

# Capstone Project - The Battle of Neighborhoods

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## Introduction

In this project I have explored different venues in the New York City. With almost 20 million people in its metropolitan statistical area and approximately 23 million in its combined statistical area, it is one of the world's most populous megacities. New York City has been described as the cultural, financial, and media capital of the world, significantly influencing commerce, entertainment, research, technology, education, politics, tourism, art, fashion, and sports.

As many as 800 languages are spoken in New York, making it the most linguistically diverse city in the world. New York is home to more than 3.2 million residents born outside the United States, the largest foreign-born population of any city in the world as of 2016.

With its diverse culture, come diverse food items. There are many restaurants in New York City, each belonging to different categories like Chinese, Japanese, and Italian etc.

So as part of this project, we will list and visualize all major parts of New York City that has great Japanese restaurants.

Also we would try to find answers to the following questions-

- What is best location in New York City for Japanese Cuisine?
- Which areas have potential Japanese Restaurant Market?
- Which all areas lack Japanese Restaurants?
- Which is the best place to stay if I prefer Japanese Cuisine?

## Data

For this project we need the following data:

- New York City data that contains list Boroughs, Neighborhoods along with their latitude and longitude.

Data source: [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)

Description: This data set contains the required information. And we will use this data set to explore various neighborhoods of New York City.

- Indian restaurants in each neighborhood of New York City.

Data source: Foursquare API

Description: By using this API we will get all the venues in each neighborhood. We can filter these venues to get only Indian restaurants.

- GeoSpace data

Data source: <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm>

Description: By using this geo space data we will get the New York Borough boundaries that will help us visualize choropleth map.

## Approach

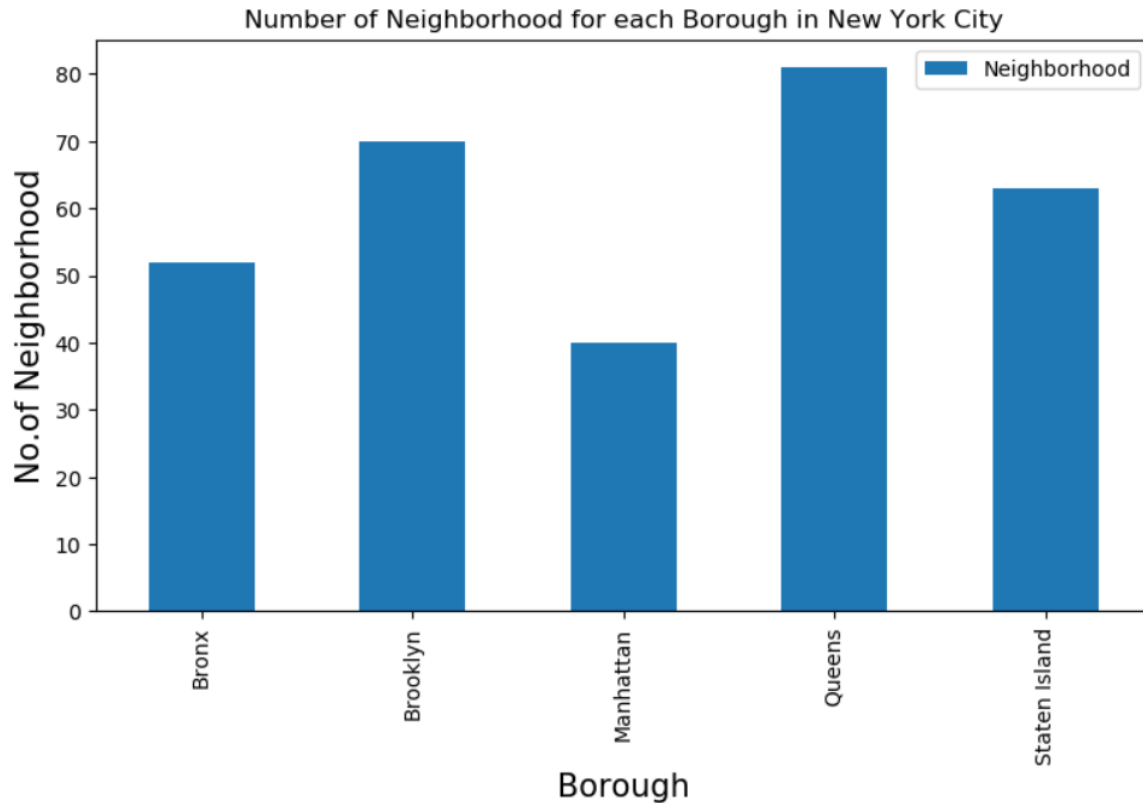
- Collect the new York city data from [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)
- Using FourSquare API we will find all venues for each neighborhood.
- Filter out all venues that are Japanese Restaurants.
- Find rating, tips and like count for each Japanese Restaurants using FourSquare API.
- Using rating for each restaurant, we will sort that data.
- Visualize the Ranking of neighborhoods using folium library(python)

