

Capstone Project-

NYC The Battle of Neighborhoods



Introduction

- Aims to find the best location in NYC for a new restaurant by:
 - Determining which neighborhoods offer high demand
 - Checking which neighborhoods have low levels of competition
 - Menu choice based on borough culture



NYC Overview

- International hub of the US
- Frequented by many different cultures
- Food is extremely important for the residents
- Different boroughs offer different cuisine choices
- Great opportunities for start ups



NYC Market Description

- Highly competitive
- Very high costs for mainenance, supplies and services
- Market needs to be analysed carefully to reduce the risk

NYC Cuisine Overview

- NYC is known world-wide for it's excellent food. The variety of cuisines is astounding and includes:
 - Central and Eastern European immigrants, especially Jewish immigrants - bagels, cheesecake, hot dogs, knishes, and delicatessens
 - Italian immigrants - New York-style pizza and Italian cuisine
 - Chinese and other Asian restaurants, sea food and fried dishess
 - Food trucks- Some 4,000 licensed by the city
 - Middle Eastern foods such as shawarma, kibbeh and falafel
 - Fine dining establishments

Analysing NYC Boroughs

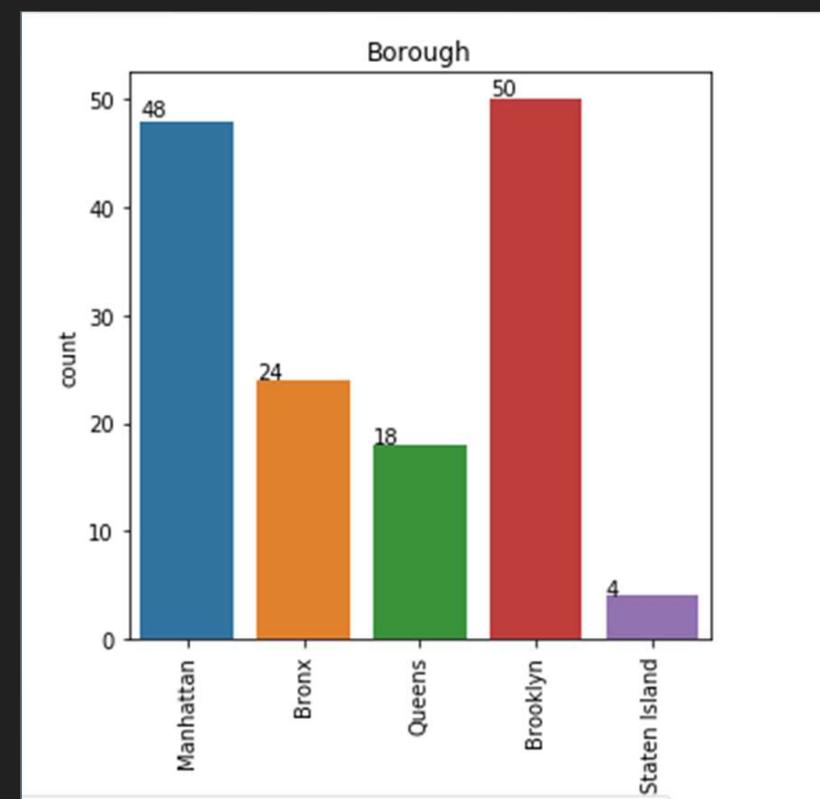
- NYC has a total of 5 boroughs and 306 neighborhoods
- 1- Manhattan and Brooklyn Clustering
- 2- Bronx, Queens and Staten Island Clustering

Methodology

- Load the NYC Geographical Coordinates Data
- Transform the data into a pandas dataframe
- This DF will contain all geographical coordinates of the boroughs
- The DF will be used to extract the restaurant data from foursquare
- Folium and Geopy to be used and create a map of NYC Boroughs and Neighborhoods

Methodology

- Analysing the farmers market dataset
- 144 Farmers Markets in NYC
- Most are located in Brooklyn, followed by Manhattan



