



# LOCATING A NEW JAPANESE RESTAURANT IN NEW YORK CITY

Applied Data Science Capstone by IBM

## ABSTRACT

The objective of this project is to gathering data, analyze and find the optimized locations in the city of New York to establish a new Japanese restaurant. Using Data Science methodologies and instructions such as Data Analysis and Visualization.

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Capstone Project - The Battle of Neighborhoods -  
Final Report (Week 2)

## **Introduction**

New York City's demographics show that it is a large and ethnically diverse metropolis. It is the largest city in the United States with a long history of international immigration. New York City was home to nearly 8.3 million people in 2019, accounting for over 40% of the population of New York State and a slightly lower percentage of the New York metropolitan area, home to approximately 23.6 million. Over the last decade, the city has been growing faster than the region. The New York region continues to be by far the leading metropolitan gateway for legal immigrants admitted into the United States.

This final project explores some optimized locations for Japanese restaurants throughout the city of New York. Potentially the owner of the new Japanese restaurant can have great success and consistent profit. However, as with any business, opening a new restaurant requires serious considerations and is more complicated than it seems from the first glance. In particular, the location of the restaurant is one of the most important factors that will affect whether it will have success or a failure. So, our project will attempt to answer the questions "Where should a financier open a Japanese Restaurant?" and "Where should we go if we want to have a great Japanese food?"

## **Business Problem**

The objective of this project is to gathering data, analyze and find the optimized locations in the city of New York to establish a new Japanese restaurant. Using Data Science methodologies and instructions such as Data Analysis and Visualization, this project aims us to provide solutions in order to answer the business question: Where is an optimized location in the New York City, that a financier should open a Japanese Restaurant?

## **Project stakeholders and some demographic facts**

This project is particularly useful to developers and investors looking to open or invest in a Japanese restaurant in the city of New York. Overall, New York is a great place to open a restaurant. As New York is the most diverse city in the world (800 languages are spoken in New York). With its diverse culture, comes diversity in the food items. There are many restaurants in New York City, each belonging to different cultures and nations like Chinese, Indian, French, etc. Why did we decide to focus on Japanese cuisine in our project?

According to the World Health Organization, in 2018, the average life expectancy in Japan is 84.2 years old. Men live an average of 81.1 years, and women live an average of 87.1 years. So, what is the island nation's secret to long, healthy lives? Diet is one reason for the country's population of "centenarians," or people older than 100 years. When the Japanese eat meat, they eat mostly heart-healthy fish, rich in omega-3 fatty acids. Other popular foods include tofu, seaweed and octopus, all of which carry a low risk for some cancers and arteriosclerosis.

## **Data and Data Sources**

In order to run the project, we will need the following data:

- New York City data containing the neighborhoods and boroughs
- Latitude and longitude coordinates of those neighborhoods. This is required to plot the map and get the venue data
- Venue data, particularly data related to restaurants. We are going to use this data to perform further analysis of the neighborhoods

New York City data containing the neighborhoods and boroughs will be obtained from the open data source: [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset) . After it, we will get the geographical coordinates of the neighborhoods (latitude and longitude) using Python Geocoder package.

Finally, we will use Foursquare API to get the venue data for the neighborhoods defined at the previous step. Foursquare has one of the largest databases of 105+ million places and over 125,000 developers use this application. Foursquare API provides many categories of the venue data; we are particularly interested in the restaurant data to solve the business problem defined above.

We will use some data science skills such as web scrapping (open source dataset), working with API (Foursquare), data cleaning, data wrangling, visualization (Folium).