## Analysis

We will import the required libraries for python.

- Pandas and numpy for handling data.
- Request module for using FourSquare API.
- Geopy to get co-ordinates of City of New York.
- folium to visualize the results on a map

Looking at the New York City data we found that there were 5 boroughs and 306 neighborhoods. Then we plotted it on a graph to visualize it-



We see that Queens has highest number of neighborhoods

Then using the FourSquare API we collected Japanese restaurants for each Neighborhood. There were 181 Japanese restaurants in New York City.

	Borough	Neighborhood	ID	Name
0	Bronx	Riverdale	503cfaffe4b066d39de5005a	Aoyu Japanese Restaurant
1	Bronx	Riverdale	4b0b311af964a520642e23e3	Palace of Japan
2	Bronx	Kingsbridge	503cfaffe4b066d39de5005a	Aoyu Japanese Restaurant
3	Bronx	Kingsbridge	4b0b311af964a520642e23e3	Palace of Japan
4	Bronx	City Island	4dbdf3d790a02849cbd675be	Ohana Japanese Habachi Seafood & Steakhouse

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japanese_rest_ny.shape
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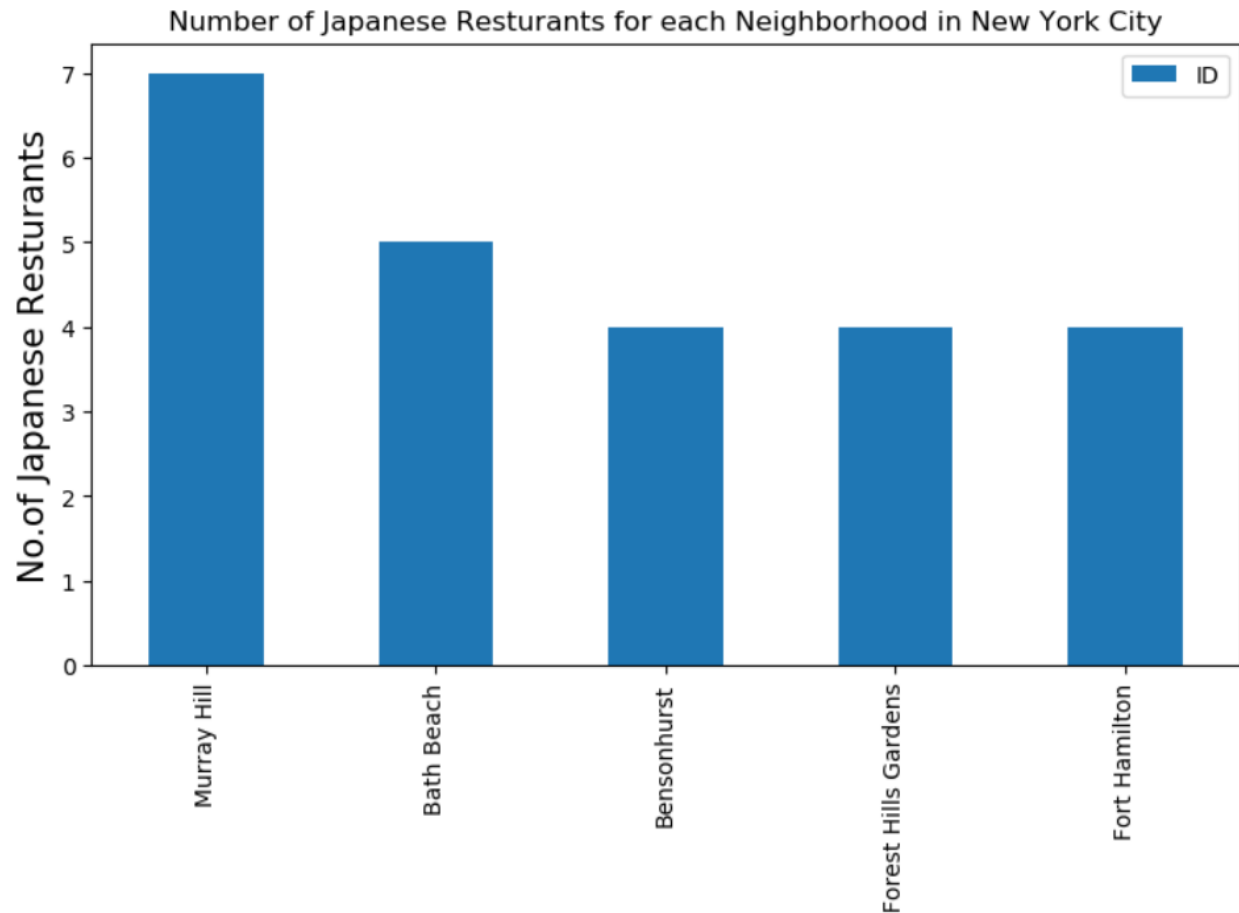
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(181, 4)
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We got 181 japanese Resturants across New York City

