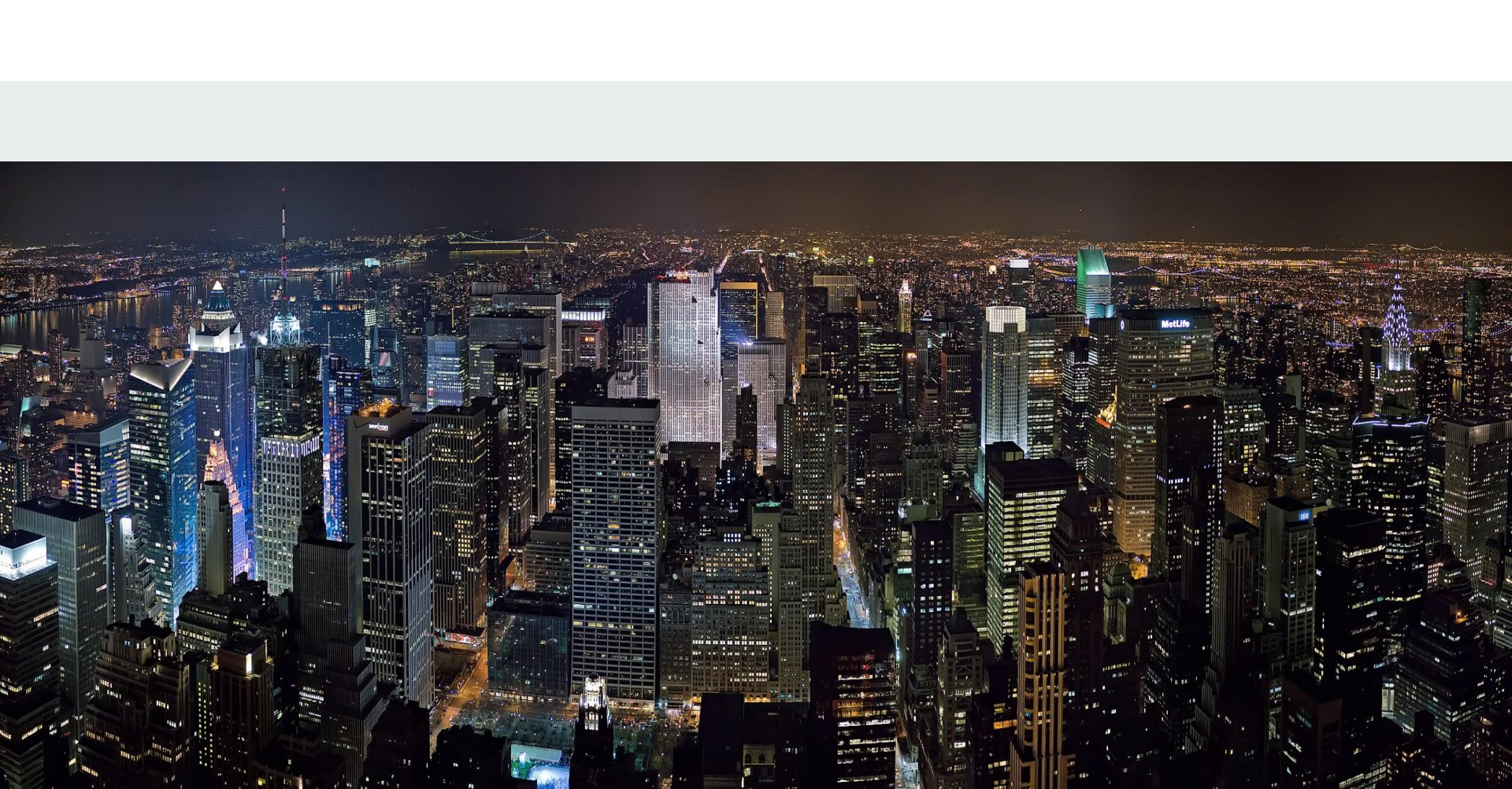




The Battle of the Neighborhoods

XYZ Company Limited

1. Manhattan
2. Brooklyn
3. Queens
4. The Bronx
5. State Island



Introduction

- New York city review for XYZ Company.
- Optimum location for new Restaurant business
- Business Problem :
 - Choice of first neighborhood to start restaurant business.
 - Easy to replicate.
 - Low competition
 - High demand
 - Choice of Menu
- Success Criteria :
 - Best neighborhood which meets above criteria.