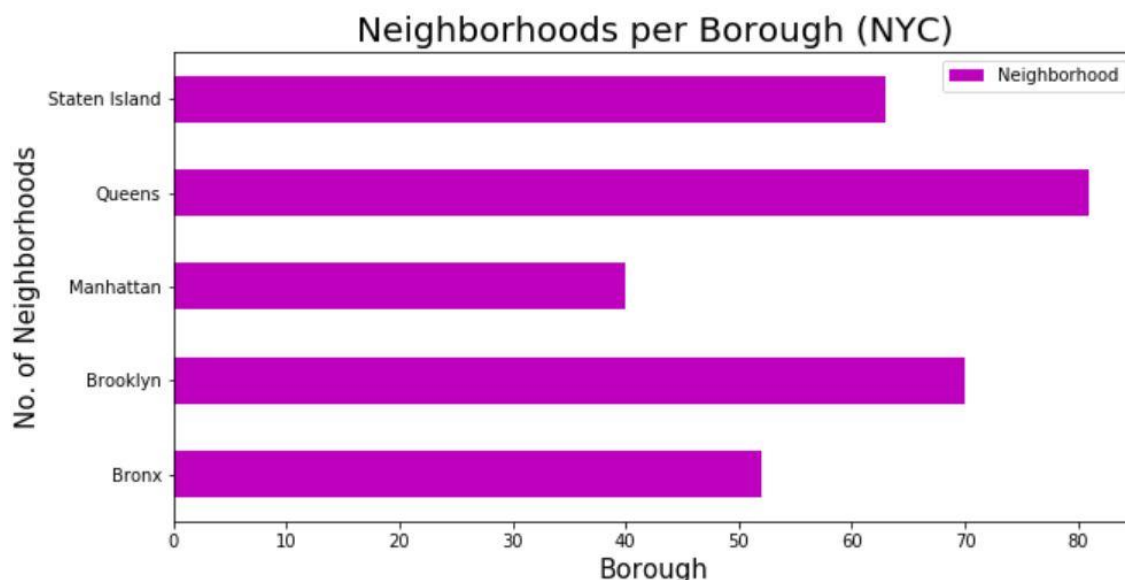
## Methodology

- Data will be collected from [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset) and cleaned and processed into a data frame.
- Foursquare be used to locate all venues and then filtered by Japanese restaurants. Ratings, tips, and likes by users will be counted and added to the data frame.
- Data will be sorted based on rankings.
- Finally, the data be will be visually assessed using graphing from Python libraries.

