



Open an Asian Restaurant in Brooklyn - New York

By Rohan Amila

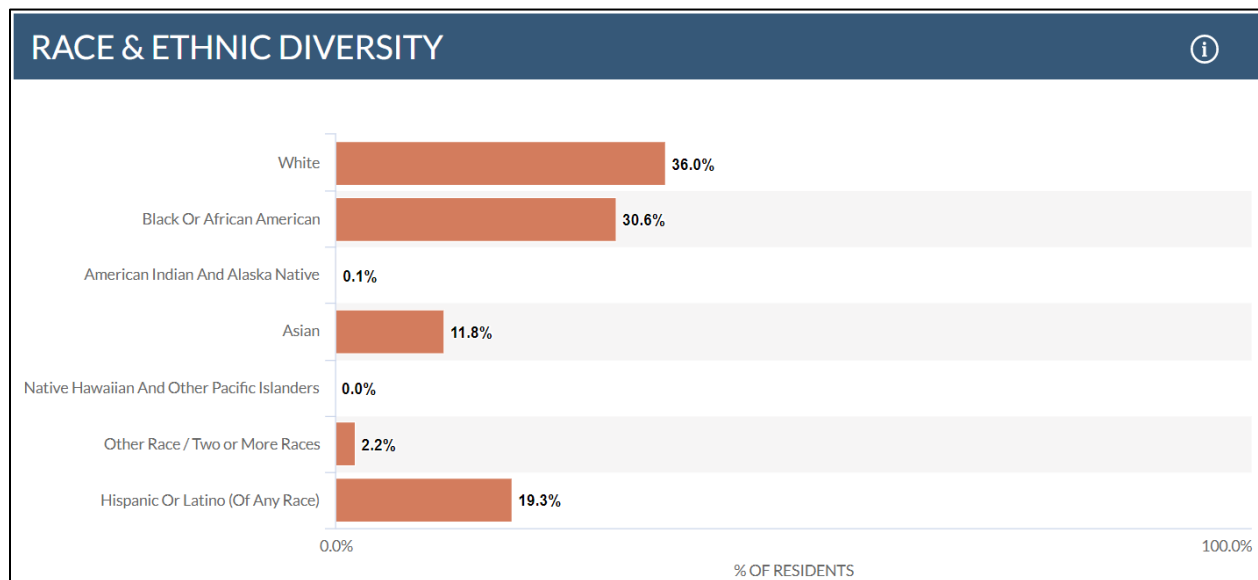
7th July 2019

Introduction

The demographics of Brooklyn reveal a very diverse borough of New York City and a melting pot for many cultures, like the city itself. Since 2010, the population of Brooklyn was estimated by the Census Bureau to have increased 3.5% to 2,592,149 as of 2013, representing 30.8% of New York City's population, 33.5% of Long Island's population, and 13.2% of New York State's population. If the boroughs of New York City were separate cities, Brooklyn would be the third largest city in the United States after Los Angeles and Chicago.

According to the 2010 Census, 35.7% of the population was non-Hispanic White, 31.9% non-Hispanic Black or African American, 10.4% non-Hispanic Asian, 0.4% from some other race (non-Hispanic) and 1.6% of two or more races (non-Hispanic). 19.8% of Brooklyn's population was of Hispanic, Latino, or Spanish origin (they may be of any race).

Over 243,000 Asians live in the borough. The most numerous Asian American group are those of Chinese descent. Chinese Americans make up 6.4% of the borough's population, and they number over 163,000 individuals. Much of Brooklyn's Asian population is concentrated in Southern Brooklyn neighborhoods such as Sunset Park ("Brooklyn's Chinatown"), Homecrest, Sheepshead Bay ("Avenue U Chinatown") and Bensonhurst. ("Bensonhurst Chinatown"). Approximately 19,851 Asian Indians live in Brooklyn. Approximately 9,681 Filipino Americans live in Brooklyn. Approximately 6,977 Korean Americans reside here. Brooklyn has the most Vietnamese Americans of any borough, they numbered over 5,700 individuals. The 4,704 Japanese Americans rounded out Asian American groups with over 1,000 people in Brooklyn.



Business Problem

As many of Brooklyn Asian population represents Chinese nationality, most of restaurants also serve Chinese type cuisine. However, there are many other Asian nationalities also living in Brooklyn such as Pakistani, Indian, Sri Lankan, Filipino, etc. because of limited selections (unavailability of multi cuisines) most of other Asian nationalities struggle to have their traditional foods. Main objective of this project is to analyze and propose the best location to start an Asian restaurant (which serves Chinese and other Asian cuisine), using

data science methodologies such as data modeling, clustering, and other data sources such as foursquare API etc.

