

Background

Restaurants are a notoriously difficult business to own or operate. Not only is it a relatively capital and employee-intensive business, restaurants are also highly regulated, low margin and in most cases have a plethora of competition to deal with. There are more dining establishments and more diners now than during any other time in history; the National Restaurant Association reports over 1 million restaurant locations in the U.S. alone, a particular boon considering more than half the American population visits at least one of them each week. To fill a niche and remain relevant, prospective, as well as established, restaurants have to hedge their bets with well-rounded and well-directed dataset. Data science provides valuable insights regarding market trends and evolving consumer lifestyles so that restaurateurs can better address and meet public demand.

Business Problem

No single restaurant is ever going to appeal to everyone. Some people like quiet, intimate settings; others prefer boisterous ones. Some people want to bring their kids along; others want to dine alone. The preferences are as varied as the possible offerings, with specific generational cohorts preferring one thing, “people who like Indian food” preferring another and everyone else liking a million other things in between. My client, a successful Filipino restaurant chain in Philippines is looking to expand operation into North America through New York (NYC).

Problem Statement

To locate and recommend to the client which neighbourhood in New York City will be best choice to start a restaurant.

Data Requirements and Sources

Before opening a new restaurant in NYC, the data science team will provide data and insight to: -

Part 1: NYC Population & Demographic characteristics Data source:https://en.wikipedia.org/wiki/New_York_City ; https://en.wikipedia.org/wiki/Demographics_of_New_York_City. Web scraping techniques was used to get NYC's population density and demographics data from Wikipedia. Preliminary finding indicates that Queens being the second most populous urban area in New York City (NYC), behind Brooklyn; and the most ethnically diverse urban area in NYC with the highest Asian ethnic minority population. Click here to view Python's script.

Part 2: Who are the competitors in that location? Data source:https://cocl.us/new_york_dataset and Foursquare API. This dataset was used to explore various neighbourhoods and each Indian restaurant venue in the neighbourhood.

Initial Findings and Observations

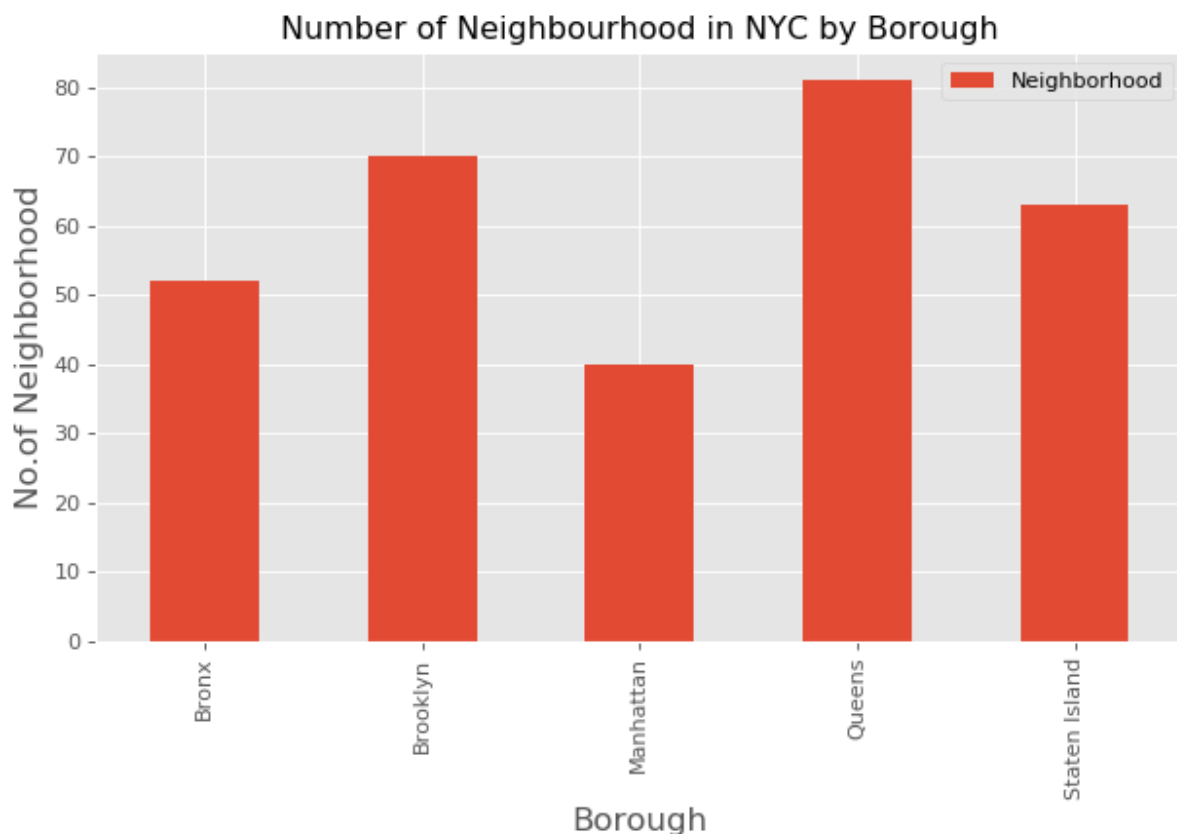
1. Brooklyn is the most populous Borough but has the lowest gdp_per_capita among the Boroughs.
2. Queen is the second most populous Borough and has higher gdp_per_capita than Brooklyn but smaller population density. Highest interms of asian ethnic minority population.
3. Manhattan is the second asian ethnic minority population, first in gdp_per_capita and population density. High person per km means people are living in a high rise building like appartments, hotels and condiminiums.

