

The Battle of Neighborhoods

XYZ Company Ltd

INTRODUCTION

New York city review by XYZ Company

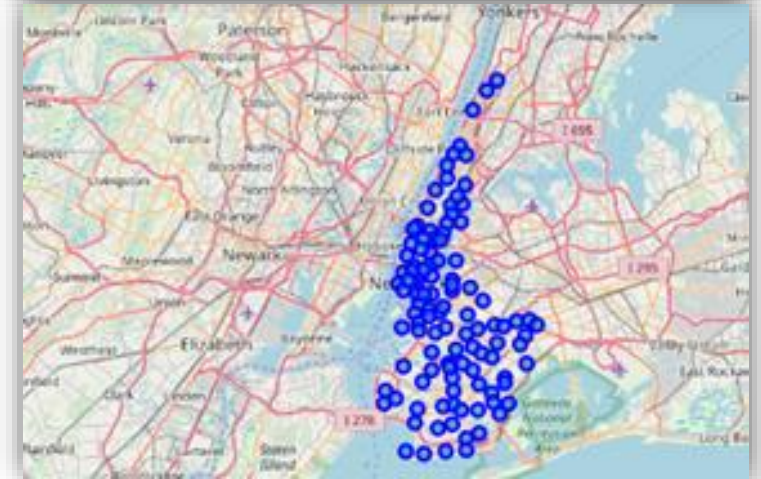
- Optimum location for new Restaurant business

- **Business Problem :**

- Choice of first neighbourhood to start restaurant business
- Easy to replicate
- Low competition
- High demand

- **Success Criteria :**

- Best neighbourhood which meets above criteria



NEW YORK CITY FACTS

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



NEW YORK CITY BUSINESS ENVIRONMENT

Market is highly competitive

- Highly developed city so cost of doing business is also one of the highest
- New business venture or expansion needs to be analysed carefully
- One should strategically target the market for the below benefits:
 - This will help in reduction of risk
 - The Return on Investment will be reasonable

NEW YORK CITY - CUISINE

The City of New York is famous for its excellent cuisine. It's food culture includes an array of international cuisines influenced by the city's immigrant history.

- Central and Eastern European immigrants, especially Jewish immigrants - cheesecake, hot dogs, knishes, and delicatessens
- Italian immigrants - New York-style pizza and Italian cuisine
- Jewish immigrants and Irish immigrants - pastrami and corned beef
- Chinese and other Asian restaurants, sandwich joints, diners, and Coffee houses are ubiquitous throughout the city
- Mobile food vendors - Some 4,000 licensed by the city
- Middle Eastern foods such as falafel and kebabs examples of modern New York street food
- Famous for fine dining Michelin starred restaurants. The city is home to "nearly one thousand of the finest and most diverse haute cuisine restaurants in the world", according to Michelin
- So it is evident that to survive in such competitive market it is very important to strategically plan

FACTORS TO STUDY TO DECIDE ON RESTAURANT LOCATION

- New York Population
- New York City Demographics
- Are there any Farmers Markets, Wholesale markets nearby so that fresh ingredients can be purchased to maintain quality and cost?
- Are there any venues like Gyms, Entertainment zones, Parks nearby where floating population is high
- Who are the competitors in that location?
- Cuisine served / Menu of the competitors
- Segmentation of the Borough
- Untapped markets
- Saturated markets

DATA DESCRIPTION – 1

Data : Neighbourhood has a total of 5 boroughs and 306 neighbourhoods. In order to segment the neighbourhoods and explore them, we will essentially need a dataset that contains the 5 boroughs and the neighbourhoods that exist in each borough as well as the latitude and longitude coordinates of each neighbourhood

➤ This dataset exists for free on the web. Link to the dataset is :

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

DATA DESCRIPTION – 2

Data : Farmers Markets data -

<https://data.cityofnewyork.us/dataset/DOHMH-Farmers-Markets-and-Food-Boxes/8vwk-6iz2>

- 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 DESCRIPTION – 3

Data : Data from Wikipedia pages as given below :

- New York 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

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DATA DESCRIPTION – 4

Data : Data from Foursquare.com

New York city geographical coordinates data will be utilized as input for the Foursquare API, that will be leveraged to provision venues information for each neighbourhood.