The Truth about New York City

- Most populous city in the United States
- It is diverse and is the financial capital of USA
- It is multicultural
- Provides lot of business opportunities
- Business friendly environment
- Attracted many different players into the market
- Global hub of business and commerce.
- The city is a major centre for banking and finance, retailing, world trade, transportation, tourism, real estate, new media, traditional media, advertising, legal services, accountancy, insurance, theatre, fashion, and the arts in the United States.





Interesting Cuisine in New York City

NYC is famous for its excellent cuisine. It's international array is influenced by the city's immigrant history.

- Chinese and Asian restaurants, trattorias, diners, and coffeehouses are ubiquitous throughout the city.
- Mobile food vendors licensed by the city.
- Famous for the fine dining Michelin starred restaurants. This is home of nearly thousand of the finest and most diverse cuisine restaurants in the world, according to Michelin.
- Italian immigrants, pizza and Italian cuisine.
- Jewish and Irish immigrants, pastrami and corned beef.
- Middle Eastern foods, falafel, and kebabs on the streets is a small example.

DATA DESCRIPTION 1



- The environment has a total of 5 boroughs and 306 neighborhoods. In order to segment and explore them, we will essentially need a dataset that contains the 5 boroughs and the neighborhoods that exist in each borough as well as the latitude and longitude coordinates of each neighborhood.

	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



DATA DESCRIPTION 2

- A farmers' market is often defined as a public site used by two or more local or regional producers for the direct sale of farm products to consumers. In addition to fresh fruits and vegetables, markets may sell dairy products, fish, meat, baked goods, and other minimally processed foods.
- Data: farmers markets data.
- <https://data.cityofnewyork.us/dataset/DOHMH-Farmers-Markets/8vwk-6iz2>



DATA DESCRIPTION 3

Data from Wikipedia pages as given below:

- New York city population
- New York city demographics
- Cuisine of 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/Portal:New_York_City

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

DATA DESCRIPTION 4

- Data from Wikipedia pages as given below:
Newyork city geographical coordinates data will be utilized as input for the Foursquare API, that will be leveraged to provision venues information for each neighborhood. We will use the Foursquare API to explore neighborhoods in New York City. The below is image of the Foursquare API data.

	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



ANALYTIC APPROACH

- New York city neighbourhood has a total of 5 boroughs and 306 neighborhoods
- PART 1 - Clustering of Manhattan and Brooklyn
- PART 2 - Clustering of Bronx, Queens and Staten Island.
- Only restaurant data is filtered from foursquare.com venues data and utilized for this project.
- This is done because of the following Exploratory data analysis.

METHODOLOGY - 1

Data 1- New york city Geographical Coordinates Data.

- Load the data and explore data - newyork_data.json
- Transform the data of nested python dictionaries into a pandas dataframe.
- Dataframe contains the geographical coordinates of New York city neighborhoods.
- Data will be used to get Venues data from Foursquare.
- Geopy and folium libraries used to create a map of New York city with neighborhoods superimposed on top.



