza Place
1	Marble Hill	40.876551	-73.91066	Bikram Yoga	40.876844	-73.906204	Yoga Studio
2	Marble Hill	40.876551	-73.91066	Tibbett Diner	40.880404	-73.908937	Diner
3	Marble Hill	40.876551	-73.91066	Sam's Pizza	40.879435	-73.905859	Pizza Place
4	Marble Hill	40.876551	-73.91066	Loeser's Delicatessen	40.879242	-73.905471	Sandwich Place

ANALYTIC APPROACH

EXPLORATORY DATA ANALYSIS

- EXPLORATORY DATA ANALYSIS (EDA) IS AN APPROACH TO ANALYZING DATA SETS TO SUMMARIZE THEIR MAIN CHARACTERISTICS, OFTEN WITH VISUAL METHODS. A STATISTICAL MODEL CAN BE USED OR NOT, BUT PRIMARILY EDA IS FOR SEEING WHAT THE DATA CAN TELL US BEYOND THE FORMAL MODELING OR HYPOTHESIS TESTING TASK.

CLUSTERING

- CLUSTERING IS THE TASK OF DIVIDING THE POPULATION OR DATA POINTS INTO A NUMBER OF GROUPS SUCH THAT DATA POINTS IN THE SAME GROUPS ARE MORE SIMILAR TO OTHER DATA POINTS IN THE SAME GROUP THAN THOSE IN OTHER GROUPS. IN SIMPLE WORDS, THE AIM IS TO SEGREGATE GROUPS WITH SIMILAR TRAITS AND ASSIGN THEM INTO CLUSTERS

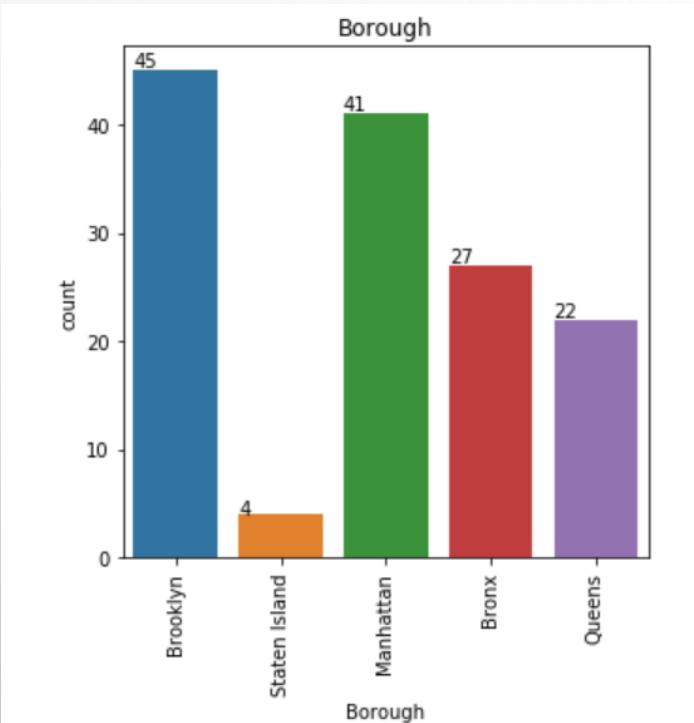
NEW YORK NEIGHBORHOOD VISUALIZATION IN 5 BOROUGHS



