FINDING A JAPANESE RESTAURANTS IN NEW YORK

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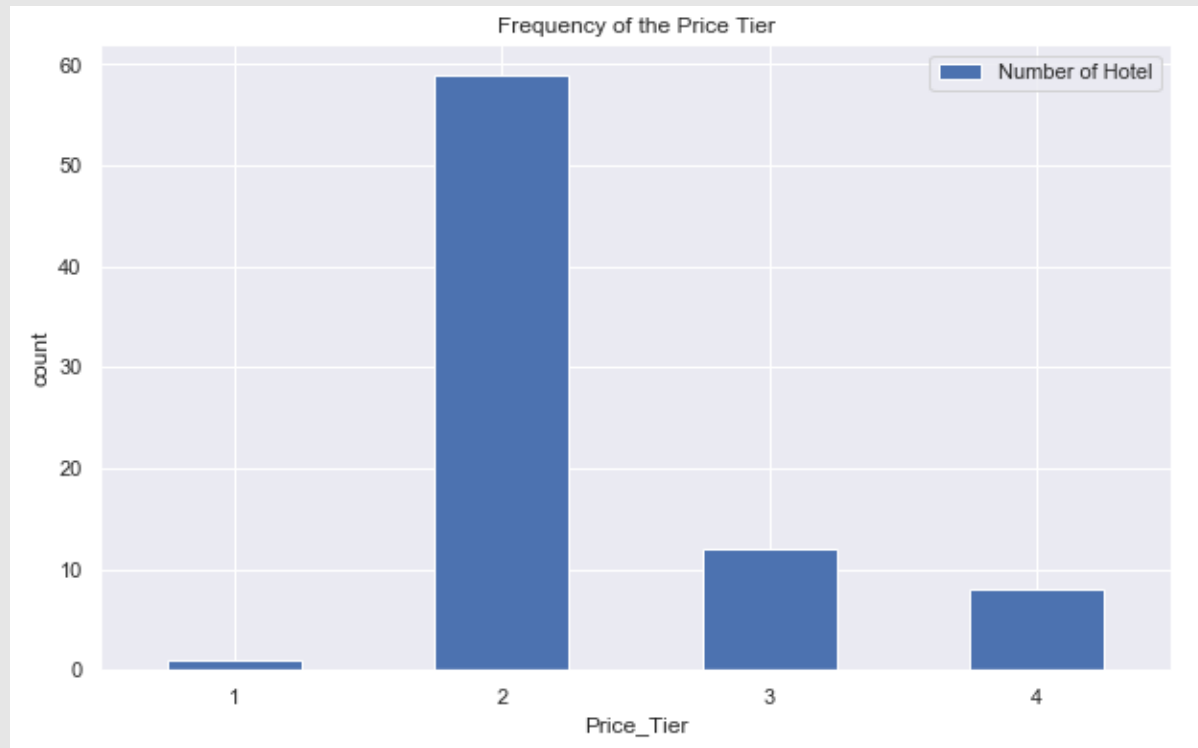
Introduction

◦ In this project, we will explore Japanese restaurants in New York.

◦ This report is targeted for people, who want to have Japanese food during the trip especially to a big city, New York.

◦ When people look for a restaurant, people mostly check the price, rating and location. Therefore, we will explore Japanese restaurants in New York based on these criteria.

Data Acquisition & Cleaning

◦ Geographic coordinate of the boroughs and the neighborhoods in New York:

 https://geo.nyu.edu/catalog/nyu_2451_34572

◦ Details of restaurants including price tier, rating, and location in New York: Foursquare API.

◦ Number of hotels in each Neighborhood Tabulation Areas (NTA):

 https://data.cityofnewyork.us/City-Government/Hotels-Properties-Citywide/tjus-cn27

◦ Gis data of Neighborhood Tabulation Areas (NTA) in New York:

 https://data.cityofnewyork.us/City-Government/Neighborhood-Tabulation-Areas-NTA-/cpf4-rkhq

◦ Geographic coordinate of New York: Google Maps API geocoding.