We will use the Foursquare API to explore neighbourhoods in New York City.

The below is image of the Foursquare API data:

	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

ANALYTICAL APPROACH

New York city neighbourhood has a total of 5 boroughs and 306 neighbourhoods

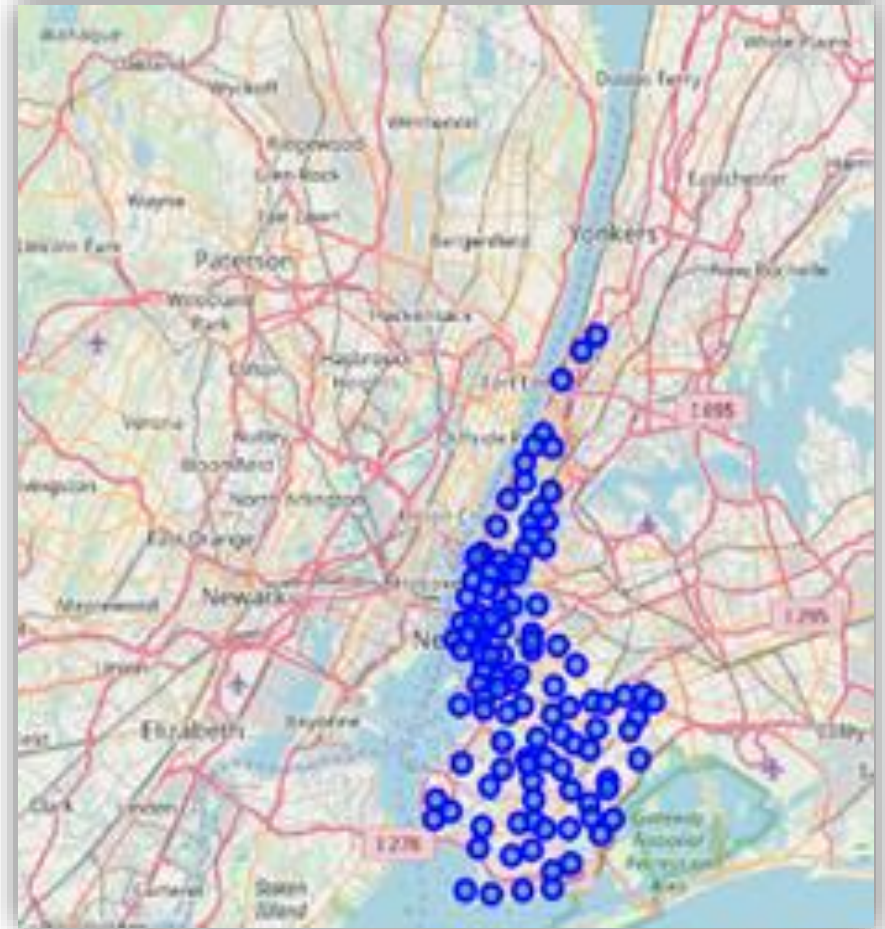
Clustering of Manhattan and Brooklyn

- Only restaurant data is filtered from foursquare.com venues data and utilized for this project

METHODOLOGY - 1

Data : 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 neighbourhoods
- Data will used to get Venues data from Foursquare
- Geopy and folium libraries used to create a map of New York city with neighbourhoods superimposed on top



METHODOLOGY – 2 – Cont..

Data : To analyze New York city Population, scrapped the data from Wikipedia pages given above in the data section

- 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 – 2

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

	Borough	County	Estimate_2017	square_miles	square_km	persons_sq_mi	persons_sq_km
0	The Bronx	Bronx	1,471,160	19,570	42.10	109.04	34,653
1	Brooklyn	Kings	2,648,771	23,900	70.82	183.42	37,137
2	Manhattan	New York	1,664,727	378,250	22.83	59.13	72,033
3	Queens	Queens	2,358,582	31,310	108.53	281.09	21,460
4	Staten Island	Richmond	479,458	23,460	58.37	151.18	8,112
5		City of New York	8,622,698	806.863	302.64	783.83	28,188
6		State of New York	19,849,399	1,547.116	47,214	122,284	416.4

METHODOLOGY – 3 – Cont..