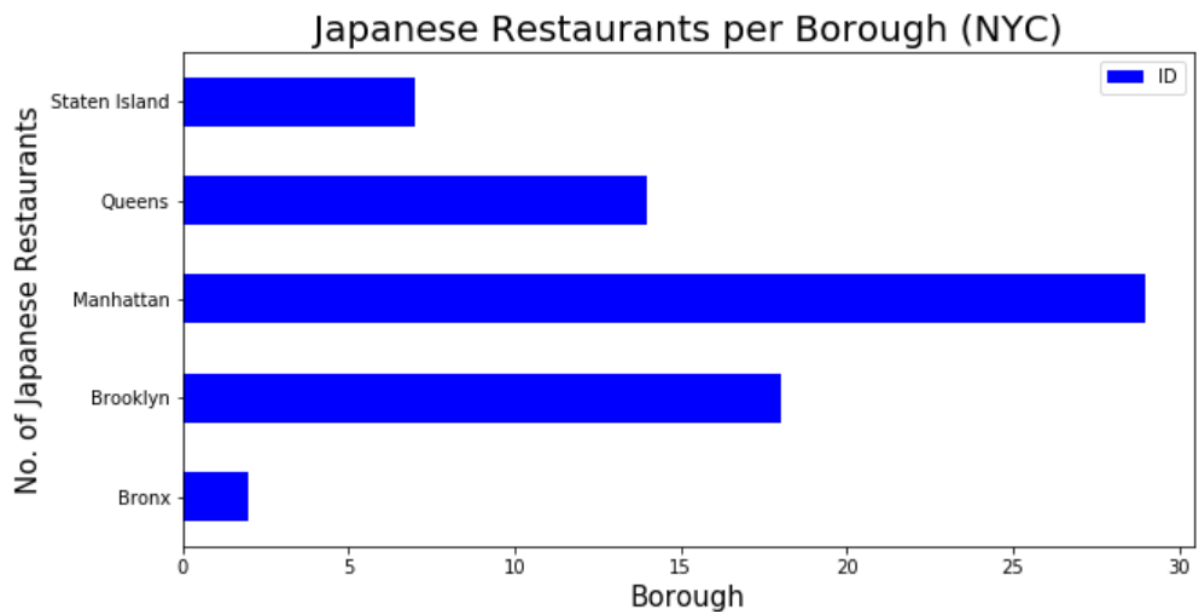
## Results

The results of our analysis showed below:

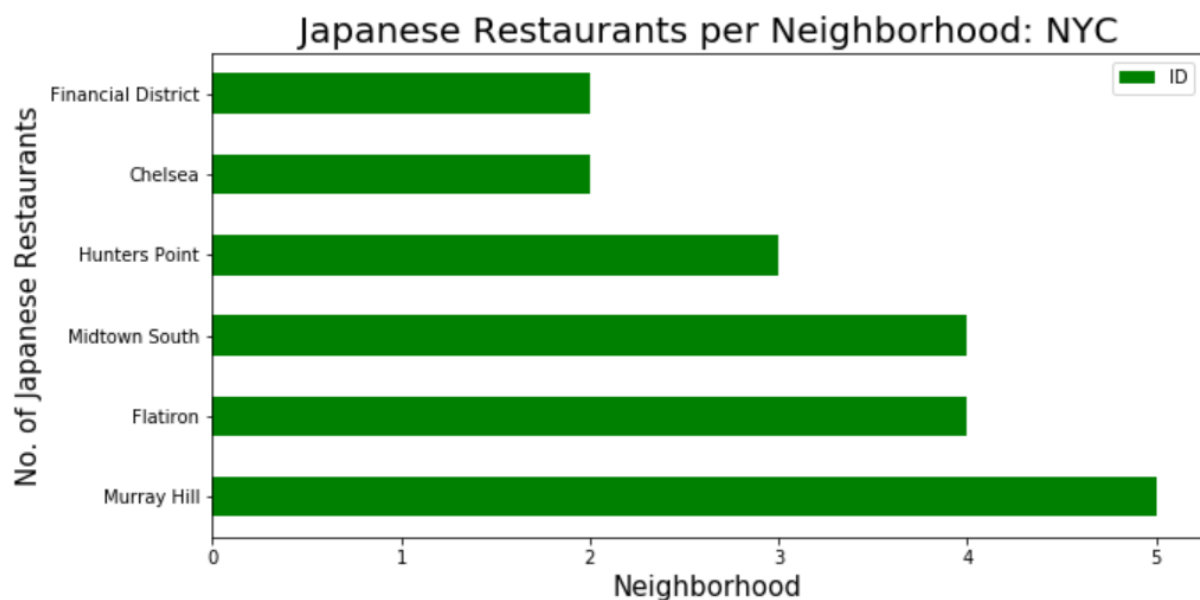
- 1- As we see Queens has the highest number of Neighborhoods



