Coursera Capstone

New Japanese Restaurant in New York City

December 2020

Introduction

New York is well developed city of the United States of America. 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 is home to about 8.3 million people (2019), accounting for over 40% of the population of New York State.

There is a lot of business opportunities, it has no issue in attracting many different players into the market, but also this means that the market is highly competitive, the costs are high. Any new business venture needs to be explored carefully.

Business problem

This Capstone project analyses and selects the appropriate locations in the New York to open Japanese restaurant. The project will provide the best location where the investor should open a new Japanese Restaurant.

Target audience

The project is useful for developers and investors who are looking to new possibilities for Japanese restaurant in New York. As New York City is multinational city, it is a great place for such kind of restaurant.

Data

To explore the described business problem, the following data are be needed:

1. Data about New York City, including the neighbourhoods and boroughs.
2. Coordinates (latitude and longitude) of these neighbourhoods. This allows to visualize the map and get the venue data.
3. Venue data, specially related to restaurants.

Data about New York City with the neighbourhoods and boroughs are obtained from the open data source https://cocl.us/new_york_dataset. Afterwards the geographical coordinates of the neighbourhoods are added using Python Geocoder package. The venue data are obtained from Foursquare API. Foursquare API provides many categories of the venue data, but in this case the data related to restaurants are used to solve the above defined business problem.

In this project the following data science skills are necessary: scrapping data from web, working with API, data cleaning, data wrangling, visualization. In Methodology section exploratory data analysis, if any, inferential statistical tests, if any, machine learning techniques used in this project are discussed and described.

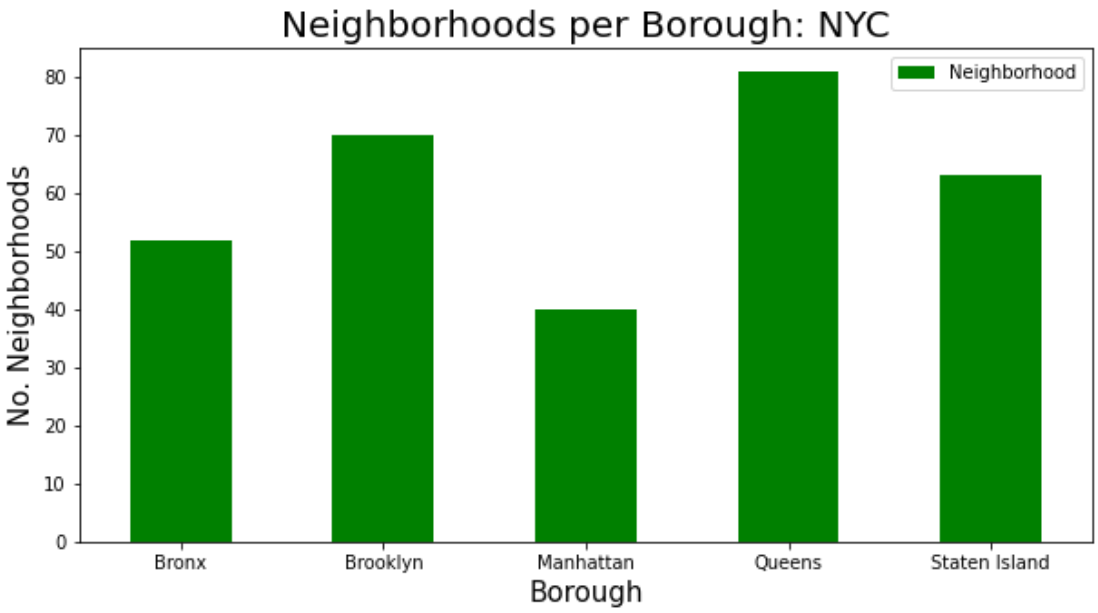
Methodology

Data were collected from https://cocl.us/new_york_dataset, cleaned and processed into a data frame. Foursquare API was used to locate all venues and then filtered by Japanese restaurants. Likes, Ratings and Tips from Japanese restaurants were counted and added to the data frame. Data were sorted based on their ranking. Data and results were visualized using appropriate Python libraries.