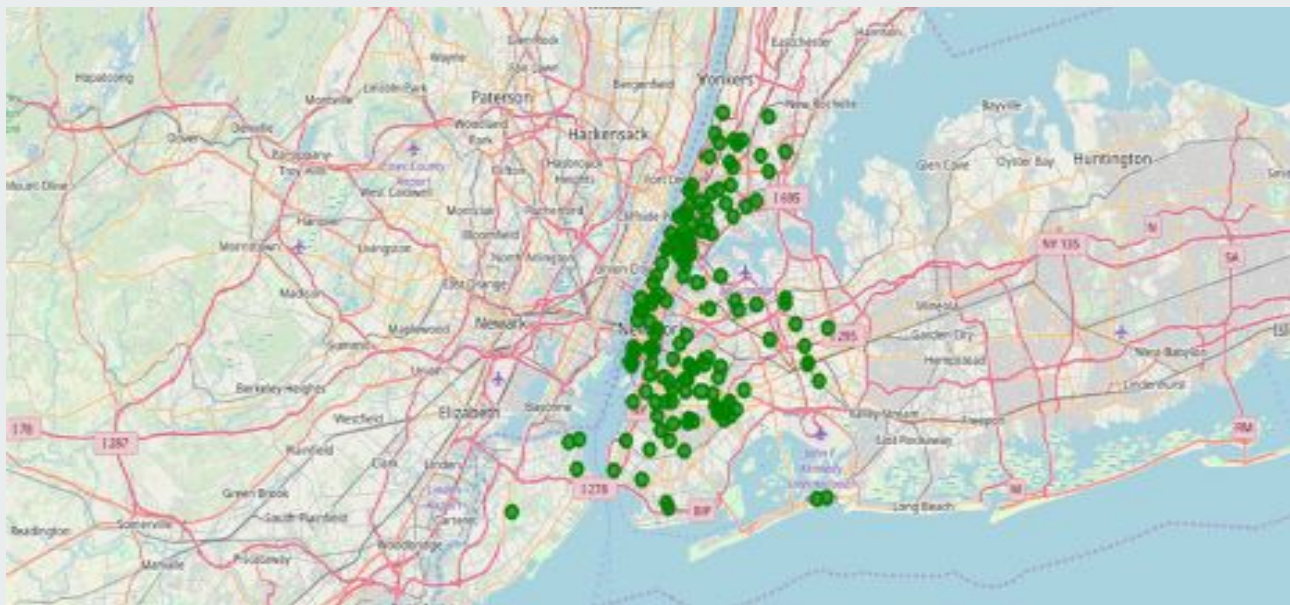


METHODOLOGY - 2

Data 2- DOHMH Farmes Markets and Food Boxes dataset

- Here we will be using the data farmers markets.
- There are totally 144 farmers markets in New York city.
- The highest number are in Manhattan and Brooklyn and lowest in Queens, Bronx and State Island

METHODOLOGY - 2





METHODOLOGY -3

- Data 3 : To analyze New York city Population, Demographics and Cuisine , scrapped the data from Wikipedia pages given above in the data section.
- We used BeautifulSoup python library.
- BeautifulSoup is a Python package for parsing HTML and XML documents (including having malformed markup, i.e. non-closed tags, so named after tag soup).
- It creates a parse tree for parsed pages that can be used to extract data from HTML, which is useful for web scraping



METHODOLOGY - 3 New York Population

- Manhattan (New York County) is the geographically smallest and most densely populated borough.
- Manhattan's (New York County's) population density of 72,033 people per square mile (27,812/km²) in 2015 makes it the highest of any county in the United States and higher than the density of any individual American city.
- Brooklyn (Kings County), on the western tip of Long Island, is the city's most populous borough.
- Queens (Queens County), on Long Island north and east of Brooklyn, is geographically the largest borough.



METHODOLOGY - 3 - New York Population

	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



METHODOLOGY - 3 - New York city Demographics

- New York City is the most populous city in the United States , with an estimated record high of 8,622,698 residents as of 2017, incorporating more immigration into the city than outmigration since the 2010 United States Census.
- The racial composition is as given below.
This is the reason New York city has restaurants serving cuisine from many countries such as India, Africa, Japan etc. This also increases the scope for restaurants business in New York City.