FOOD MARKETS

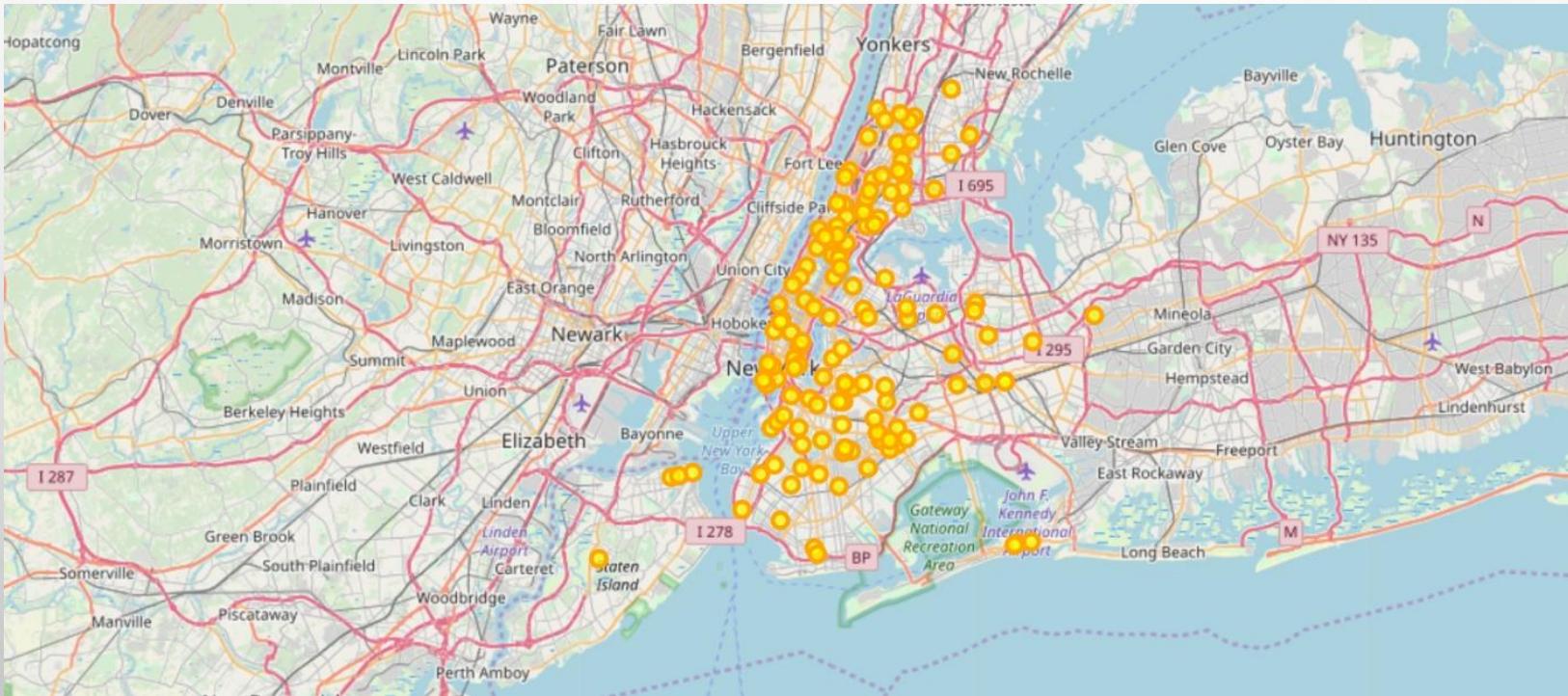


NEW YORK CITY MARKETS



- BROOKLYN - 45
- MANHATTAN - 41
- QUEENS - 27
- BRONX - 22
- STATEN ISLAND - 4

FARMERS MARKET VISUALIZATION - NEW YORK CITY



NEW YORK CUISINE

Out[16]:

	Borough
Brooklyn	19
Queens	17
Manhattan	12
Bronx	9
Staten Island	5



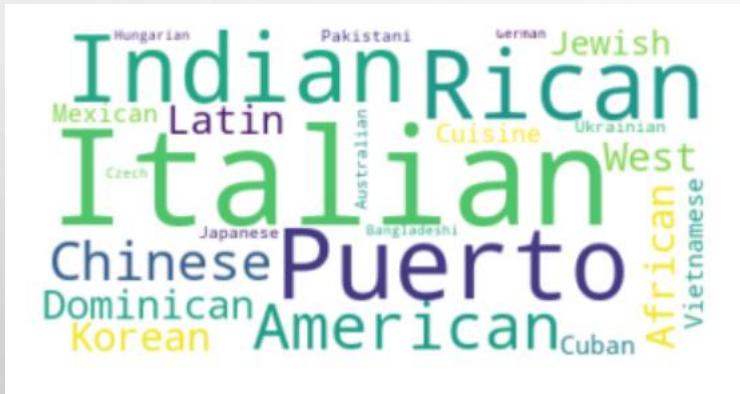
BROOKYLN CUISINE



MOST PREFERRED CUISINE IN BROOKLYN IS –

- ITALIAN
 - PUERTO RICAN
 - MEXICAN
 - JEWISH
 - JAMAICAN
 - RUSSIAN

MANHATTAN CUISINE



MOST PREFERRED CUISINE IN MANHATTAN

- ITALIAN
- PUERTO RICAN
- INDIAN
- AMERICAN
- CHINESE

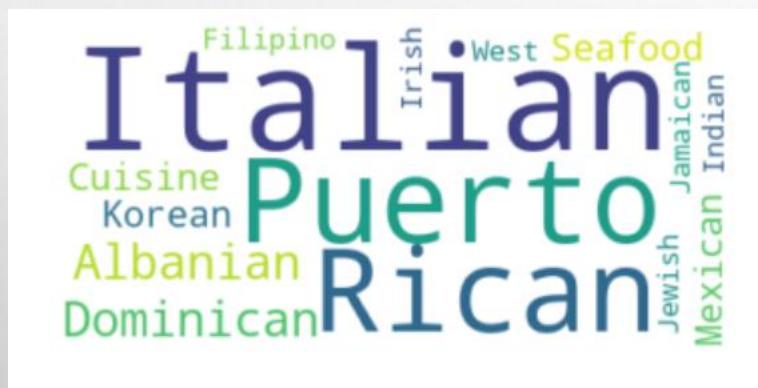
QUEENS CUISINE



MOST PREFERRED CUISINE IN QUEENS IS

- INDIAN
- ITALIAN
- MEXICAN
- JEWISH
- IRISH
- UZBEK
- PAKISTANI

BRONX CUISINE



MOST PREFERRED CUISINE IN BRONX

- ITALIAN
- PUERTO RICAN
- ALBANIAN
- DOMINICAN

STATEN ISLAND CUISINE



MOST PREFERRED CUISINE IN STATEN ISLAND