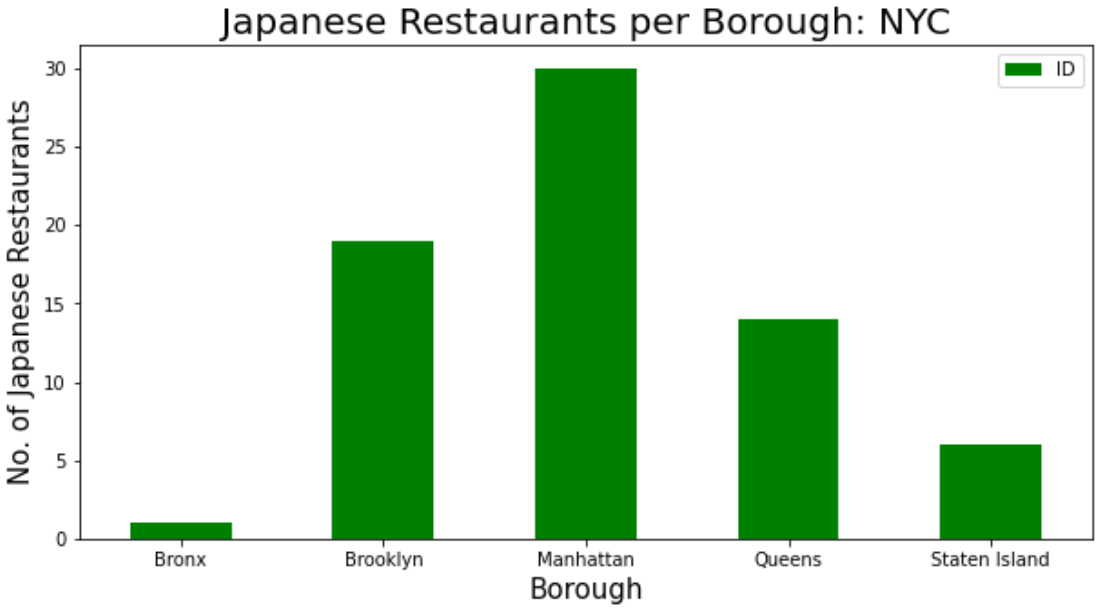
Results

The results of this project analysis are as following:

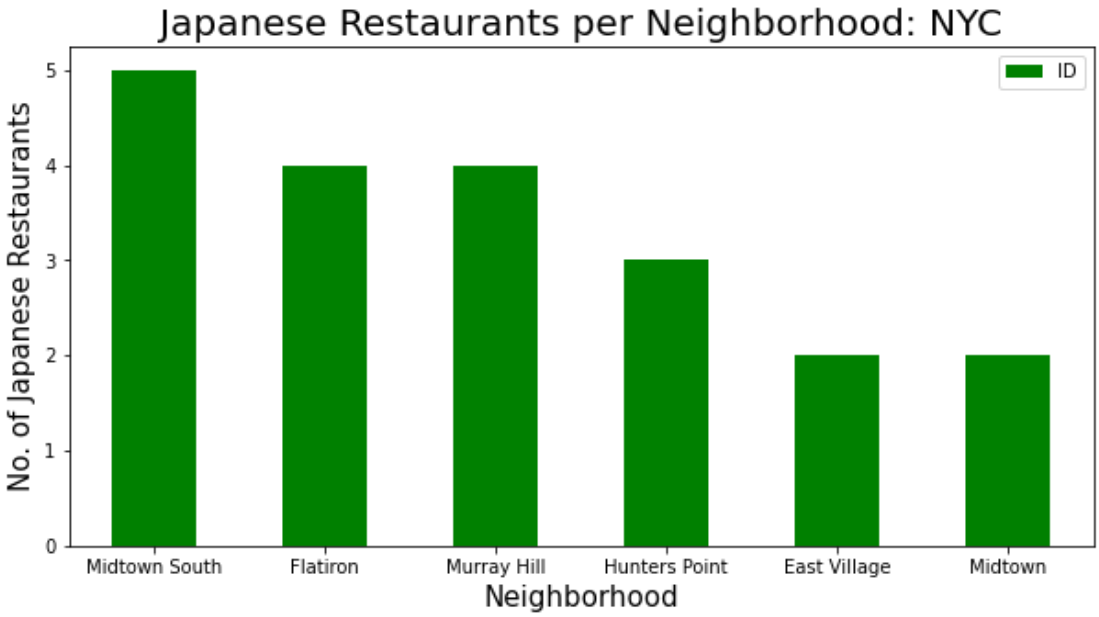
1. Borough Queens has the highest number of Neighbourhoods.