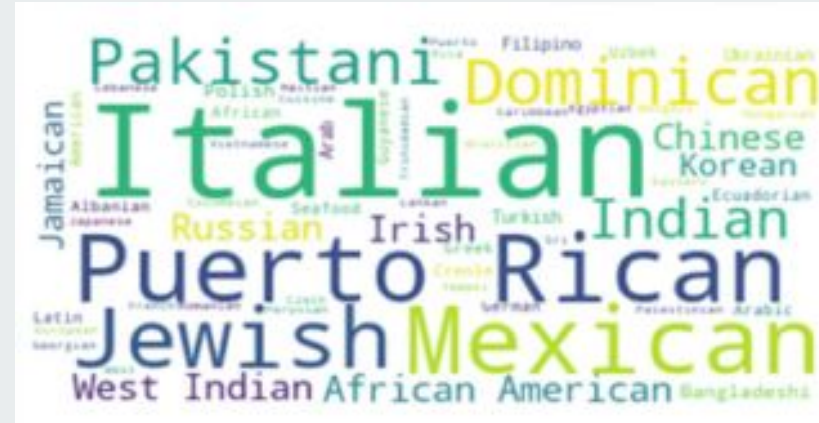
	Racialcomposition	2010	1990	1970	1940
0	White	44.0%	52.3%	76.6%	93.6%
1	—Non-Hispanic	33.3%	43.2%	62.9%	92.0%
2	Black or African American	25.5%	28.7%	21.1%	6.1%
3	Hispanic or Latino (of any race)	28.6%	24.4%	16.2%	1.6%
4	Asian	12.7%	7.0%	1.2%	—

METHODOLOGY - 3 - Cuisine of New York city

- The data has been manually prepared . Data is taken from Wikipedia page:

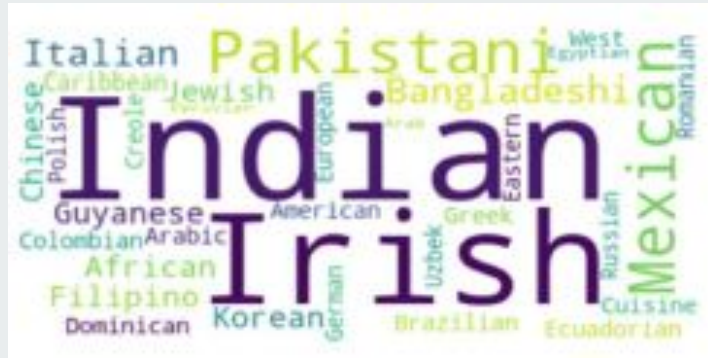
https://en.wikipedia.org/wiki/Cuisine_of_New_York_City

- Data used to create word cloud.
- **New York City Cuisine:** most preferred food in New York city-Italian, Puerto Rican, Mexican, Jewish, Indian, Pakistani & Dominican



METHODOLOGY - 3 - Cuisine of New York city

- QUEENS CUISINE - Most Preferred Food in Queens is – Indian, Irish, Pakistani and Mexican.



- THE BRONX CUISINE - Most Preferred Food in The Bronx is – Italian, Puerto Rican, Albanian and Dominican.





METHODOLOGY - 4 - Brooklyn and Manhattan

Brooklyn and Manhattan Venues data

	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	Tibbet's 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

METHODOLOGY - 4

PART - 1 Brooklyn and Manhattan



Part - 2 Bronx, Queens and Staten Island

- Segmenting and Clustering Neighborhoods
- Cluster 0 : The Total and Total Sum of cluster0 has the smallest value. It shows that the market is not saturated. There are untapped markets.
- Cluster 1 : The Total and Total Sum is very high. Lot of competition. Saturated neighborhoods.



DISCUSSION

- Scope to explore cuisines of various countries in Bronx, Queens and Staten Island.
- In Manhattan and Brooklyn restaurants, cuisines of many countries are part of their Menu. Risk can be taken with great menu on board. It also shows people love and explore cuisines of various countries.
- Scope to increase Farmers markets in Bronx, Queens and Staten Island.
- Region - Cluster0
- Neighborhood - Staten Island- Tod Hill, Port Ivory, Bloomfield.



CONCLUSION

- Analysis performed on limited data
- Re-run program with updated information
- Brooklyn and Manhattan has high concentration of restaurant business. Very competitive market.
- Bronx, Queens and Staten Island also has good number of restaurants but not as many as required. So this can be explored.
- As per the neighbourhood or restaurant type mentioned like Indian Restaurant, analysis can be checked. A venue with lowest risk and competition can be identified