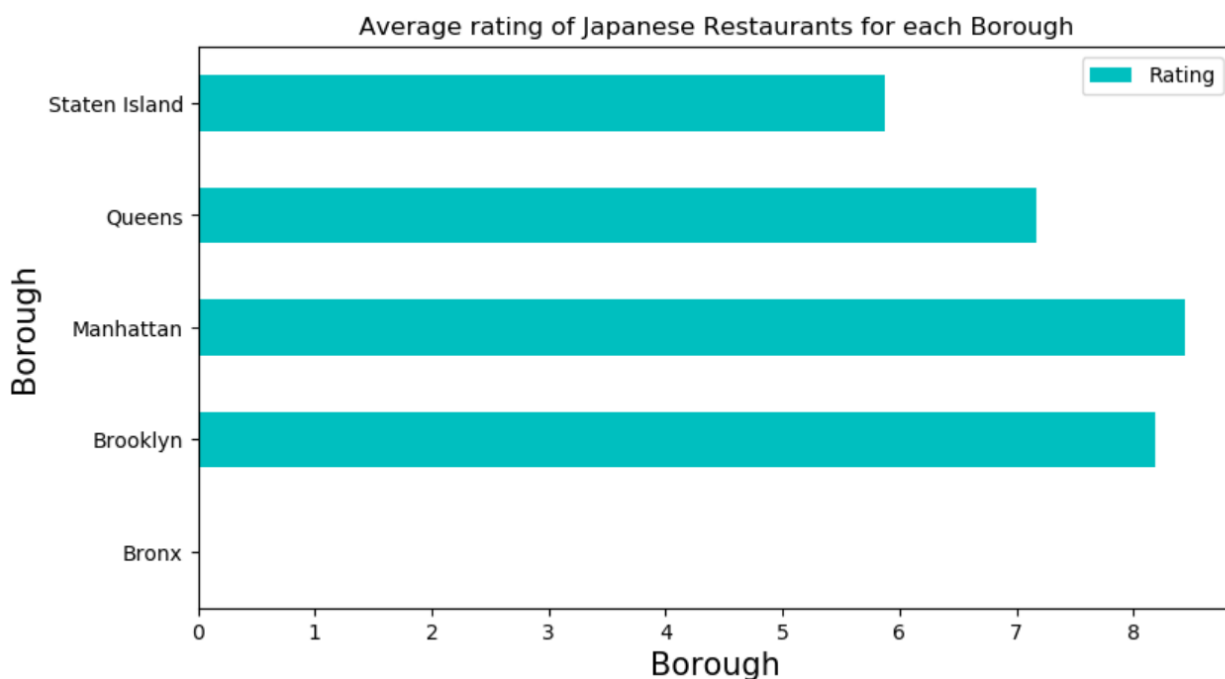
- 2- Although Manhattan had the least number of neighborhoods, it does have the highest number of Japanese restaurants



- 3- The Murray Hill in Manhattan has the highest number of Japanese Restaurants with a total count of 5