Initial Hypothesis from Demographic Data of NYC

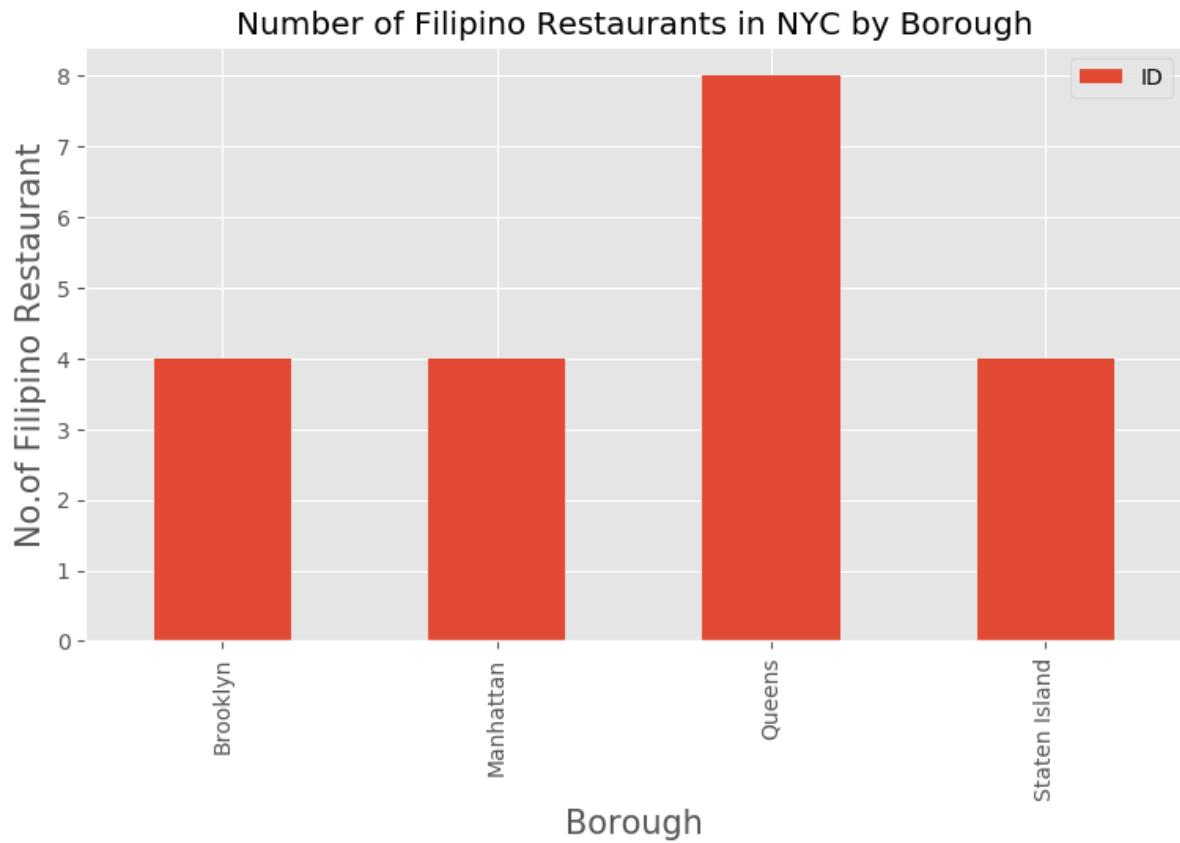
Manhattan could be the best place to start a Filipino Restaurant given that;

1. Good Economy (highest gdp_per_capita) 2. High Population density (person per km can be relate to people who are living in a high rise building) 3. Second in Asian ethnic minority population.