◦ Japanese restaurants without rating or price information were dropped.
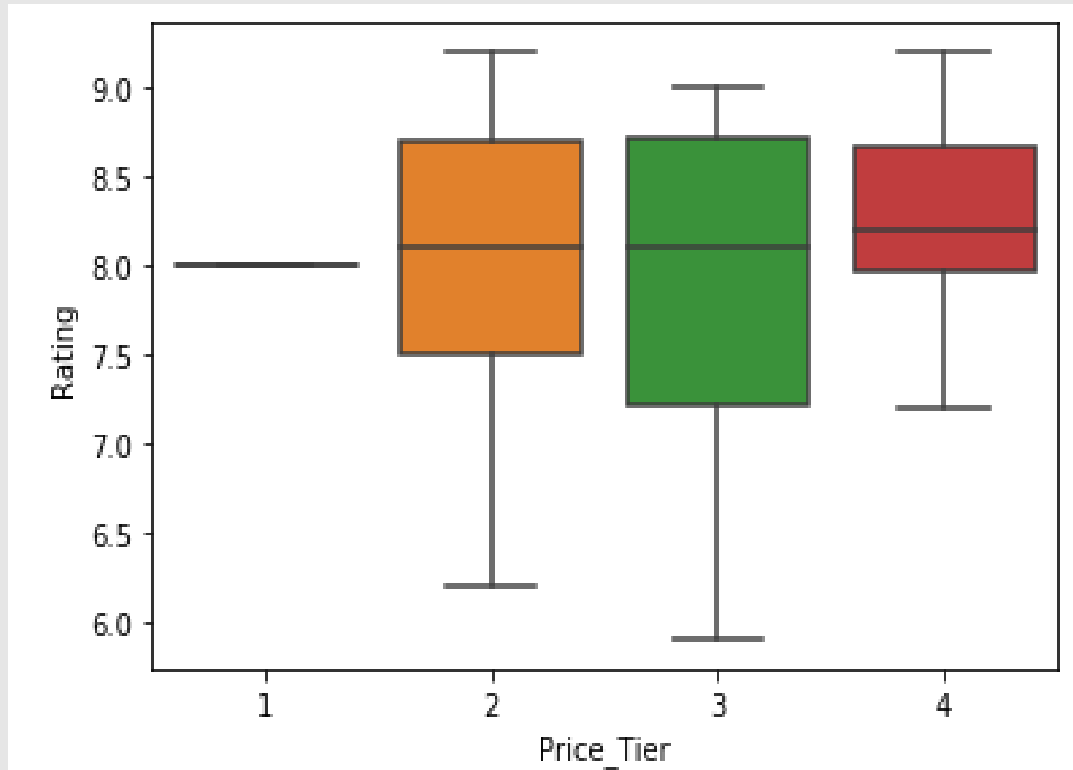
Price Tier 2 accounts for 74 %.

Frequency of the Price Tier

Price_Tier	
2	59
3	12
4	8
1	1

Rating

```
count       80.000000
mean         8.013750
std          0.800434
min          5.900000
25%          7.500000
50%          8.100000
75%          8.700000
max          9.200000
```

- Mean of 80 Japanese restaurants is 8.
- Min : 5.9
- Max : 9.2

Rating and Price Tier

- There is only a little difference in mean between each price tier,

- The low rating of the most expensive tier, Tier 4, is much higher than other price tiers.
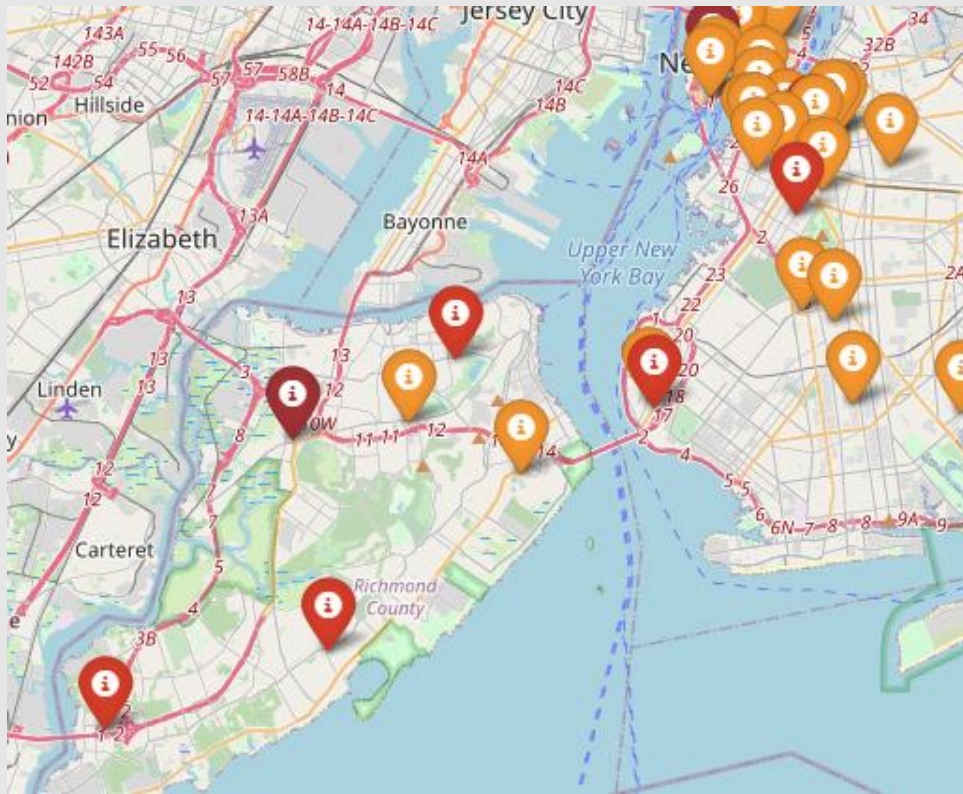
Location and Price Tier 1

- Most of the Japanese restaurants are in Manhattan area

- East 39th near Grand Central Terminal and East 83rd Street have a few high-end restaurants.