- ITALIAN
- ARAB
- POLISH
- RUSSIAN
- INDIAN

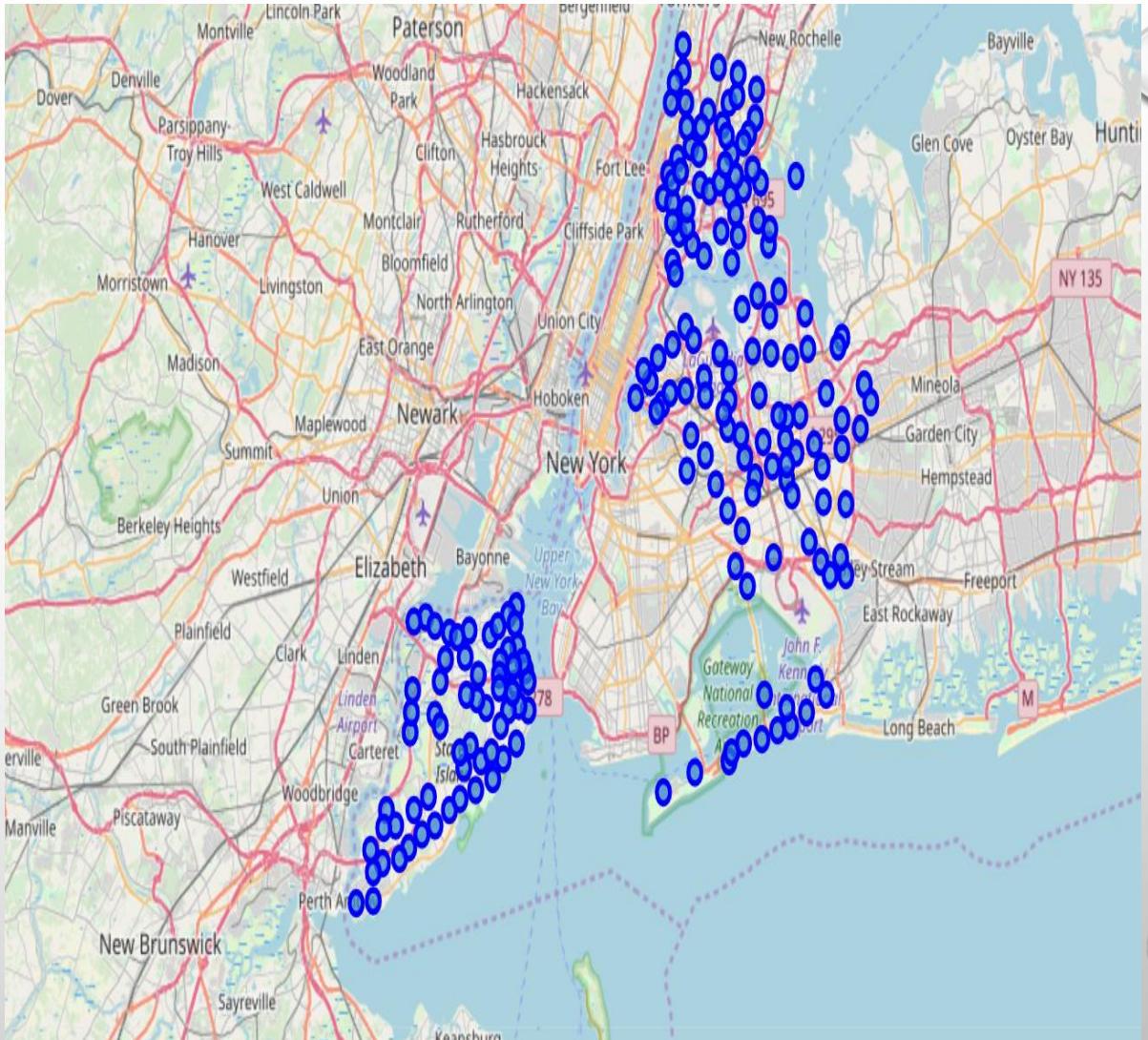
BROOKLYN & MANHATTAN VENUES VISUALIZATION – 9747 VENUE & 402 UNIQUE TYPES

	Neighborhood	NeighborhoodLatitude	NeighborhoodLongitude	Venue	VenueLatitude	VenueLongitude	VenueCategory
0	Marble Hill	40.876551	-73.91066	Bikram Yoga	40.876844	-73.906204	Yoga Studio
1	Marble Hill	40.876551	-73.91066	Arturo's	40.874412	-73.910271	Pizza Place
2	Marble Hill	40.876551	-73.91066	Tibbett Diner	40.880404	-73.908937	Diner
3	Marble Hill	40.876551	-73.91066	Sam's Pizza	40.879435	-73.905859	Pizza Place
4	Marble Hill	40.876551	-73.91066	Starbucks	40.877531	-73.905582	Coffee Shop