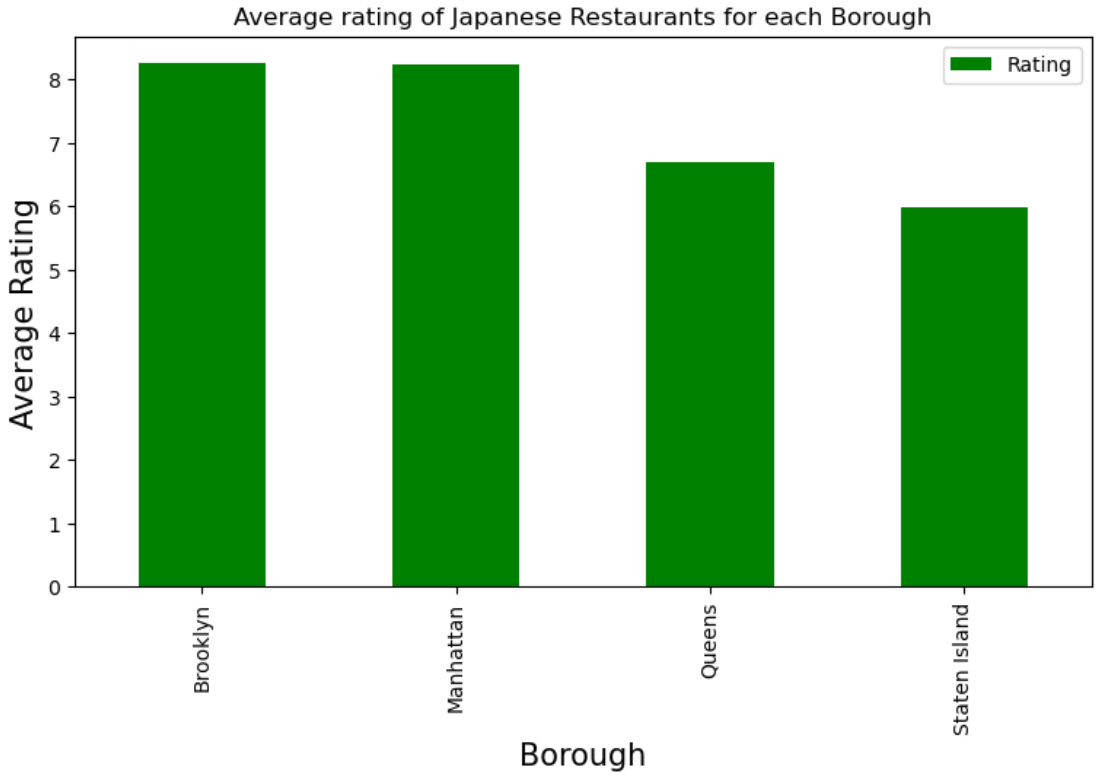
2. Manhattan has the highest number of Japanese restaurants, although it has the least number of neighbourhoods.



3. The neighbourhood of Midtown South has the highest number of Japanese restaurants in all NYC



4. Brooklyn has the highest average rating (8.26) for Japanese Restaurants. Manhattan has the highest average rating very slightly lower that Brooklyn, that is, 8.245. So, these two boroughs are very similar.



5. Top 3 neighbourhoods with Japanese Restaurants with the best average ratings are the following:

Neighbourhood	Average Rating
East Village	9.20
Cobble Hill	9.10
Chelsea	8.90

Next average rating 8.80 has gotten by 5 neighbourhoods (Boerum Hill, Fort Greene, North Side, Park Slope, Soho).

6. Japanese restaurant with maximum Likes is located in Brooklyn (North Side), with maximum Rating – in Manhattan (East Village), with maximum Tips – in Manhattan (Chelsia).

Discussion Section

Based on the results, the best locations for Japanese cuisine in New York City are Brooklyn and Manhattan. However, I would suggest opening a Japanese restaurant in Brooklyn because of two reasons: Brooklyn has a smaller number of Japanese restaurants (about 30% less) than

Manhattan, and this makes the competition easier; and at the same time both boroughs have high average rating: Brooklyn has 11 neighbourhoods with average ratings exceed 8.0 (on scale 1.0 to 10.0) for Japanese restaurants and Manhattan has 10 such neighbourhoods. In addition, I guess, that real estates prices in Brooklyn are much cheaper than in Manhattan. Cobble Hill is neighbourhood in Brooklyn with the highest average rating, neighbourhoods with next highest average ratings are Boerum Hill, Fort Greene, North Side and Park Slope – these would be recommended neighbourhoods for opening Japanese restaurants.

Limitations

All the above analysis was dependent on the accuracy of FourSquare data, and during this project free account was used. That means there were limitations to the number of API calls and obtained results.

Conclusions

This project covers the process of identifying the business problem, specifying the required data, extracting and preparing the necessary data, performing data analysis and finally providing recommendations to the investors. During the project different data science methods and instruments were used to get the answer to the project's question "What is the best location where the investor should open a new Japanese Restaurant?". The findings of this project will help investors to understand Pros and Cons of different New York City boroughs and neighbourhoods in terms of opening a Japanese restaurant.