Capstone Project

LOOKING FOR THE BEST PLACE TO OPEN A NEW RESTAURANT

I. Introduction & Business Problem

▶ The City of New York is one of the most busy places in the United States, due to his activity, financial (Called the financial capital of USA) , high tourist traffic due multiculturism of his visitors (Latin America, Europa, Asia and others) and also people that works here that came from that places since NY is also home for many companies that find a business friendly enviroment. It means NY is a place with a potencial return of investment due his economic activity buy also means the market is highly competitive. But we have to take care about it, it seems like every investment will be an hit, but it is not necesarily due the market is highly competitive, for this reason is required for a new investment to analyse some facts to reduce the risk of invest here, and also have a positive return of his investments. For all of these reasons is necessary understand the market that we can enter to invest

I. Introduction & Business Problem

► Into the New York many financial activities take place, the most common are the services, like food, but there is no many places to eat a fresh sushi, and generally speaking, no many places have fresh fish. In this way, We need to select a suitable location to open a restaurant, we need to find a place with high people taffic and with people interested in this kind of site near to the place where I will open the restaraunt.

II. About the Dataset

▶ Along this project We will use a dataset that contanis the boroughs and neighborhoods of New York city. The dataset can be found in the next link: https://geo.nyu.edu/catalog/nyu_2451_34572
Also we will use Foursquare information about restaurants that offer sushi. To identificate this we will use the next ID : 4bf58dd8d48988d1d2941735
(https://developer.foursquare.com/docs/resources/categories)

III. Methodology

- As in Week 3, I follow the same methodology.

- I use de address converting it in latitude and longitude coordinates, after I used Foursquare to explore Neigborhoods in NY and also to get some information some Sushi restaurants, I also used the information from Foursquare API to get information about the most current venues in New York City and I foun that there is a lot of places that offers the same thing:

▶ And I thought that I need found a place with the less number of sushi restaurants to put a new one, using the K means algorithm I could segment the sushi bars as follow :
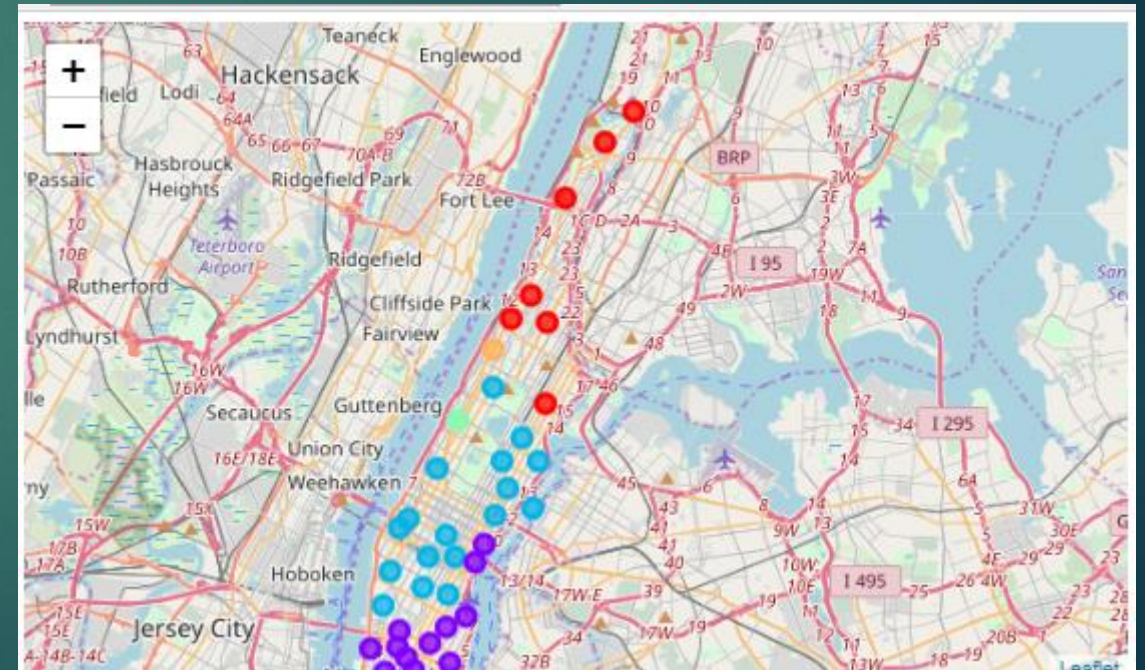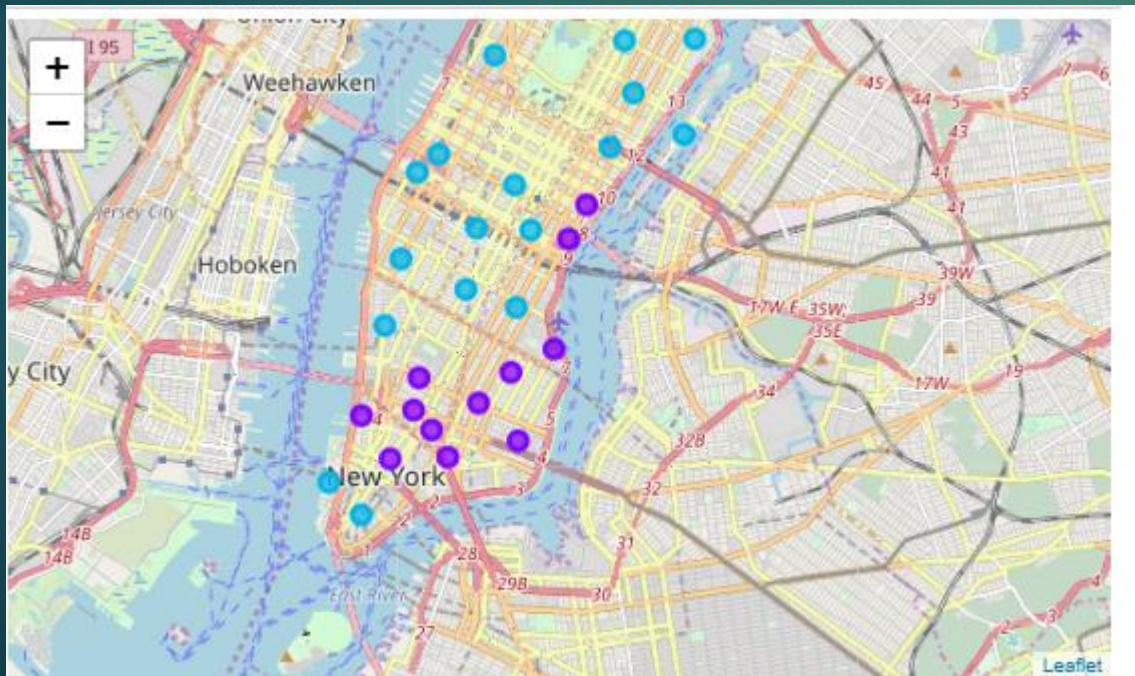
IV. Results