Methodology

- Scrap the NYC datasets for cuisine, boroughs and demographics from wikipedia pages using the Python tool BeautifulSoup
- This allows us to access the data in our python library

NYC Population

- Manhattan is the smallest of the boroughs and also has the highest population density of any borough
- Queens is the largest borough
- Brooklyn has the highest population count

	Borough	County	Estimate_2017	square_miles	square_km	persons_sq_mi	persons_sq_km
0	Manhattan	New York	1,664,727	22.83	59.13	72,033	27,826
1	The Bronx	Bronx	1,471,160	42.10	109.04	34,653	13,231
2	Brooklyn	Kings	2,648,771	70.82	183.42	37,137	14,649
3	Queens	Queens	2,358,582	108.53	281.09	21,460	8,354
4	Staten Island	Richmond	479,458	58.37	151.18	8,112	3,132
5		City of New York	8,622,698	302.64	783.83	28,188	10,947
6		State of New York	19,849,399	47,214	122,284	416.4	159

NYC Demographic

- NYC's racial composition is predominantly made up of White people, followed by Non-hispanic.
- Asians make up the lowest tally with 12.7%

	Racialcomposition	2010	1990	1970	1940
0	White	44.0%	52.3%	76.6%	93.6%
1	—Non-Hispanic	33.3%	43.2%	62.9%	92.0%
2	Black or African American	25.5%	28.7%	21.1%	6.1%
3	Hispanic or Latino (of any race)	28.6%	24.4%	16.2%	1.6%
4	Asian	12.7%	7.0%	1.2%	-

NYC Cuisine

- Most people in NYC preferred Italian, followed by Puerto Rican and Mexican
- In Brooklyn people preferred Italian, Puerto Rican and Mexican
- In Manhattan it was Italian, American and Puerto Rican
- In Queens it was Indian, Irish and Pakistani
- In Bronx it was Italian, Puerto Rican and Albanian