Data : Foursquare.com

New York city geographical coordinates data has be utilized as input for the Foursquare API, that has been leveraged to provision venues information for each neighbourhood

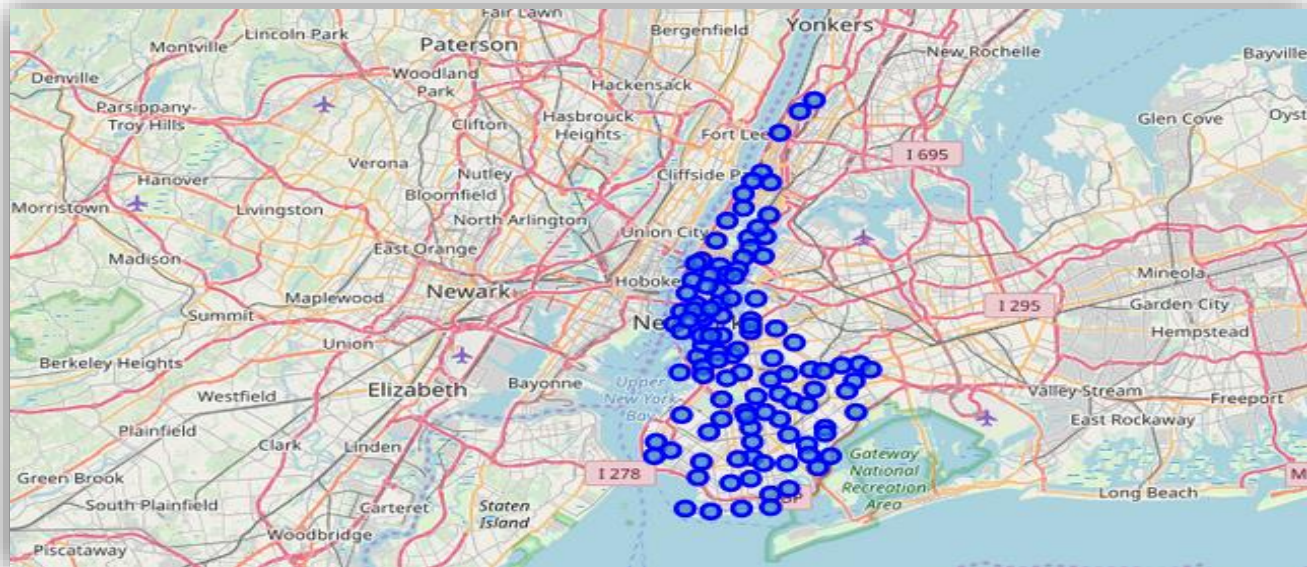
- We used the Foursquare API data to explore neighbourhoods in New York City
- Using the geographical coordinates of each neighbourhood foursquare API calls are made to get top 200 venues in a radius of 1000 meters - Brooklyn and Manhattan

METHODOLOGY – 3 – Cont..

Brooklyn and Manhattan Venues Data :