As you can see in the previous Maps, I found 5 clusters with the less number of sushi bars,

```
#Cluster 2
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 1,
            manhattan_merged.columns[[1] + list(range(5, manhattan_merged.shape[1]))]]
```

	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
1	Chinatown	Sushi Restaurant	Japanese Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store	Hawaiian Restaurant
18	Greenwich Village	Sushi Restaurant	Japanese Restaurant	Sake Bar	Grocery Store	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega
19	East Village	Sushi Restaurant	Japanese Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store	Hawaiian Restaurant
20	Lower East Side	Sushi Restaurant	Japanese Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store	Hawaiian Restaurant

```
#Cluster 3
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 2, manhattan_merged.columns[[1] + list(range(5, manhattan_merged.shape
```

	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	Sushi Restaurant	Japanese Restaurant	Asian Restaurant	Grocery Store	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Hawaiian Restaurant
9	Yorkville	Sushi Restaurant	Japanese Restaurant	Asian Restaurant	Chinese Restaurant	Noodle House	Bakery	Cocktail Bar	Deli / Bodega	Grocery Store	Hawaiian Restaurant
10	Lenox Hill	Sushi Restaurant	Asian Restaurant	Japanese Restaurant	Grocery Store	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Hawaiian Restaurant
11	Roosevelt Island	Sushi Restaurant	Asian Restaurant	Japanese Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store	Hawaiian Restaurant
13	Lincoln Square	Sushi Restaurant	Japanese Restaurant	Smoothie Shop	Chinese Restaurant	Grocery Store	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Cocktail Bar	Deli / Bodega
14	Clinton	Sushi Restaurant	Japanese Restaurant	Poke Place	Chinese Restaurant	Cocktail Bar	Asian Restaurant	Seafood Restaurant	Sandwich Place	Sake Bar	Restaurant

#Cluster 4
```
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 3, manhattan_merged.columns[[1] + list(range(5, manhattan_merged.shape
```

	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
12	Upper West Side	Sushi Restaurant	Japanese Restaurant	Asian Restaurant	Grocery Store	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Hawaiian Restaurant

#Cluster 5
```
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 4,
                     manhattan_merged.columns[[1] + list(range(5, manhattan_merged.shape[1]))]]
```

	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
26	Morningside Heights	Sushi Restaurant	Hawaiian Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store	Japanese Restaurant

V. Discussion

▶ Now, some things that I noticed from the results of K-Means algorithm :

▶ Into the 3 first clusters, the most venues are sushi restaurants, so, It seems like a very potential place to open a new restaurant, but, you will find hard competitors.

▶ Into the 4 cluster, the top 3 venues are Asian food, so, it could be a good place to open a new restaurant, without competitors, and with people interested in that kind of food.

▶ But the last decision depends of the risk appetite , in my opinion, I prefer be conservative and open it in cluster number 4, less competitors.

VI. Conclusion

► In my opinion, it's a faster analysis, but it brings to you an idea how to analyses and of to lead a project using data, with just 2 datasets we could found some insights into the data and brings an idea to take a decision or maybe to search more information to be sure about our investment.
In this case, I conclude that the last decision depends of the risk appetite, but clearly, data suggest something but it need to be handled with zoom.