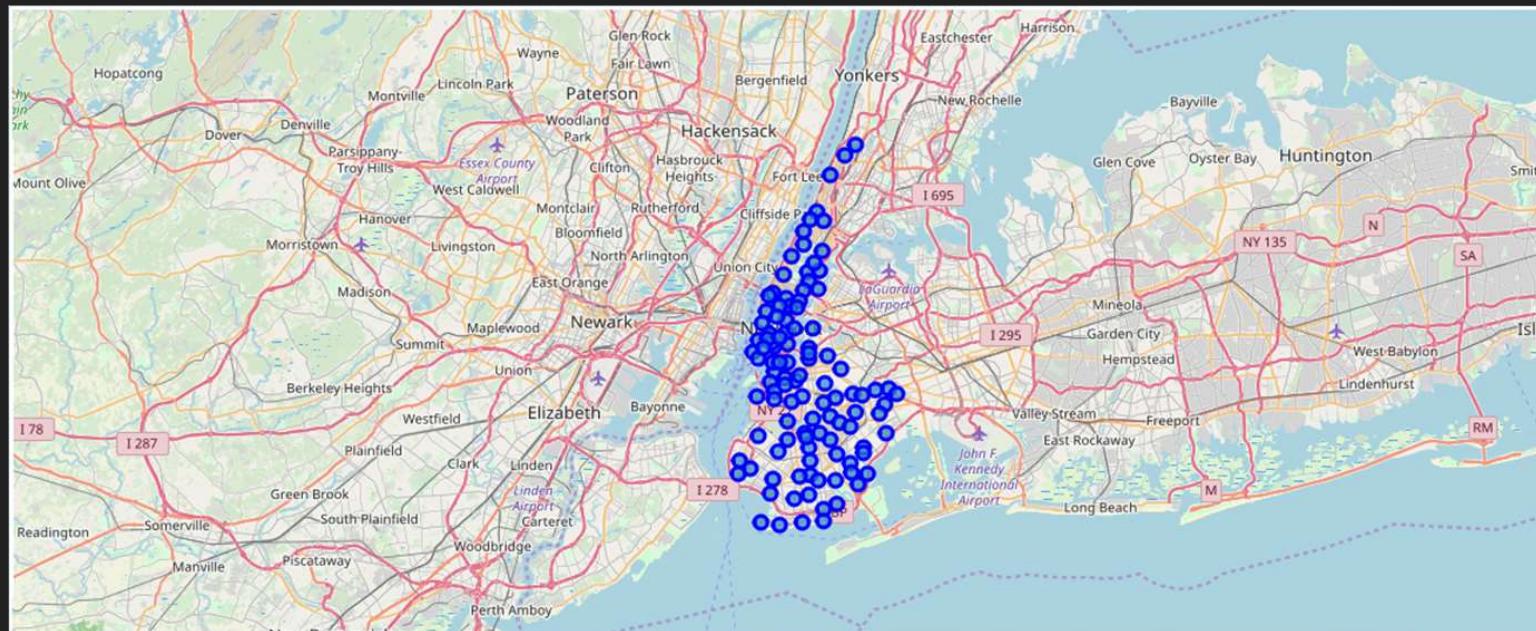


Methodology

- In foursquare we can use the NYC geographical coordinates of the boroughs to obtain the information on different restaurants.
- This is used to explore each neighborhood in terms of their venues and provide venue information