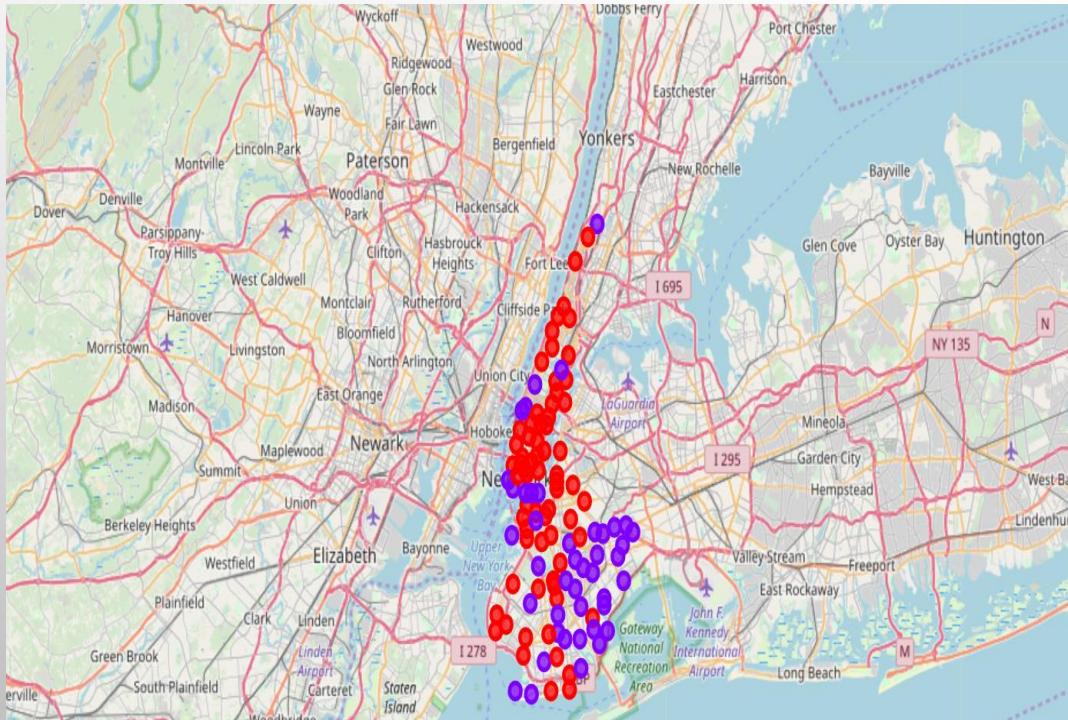


BRONX, QUEENS AND STATEN ISLAND VENUES VISUALIZATION: 11131 VENUES AND 395 UNIQUE VENUE TYPES

Neighborhood	NeighborhoodLatitude	NeighborhoodLongitude	Venue	VenueLatitude	VenueLongitude	VenueCategory
0	40.894705	-73.847201	Lollipops Gelato	40.894123	-73.845892	Dessert Shop
1	40.894705	-73.847201	Ripe Kitchen & Bar	40.898152	-73.838875	Caribbean Restaurant
2	40.894705	-73.847201	Jackie's West Indian Bakery	40.889283	-73.843310	Caribbean Restaurant
3	40.894705	-73.847201	Ali's Roti Shop	40.894036	-73.856935	Caribbean Restaurant
4	40.894705	-73.847201	Rite Aid	40.896521	-73.844680	Pharmacy