Then we analyzed the Japanese restaurants for each borough and found that Brooklyn has the highest number of Japanese Restaurants.



Then looking at the neighborhoods we found that Murray Hill had the highest number of restaurants which was 7.



After this, using the FourSquare API we got the likes, rating and tips for each restaurant.

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Riverdale	503cfafe4b066d39de5005a	Aoyu Japanese Restaurant	32	8.8	19
1	Bronx	Riverdale	4b0b311af964a520642e23e3	Palace of Japan	38	8.6	26
2	Bronx	Kingsbridge	503cfafe4b066d39de5005a	Aoyu Japanese Restaurant	32	8.8	19
3	Bronx	Kingsbridge	4b0b311af964a520642e23e3	Palace of Japan	38	8.6	26
4	Bronx	City Island	4dbdf3d790a02849cbd675be	Ohana Japanese Habachi Seafood & Steakhouse	34	7.4	18

After getting the required data we then found the average rating for Japanese Restaurant in each neighborhood and each borough.

	<b>Borough</b>	<b>Neighborhood</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Average Rating</b>
0	Brooklyn	Cobble Hill	40.687920	-73.998561	9.100000
1	Manhattan	East Village	40.727847	-73.982226	9.100000
2	Brooklyn	East Williamsburg	40.708492	-73.938858	9.000000
3	Manhattan	Flatiron	40.739673	-73.990947	9.033333
4	Manhattan	Lower East Side	40.717807	-73.980890	9.200000
5	Manhattan	Noho	40.723259	-73.988434	9.175000
6	Brooklyn	Prospect Heights	40.676822	-73.964859	9.000000
7	Manhattan	Stuyvesant Town	40.731000	-73.974052	9.200000

	<b>Borough</b>	<b>Average Rating</b>
2	Manhattan	8.646512
1	Brooklyn	7.303175
3	Queens	7.045833
4	Staten Island	6.733333
0	Bronx	6.250000

The neighborhood Lower East Side had the highest rating of 9.2 and Manhattan had highest rating of 8.4 whereas Bronx had the lowest rating of 6.25.

### Conclusion

- Cobble Hill (Brooklyn), Blissville (Manhattan), Civic Center (Brooklyn) is some of the best neighborhoods for Japanese cuisine.
- The Japanese restaurants in Bronx have the least rating so a new one can be opened here.
- Only 181 neighborhoods out of 306 neighborhoods in New York have Japanese restaurants.
- Manhattan is the best place to stay if you prefer Japanese Cuisine.