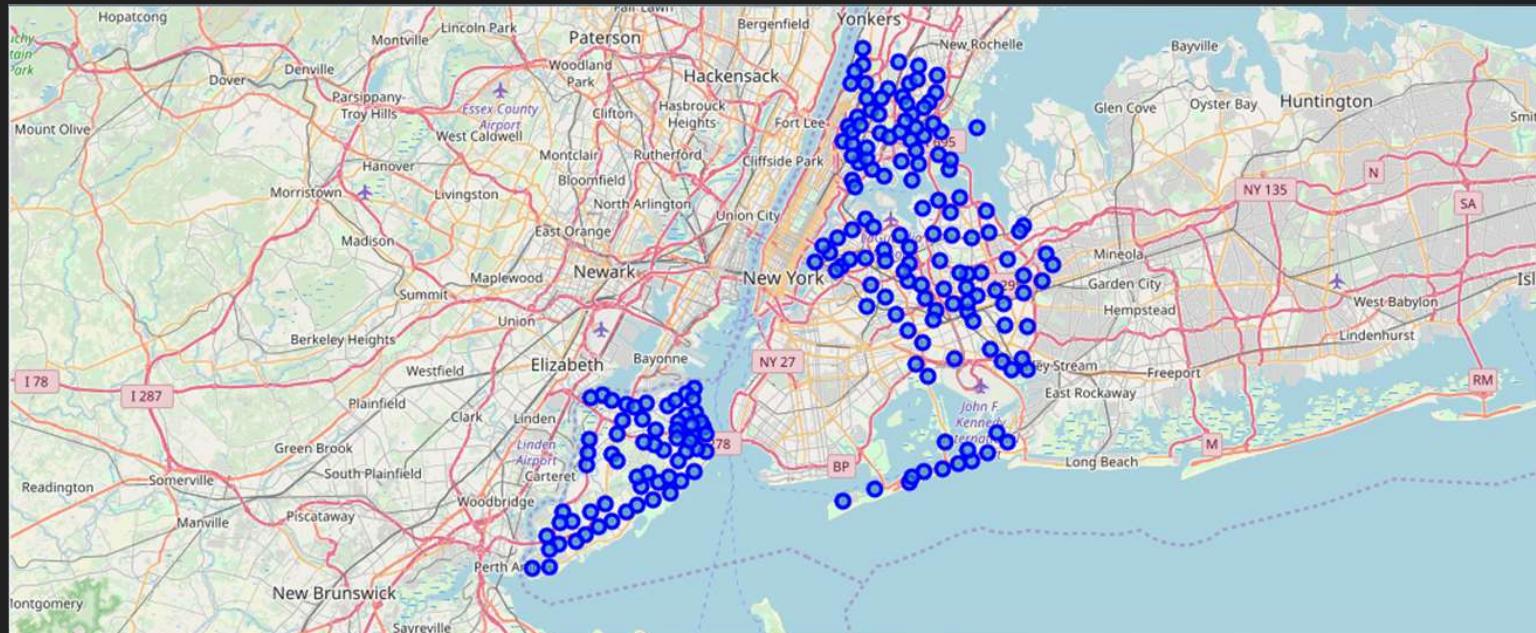
Brooklyn and Manhattan FourSquare

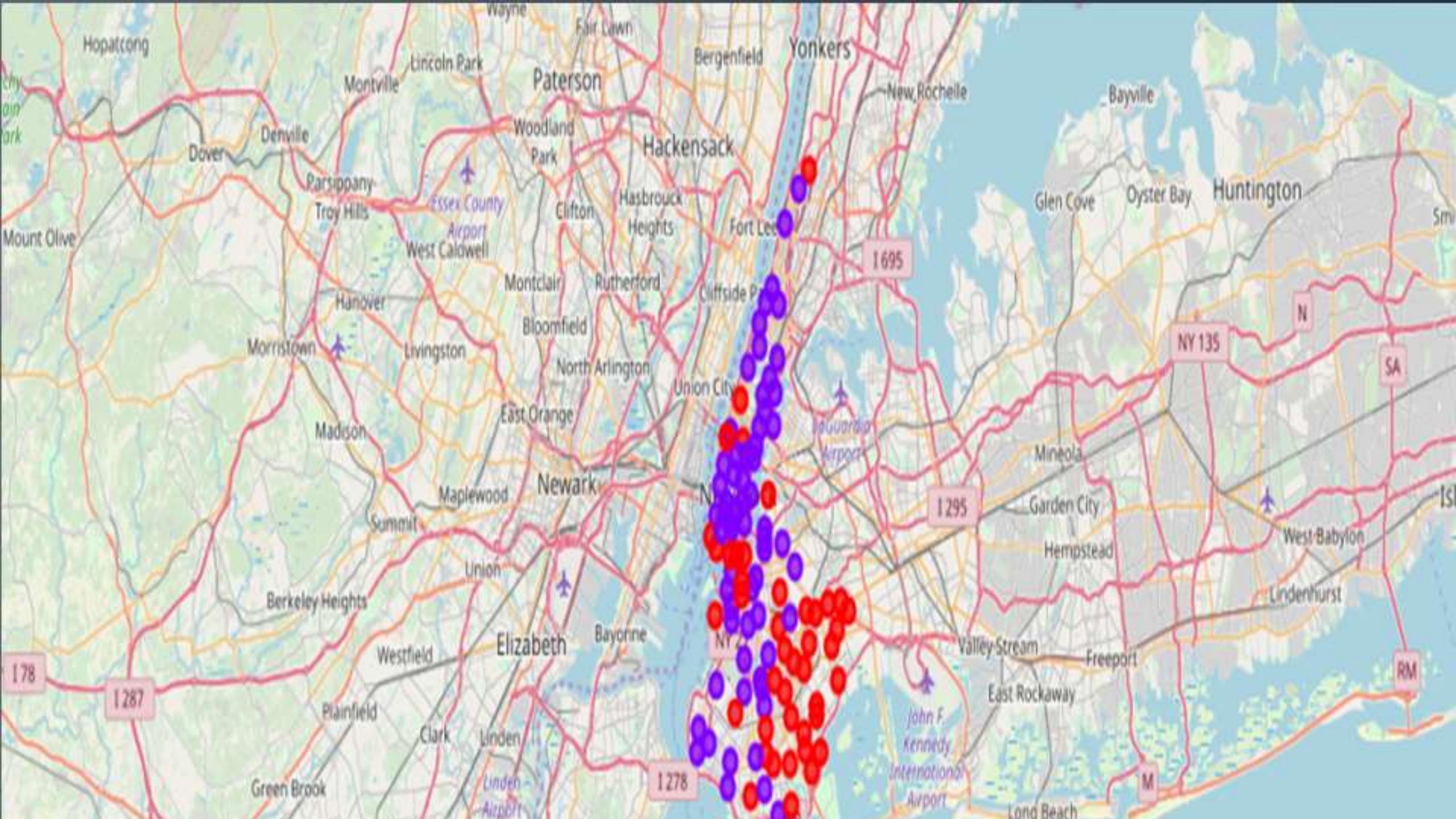
	Neighborhood	NeighborhoodLatitude	NeighborhoodLongitude	Venue	VenueLatitude	VenueLongitude	VenueCategory
0	Marble Hill	40.876551	-73.91066	Arturo's	40.874412	-73.910271	Pizza Place
1	Marble Hill	40.876551	-73.91066	Bikram Yoga	40.876844	-73.906204	Yoga Studio
2	Marble Hill	40.876551	-73.91066	Tibbett 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