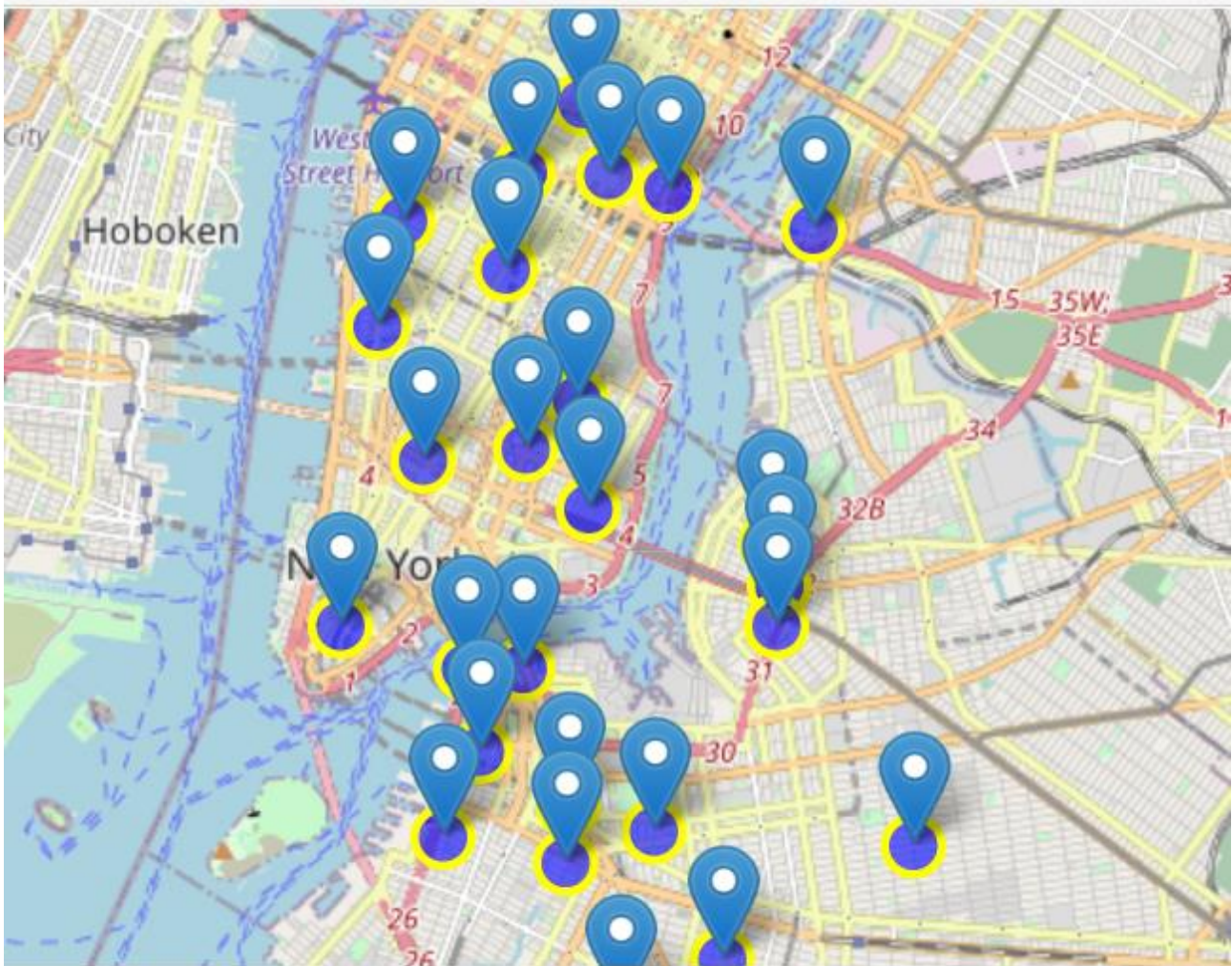
- 4- Manhattan has the highest average rating for Japanese Restaurants. Brooklyn goes right behind the Manhattan with the average rating of its Japanese restaurants only a little lower than Manhattan. Two neighborhoods with the highest average rating for Japanese Restaurants are East Village and Cobble Hill



Top Ten neighborhoods with Japanese Restaurants with the best average rating:

	Neighborhood	Average Rating
12	East Village	9.20
8	Cobble Hill	9.10
37	Park Slope	9.00
24	Huntters Point	9.00
36	North Side	8.90
43	Soho	8.90
1	Boerum Hill	8.90
15	Flatiron	8.85
16	Fort Greene	8.80
28	Lindenwood	8.80

Neighborhoods distribution on the map:



## Discussion Section

Based on the results of our analysis, I would state that Manhattan and Brooklyn are the best locations for Japanese cuisine in New York City. To have the best shot of success, I would open a Japanese restaurant in Brooklyn. Brooklyn has multiple neighborhoods with average ratings exceeding 8.0 on a scale of 1.0 to 10.0 and has a smaller number of Japanese restaurants than Manhattan, making competition easier. In addition, we should pay attention that real estate prices in Brooklyn are much cheaper than in Manhattan. Particularly, I would recommend considering opening a Japanese Restaurant either in Cobble Hill or in North Side, because both of these neighborhoods have the highest rating for Japanese restaurants.

## Conclusions

In the project we have gone through the process of identifying the business problem, specifying the data required, extracting and preparing the data, performing data analysis, and lastly providing recommendations to the investors/developers. During the project, we applied different data science methods and instruments to get the answer to our main question: "Where is an optimized location in the New York City, that a financier should open a Japanese Restaurant?" The findings of this project will help the relevant investor better

understand the advantages and disadvantages of different New York neighborhoods/boroughs in terms of opening a Japanese restaurant.