	Neighborhood	NeighborhoodLatitude	NeighborhoodLongitude	Venue	VenueLatitude	VenueLongitude	VenueCategory
0	Marble Hill	40.876551	-73.91066	Bikram Yoga	40.876844	-73.906204	Yoga Studio
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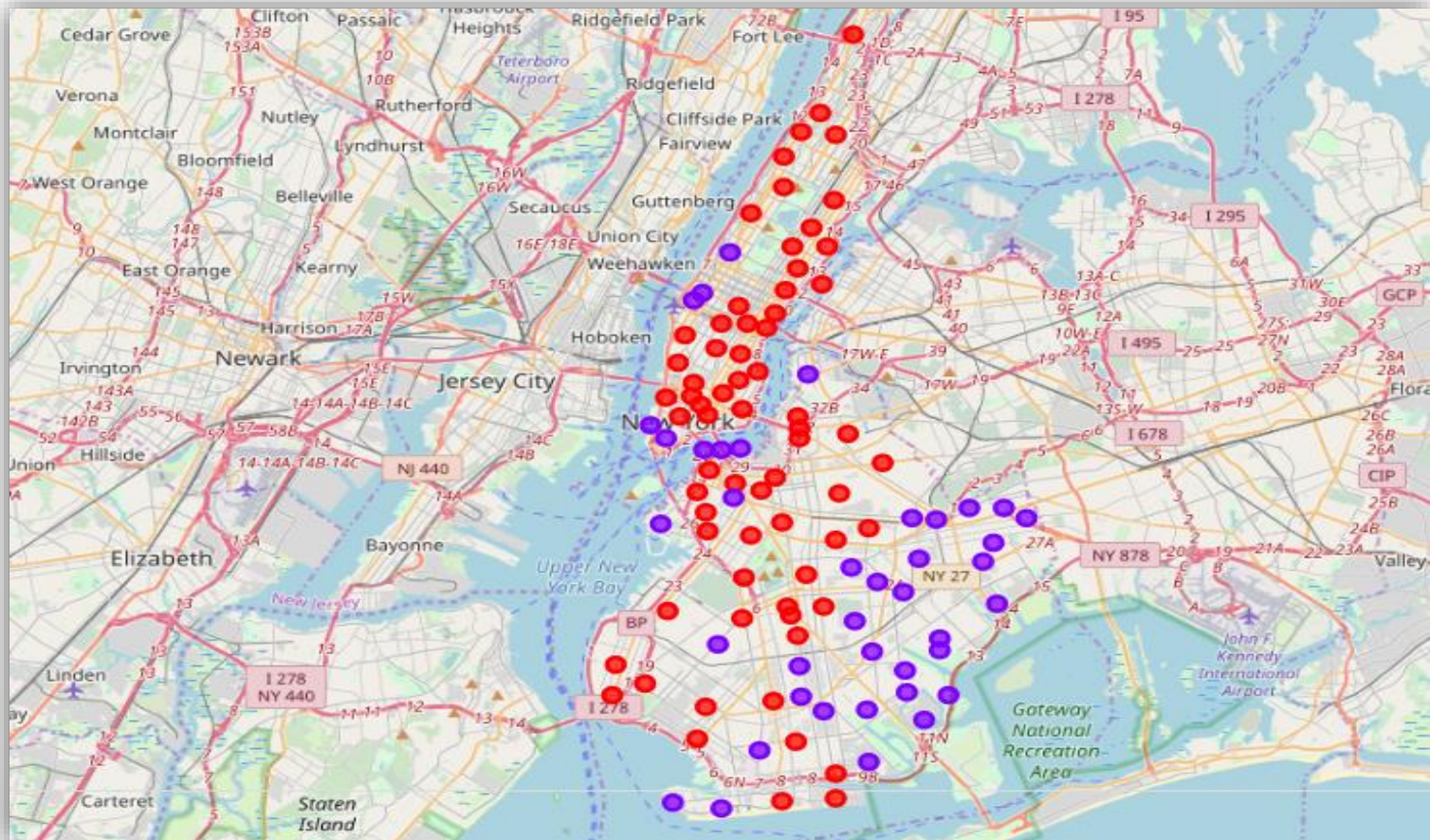
Brooklyn and Manhattan Visualization:



METHODOLOGY – 3

Brooklyn and Manhattan Venues Visualization:

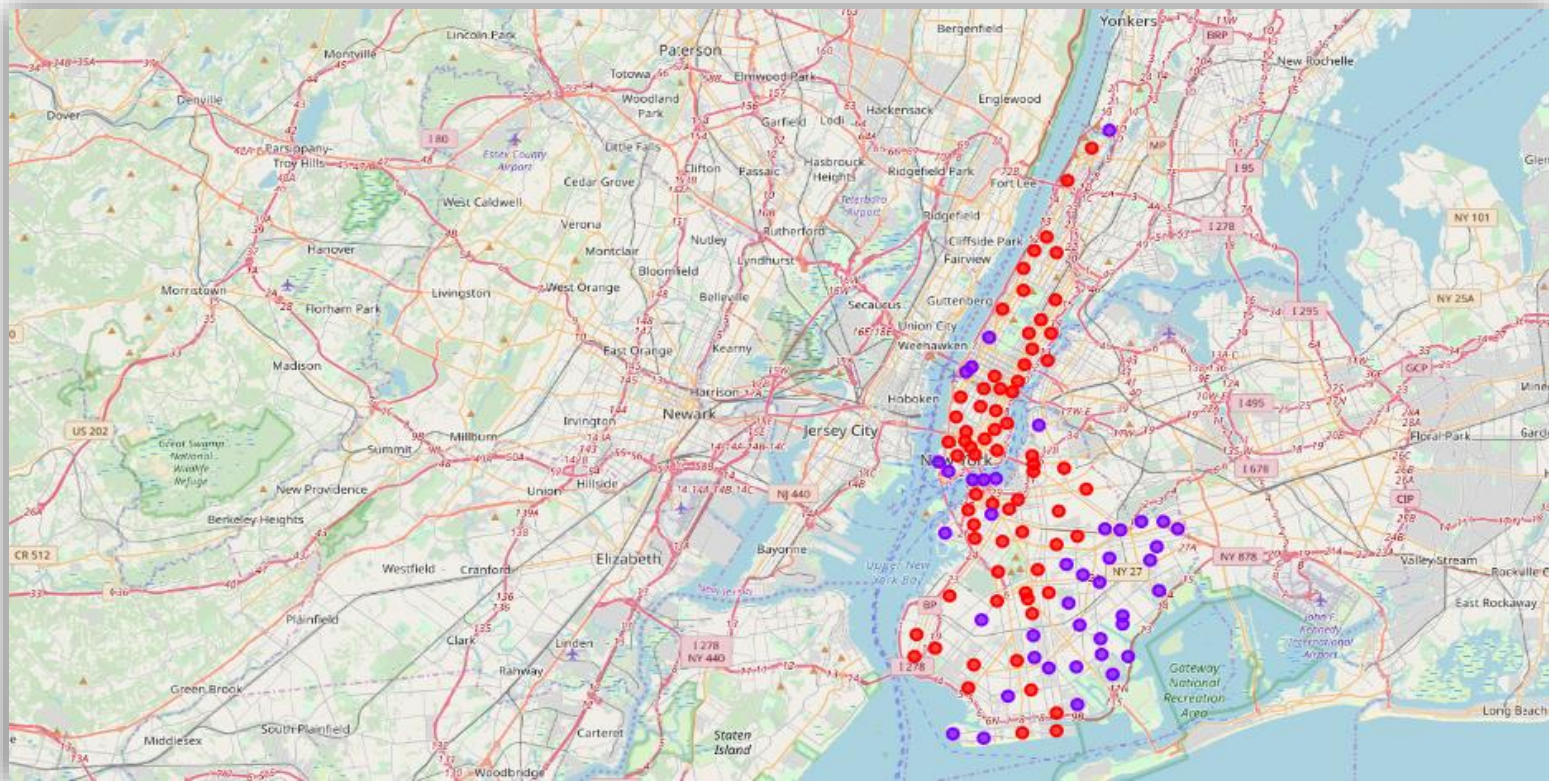
The "BM_venues" dataframe has 9708 venues and 397 unique venue types



RESULT

Segmenting and Clustering Neighbourhoods

- Cluster0 : The Total and Total Sum of cluster0 has smallest value. It shows that the market is not saturated
- Cluster1 : The Total and Total Sum is very high. Lot of competition. Saturated neighbourhoods



CONCLUSION

- Analysis performed on limited data
- Re-run program with updated information
- Brooklyn and Manhattan has high concentration of restaurant business. Very competitive market
- 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