Location and Price Tier 2

- ◦ Staten island has high average price although it has only a few Japanese restaurants.
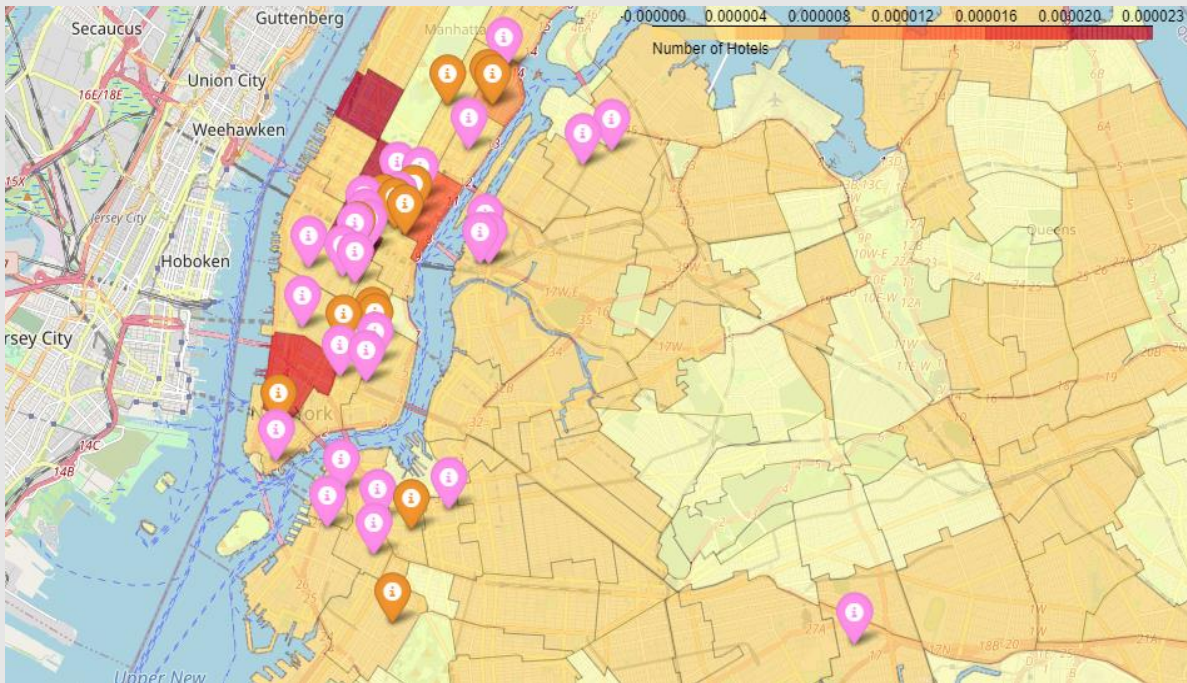
Rating and Location

- The restaurants in Manhattan area has higher rating.
- If you go further from Manhattan, the rating tends to go lower.

Clustering

	Cluster	Count	Mean Price Tier	Mean Rating
0	0	28.0	2.000000	8.671429
1	1	11.0	2.272727	6.563636
2	2	16.0	3.500000	8.406250
3	3	25.0	2.000000	7.664000

○ By k-mean method(k = 4), I made 4 clusters based on rating and price tier.

○ Restaurants in cluster 0 have good rating but price tier is low.

○ Restaurants in cluster 2 has good rating and price tier is relatively high.

○ cluster 0 and 2 are well-balanced between price and rating.

Cluster 0 & 2 and Hotel density

- The most of the restaurants are in Manhattan area.
- Especially, Midtown-Midtown South area and Turtle Bay-East Midtown have high density of hotels, and also well-balanced Japanese restaurants nearby.

Result and Conclusion

◦ In New York, most of the Japanese restaurants are affordable.

◦ There is very little difference in the average rating between each price tier, and it shows that you can find a nice restaurant within your budget.

◦ By k-mean clustering, we selected 2 clusters of restraints with good rating and 2 different budgets. From the map, you can see that Midtown-Midtown South area and Turtle Bay-East Midtown have a lot of hotels, and also well-balanced Japanese restaurants nearby.

◦ For future study, I'd like to also look into the detail of hotels and compare the data with other restaurants or other cities in order to get the threshold of the rating above which is considered "good restaurant".