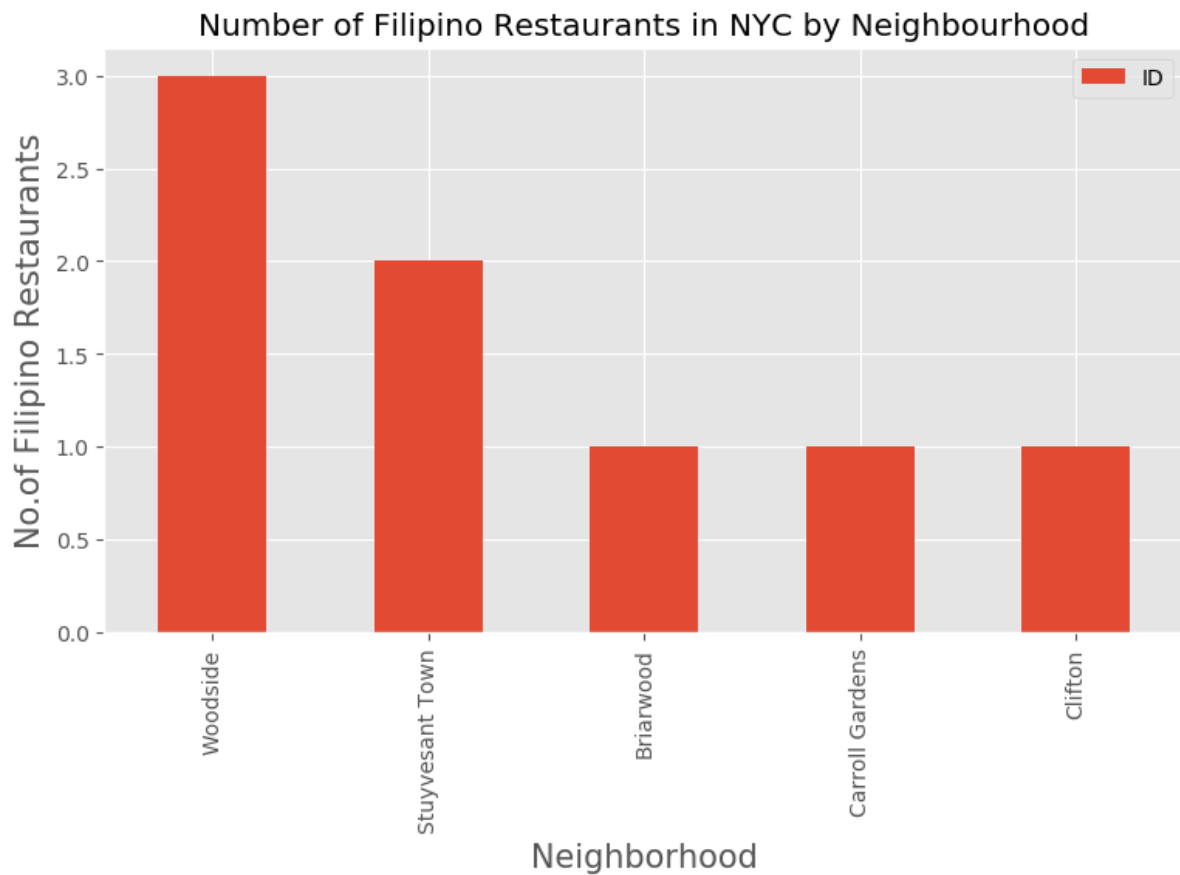
There is a total of 306 Neighborhoods in New York City.



Queens is the most densely populated borough in New York City with 80 neighborhoods



Queens has the highest number of Filipino Restaurant.



Woodside has the most Filipino Restaurant with a total of 3.

Borough wise Data:

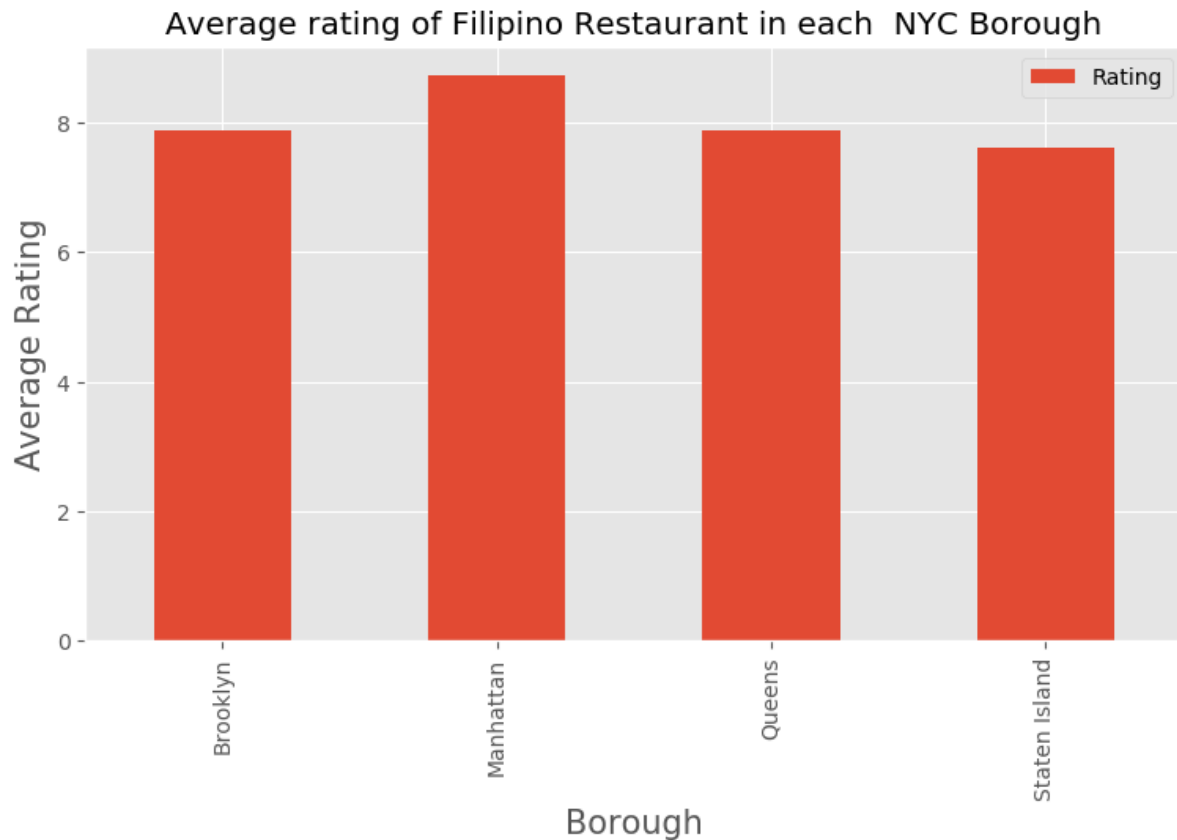
	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Brooklyn	Flatbush	4afa2432f964a520081722e3	Purple Yam	137	7.9	76
1	Brooklyn	Carroll Gardens	591e55677247502fb9514269	Fob Restaurant	55	7.8	28
2	Brooklyn	Prospect Park South	4afa2432f964a520081722e3	Purple Yam	137	7.9	76
3	Manhattan	Lower East Side	50588bc6526260483ab2860e	Pig and Khao	1081	9.1	301
4	Queens	Woodside	4b5232def964a520456f27e3	Renee's Kitchenette & Grille	60	8.6	20

Neighbourhood wise Rating:

	Neighborhood	Average Rating
8	Noho	9.100000
7	Lower East Side	9.100000
15	Sunnyside Gardens	8.900000
14	Sunnyside	8.900000
13	Stuyvesant Town	8.350000
16	Woodside	8.166667
4	Elmhurst	8.000000
5	Flatbush	7.900000
10	Prospect Park South	7.900000
3	Ditmas Park	7.900000

Borough wise Rating:

	Borough	Average Rating
1	Manhattan	8.7250
0	Brooklyn	7.8750
2	Queens	7.8625
3	Staten Island	7.6000



- **Manhattan has the average top rating Filipino Restaurant in NYC Borough.**
- **Let us visualized in the map, All the neighborhoods with average rating greater or equal 7.0.**
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	Borough	Neighborhood	Latitude	Longitude	Average Rating
1	Manhattan	Lower East Side	40.717807	-73.980890	9.100000
2	Manhattan	Noho	40.723259	-73.988434	9.100000
4	Queens	Sunnyside	40.740176	-73.926916	8.900000
5	Staten Island	Sunnyside	40.612760	-74.097126	8.900000
6	Queens	Sunnyside Gardens	40.745652	-73.918193	8.900000
3	Manhattan	Stuyvesant Town	40.731000	-73.974052	8.350000
7	Queens	Woodside	40.746349	-73.901842	8.166667
0	Queens	Elmhurst	40.744049	-73.881656	8.000000

Findings

1. Lower East Side, Noho, Stuyvesant in Manhattan are some of the best neighborhoods for Filipino cuisine.
2. Staten Island Neighborhood has the lowest rated Indian Restaurants in NYC.
3. Manhattan Borough is the best place to stay if you prefer Indian Cuisine.
4. Bronx Borough does not have Filipino Restaurant at the moment.

Conclusion and Recommendation

1. Lower East Side or Noho in Manhattan would be the best choice to start a restaurant given that;

** -- it is the third most populous urban area in New York City (NYC).*

** --it has a population density of 27,826 people per square km, and confirmed highest of any borough in the United States.*

** --it has a good economy (gdp_per_capita).*

** --it has some of the top rated Filipino restaurants located in that area*

** --it has the second highest Asian ethnic minority population in NYC.*

2. There are very few Filipino Restaurants in Manhattan and the competition is very weak therefore, this the best time to start a Filipino Restaurant in the neighbourhood of Manhattan.