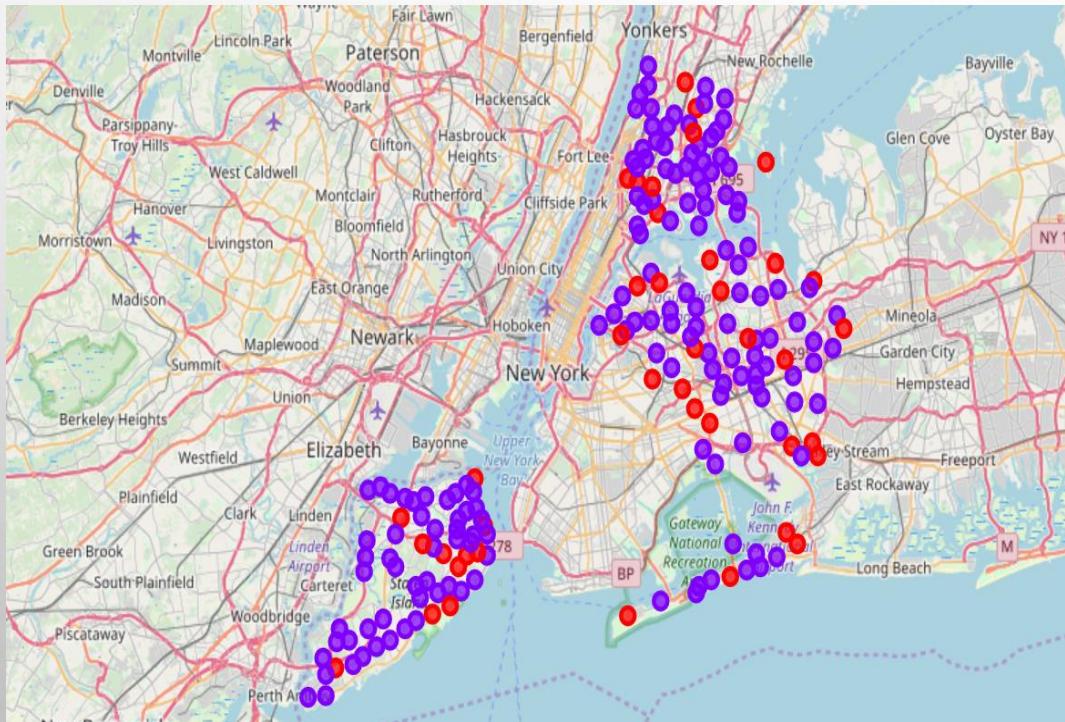


MAP VISUALIZATION USING K-MEANS FOR BROOKLYN & MANHATTAN



	Borough	Neighborhood	Latitude	Longitude	Total	Cluster_Labels
0	Manhattan	Marble Hill	40.876551	-73.910660	12	0
1	Brooklyn	Gravesend	40.595260	-73.973471	6	0
2	Brooklyn	Manhattan Terrace	40.614433	-73.957438	20	0
3	Brooklyn	Crown Heights	40.670829	-73.943291	20	0
4	Brooklyn	East Flatbush	40.641718	-73.936103	8	0
5	Brooklyn	Brownsville	40.663950	-73.910235	13	0
6	Brooklyn	Red Hook	40.676253	-74.012759	11	0
7	Brooklyn	Cypress Hills	40.682391	-73.876616	12	0
8	Brooklyn	East New York	40.669926	-73.880699	5	0
9	Brooklyn	Starrett City	40.647589	-73.879370	8	0
10	Brooklyn	Canarsie	40.635564	-73.902093	9	0
11	Brooklyn	Flatlands	40.630446	-73.929113	10	0
12	Brooklyn	Mill Island	40.606336	-73.908186	2	0
13	Brooklyn	Coney Island	40.574293	-73.988683	9	0
14	Brooklyn	Borough Park	40.633131	-73.990498	6	0

MAP VISUALIZATION USING K-MEANS FOR QUEENS, BRONX & STATEN ISLAND



	Neighborhood	Total	Cluster_Labels
0	Allerton	13	1
1	Annadale	4	1
2	Arden Heights	3	1
3	Arlington	2	1
4	Arrochar	4	1
5	Arverne	2	1
6	Astoria Heights	11	1
7	Bay Terrace	18	1
8	Baychester	15	1
9	Bayswater	1	1
10	Bedford Park	9	1
11	Beechhurst	11	1

THE THREE NEIGHBORHOODS WITH LOWEST NO OF RESTAURANTS

S.No	Neighborhood	Borough	No of Restaurants
1	Todt Hill	Staten Island	4
2	Port Ivory	Staten Island	7
3	Breezy Point	Queens	9

DISCUSSION

- THERE IS SCOPE TO INCREASE FARMERS MARKETS IN BRONX, QUEENS AND STATEN ISLAND.
- THERE IS SCOPE TO EXPLORE CUISINES OF VARIOUS COUNTRIES IN BRONX, QUEENS AND STATEN ISLAND.
- IN MANHATTAN AND BROOKLYN RESTAURANTS OF CUISINES OF MANY COUNTRIES ARE AVAILABLE. SO, IF RISK CAN BE TAKEN WITH GREAT MENU ON BOARD. IT ALSO SHOWS PEOPLE LOVE EATING CUISINES OF VARIOUS COUNTRIES.
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OBSERVATION

(BASED ON THE BELOW TABLE DESIRED DECISIONS CAN BE MADE)

S.No	Borough	Inclination towards Indian Cuisine	Competition in general
1.	Staten Island	medium	low
2.	Queens	high	Medium
3.	Bronx	low	low
4.	Brooklyn	low	high
5.	Manhattan	high	high