

IBM CAPSTONE PROJECT

Finding a Strategic Restaurant Location in New York City

By: WILL TUW

DATE: 20 APRIL 2020

1 Introduction

1.1 Business Case:-

New York City is one of the most popular city in the world, with population of nearly 9 million and it is the most densely populated major city in the US.

An Investor was looking to open a restaurant at Manhattan, New York. However, they are unsure on which location would be strategically beneficial to their future business.

They are also demand to know which cuisine is the most popular cuisine in the area and to know how many competitor is around at that particular area.

To open a restaurant, other than the food needed to be unique at its own, we will need to consider a strategic location for the restaurant to be accessible to all locals.

Therefore, we are required to analysed data to provide a clearer image on which area will be the suitable for a restaurant to be located and will be profitable enough to help our client to expand its business in future.

1.2 Background discussion:-

By utilising Foursquare API, we are able to collect competitors location around the area which allow us to have a better insight on which Food is more appealing towards the customer.

We will also need to find out the population at the neighbourhood in order to help us determine which strategic area is the best location to invest on.

2 Data acquisition

2.1 Data source

The data source of the population in NYC for this project can be found at <https://data.cityofnewyork.us/City-Government/New-York-City-Population-By-Neighborhood-Tabulation/swpk-hq> (New_York_City_Population_By_Neighborhood_Tabulation_Areas) in order to work out the highest populated neighbourhood in Manhattan to provide an insight of the nearby location.

3 Analysis

3.1 To find the most populated neighbourhood in Manhattan

First, we are required to find a neighbourhood with the highest population in Manhattan.

With the availability of the data from the website, we are able to sort the data with the highest population as shown (in red box) as below:-

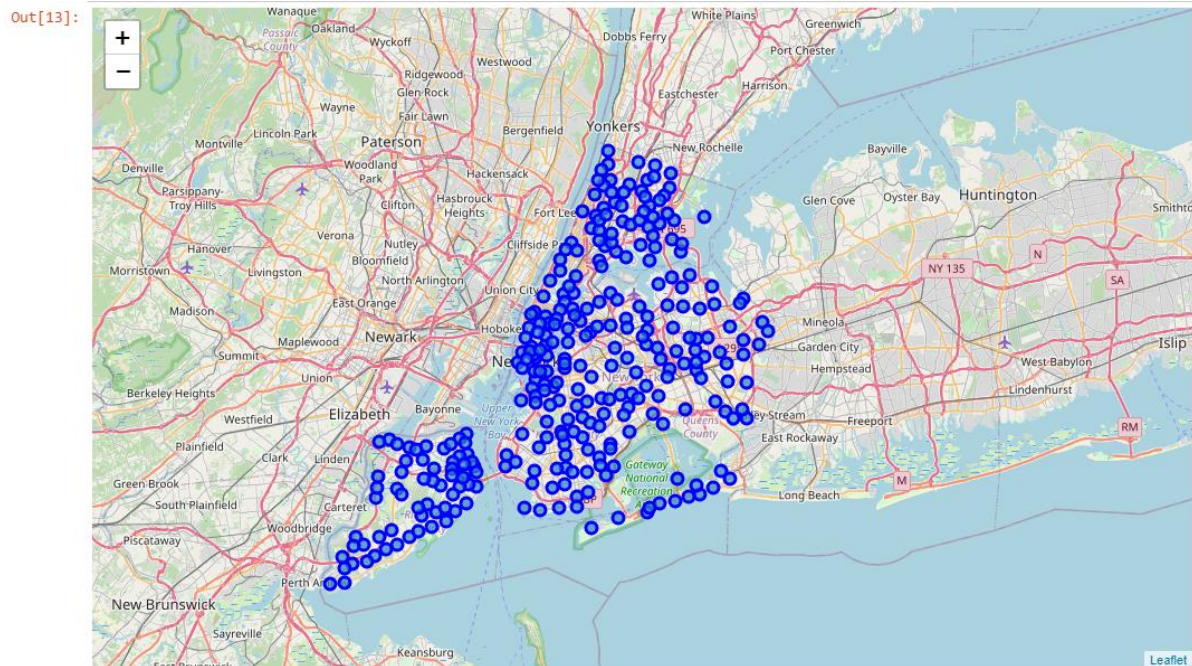
Out[3]:

	Borough	Year	FIPS County Code	NTA Code	NTA Name	Population
6	Manhattan	2000	61	MN12	Upper West Side	136954
35	Manhattan	2010	61	MN12	Upper West Side	132378
25	Manhattan	2000	61	MN36	Washington Heights South	93671
54	Manhattan	2010	61	MN36	Washington Heights South	84438
49	Manhattan	2010	61	MN31	Lenox Hill-Roosevelt Island	80771

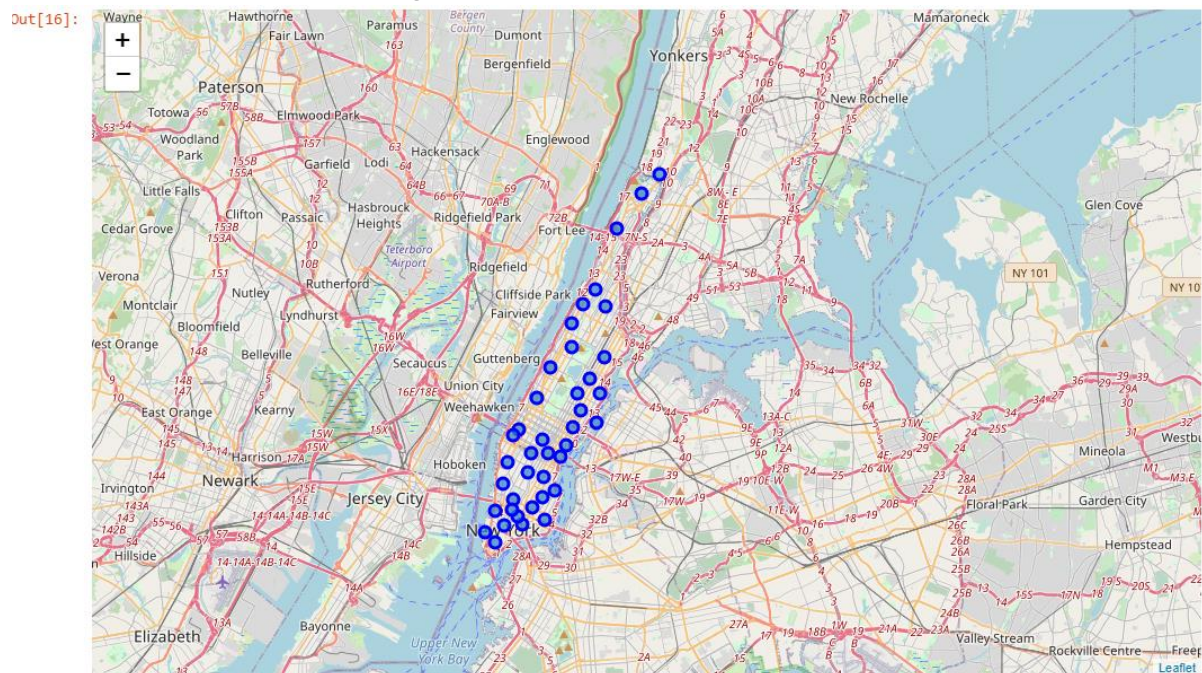
Therefore, the most populated neighbourhood in Manhattan located at Upper West Side.

3.2 To visualize the NYC neighbourhood

By utilising Matplotlib and sklearn.cluster KMeans library we are able to plot the cluster of neighbourhood in Manhattan as follows:-



And then to filter the neighbourhood in Manhattan:-



3.3 To explore and find out the most popular venue at Upper East Side Neighbourhood of Manhattan

By utilising Foursquare API, we are able to find out the 1st Most common venue at Upper East Side Neighbourhood.