Bronx, Queens and Staten Island FourSquare

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

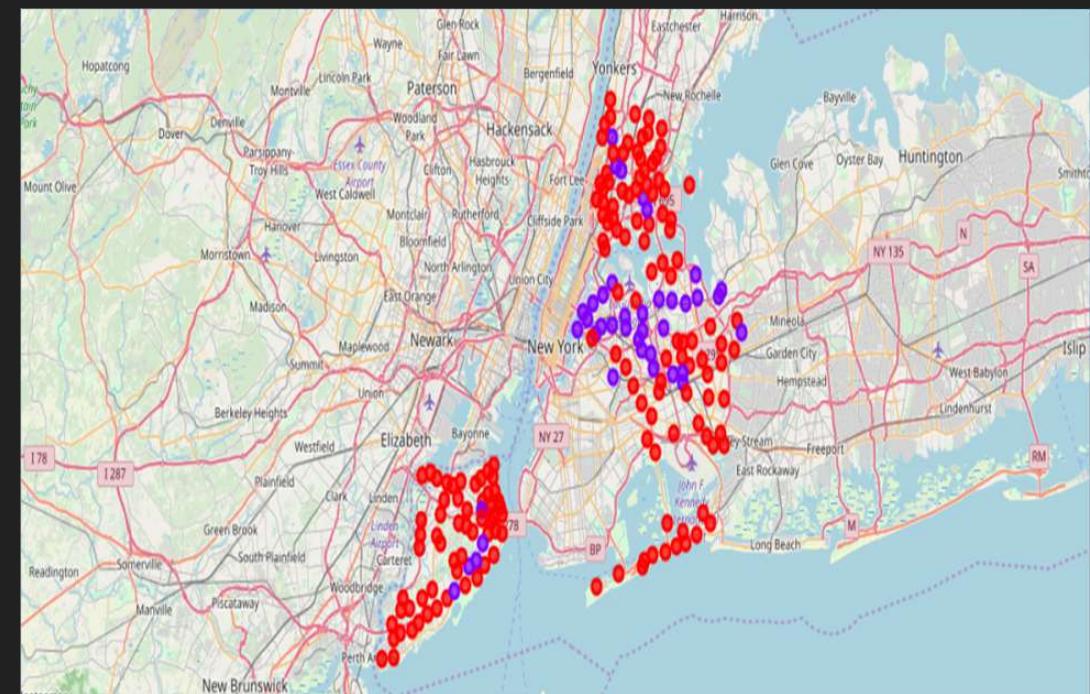




Results

Cluster0 (Purple) show where the market is not saturated and indicates an environment with less competition

Cluster1 (Red) shows where the market is highly saturated and indicates that there would be a high degree of competition



Discussion

- In Manhattan and Brooklyn, it appears that people are more open for different dishes and are willing to try new dishes. In these Boroughs, more risks may be taken
- Manhattan and Brooklyn also have the most amount of farmers markets and benefit from wider availability of these venues



Conclusion

- Brooklyn and Manhattan have positive aspects but they are also the most competitive with a lot of other restaurants in the area.
- Depending on the cuisines that the restaurant will want to pursue in the future, the recommendation will fall on either Brooklyn, Bronx or Queens.