Out[43]:

	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
8	Upper East Side	Italian Restaurant	Coffee Shop	Bakery	Gym / Fitness Center	Exhibit	Yoga Studio	Wine Shop	Juice Bar	French Restaurant	Spa
9	Yorkville	Italian Restaurant	Coffee Shop	Gym	Bar	Deli / Bodega	Pizza Place	Sushi Restaurant	Wine Shop	Diner	Japanese Restaurant
10	Lenox Hill	Italian Restaurant	Coffee Shop	Sushi Restaurant	Pizza Place	Cocktail Bar	Café	Burger Joint	Gym	Gym / Fitness Center	Playground

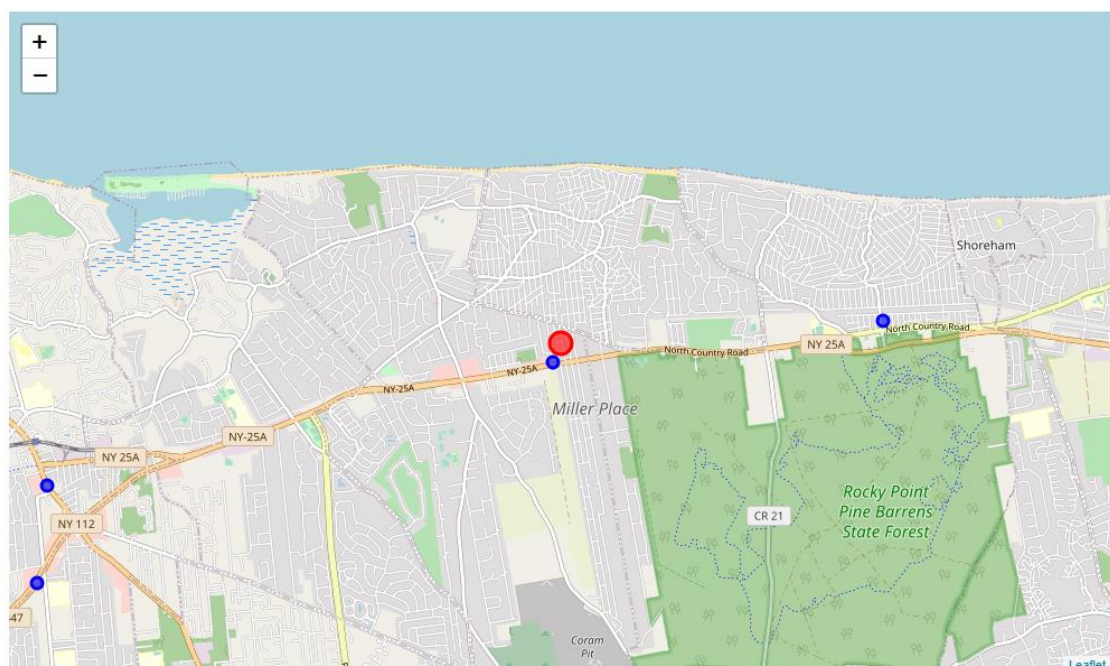
The result of the 1st Most common venue is **Italian Restaurant**.

3.4 To locate nearby Italian restaurant around 86th street subway station

For the restaurant to be accessible to everyone, it is better to locate around subway station (86th street subway station @ Upper East side area).

Additionally, to also evaluate the number of nearby Italian Restaurant competitor around Upper East Side for investor consideration as follows:-

Out[89]:



The red dot represents 86th street subway station and there are only one Italian restaurant nearby.

4 Conclusion

In conclusion, it is a wise choice to open an Italian restaurant at preferably walking distance from 86th street subway station. so that, everyone can enjoy a tasty meal from the restaurant.