Target Audiences

- Existing restaurant investors
- Potential new investors

Data

We need following data to resolve the problem¶

1. List of neighborhoods in Brooklyn. This defines the scope of the project which will be confined to the city of Brooklyn.
2. Latitude and Longitude coordinates of above neighborhoods in order to plot the maps and obtain venue data
3. Venue data, particularly data of restaurant. This can be used to perform clustering of neighborhoods.

Sources of Data

We will use NewYork data file to extract borough of the city. Then we will use read .csv command to read CSV data and other python packages to extract neighborhood and geo coding of the neighborhood. We use Foursquare API to get venue data and further explore the neighborhoods. Foursquare has one of the largest data bases of over 100 million places and is used by over 150,000 developers across the world. Foursquare API will provide many categories of venue data and we will be focusing on Asian Restaurant in order for us to solve the problem that has been put forward.

Methodology

Data downloaded or scraped from multiple sources were combined into one table. The file contained lot of data as it represents entire NewYork neighborhood and related details. Firstly, I filtered data which needs to perform my analysis and provide recommendations. Further, to do so I drop unnecessary data to simplify the analysis techniques.

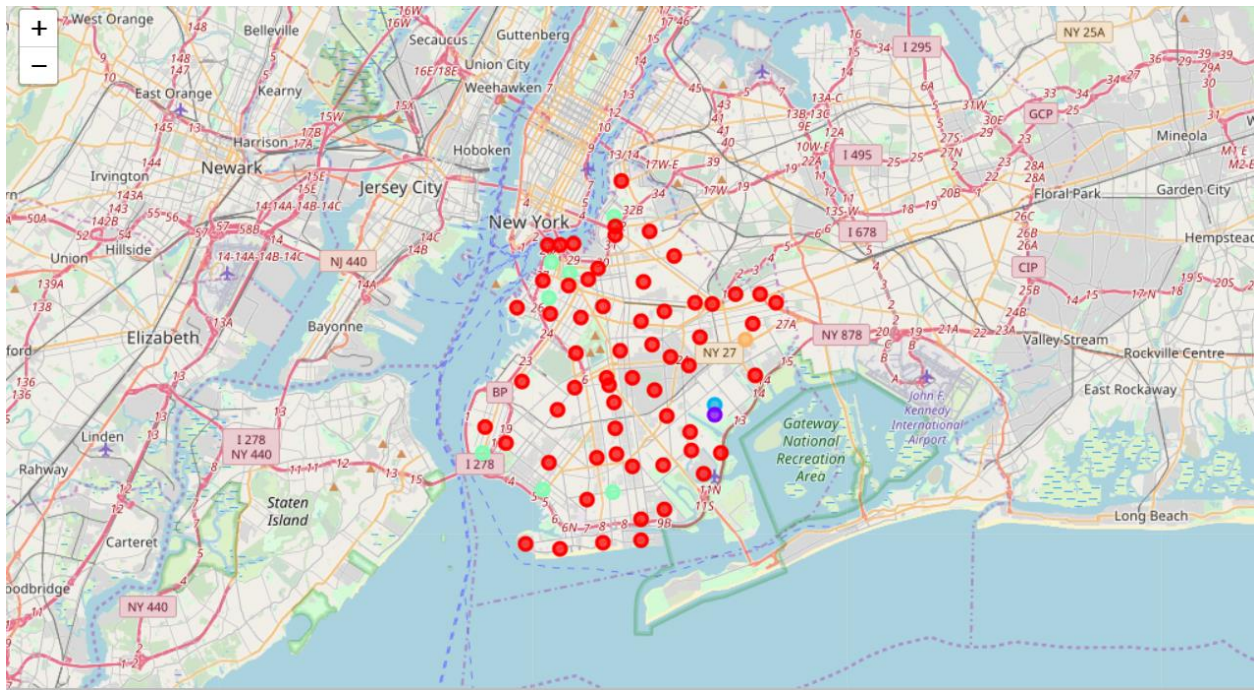
After cleaning the data, 5 boroughs and 306 neighborhoods were identified related to NewYork city data file. Subsequently these data we used to develop required models. Upon further analysis and filtering NewYork data we obtained information related to Brooklyn city and further explored the area by using Foursquare API .

Initially foursquare API delivered 86 venues related to Brooklyn neighborhood in which subsequently, these venues were converted to data frame. Upon further analysis the data frame returned 2850 number of rows related to the Brooklyn neighborhood and it was summarized to 286 unique categories (figure 1.)

Grouped Venues by neighborhood;

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Bath Beach	50	50	50	50	50	50
Bay Ridge	92	92	92	92	92	92
Bedford Stuyvesant	25	25	25	25	25	25
Bensonhurst	30	30	30	30	30	30
Bergen Beach	6	6	6	6	6	6
Boerum Hill	90	90	90	90	90	90
Borough Park	20	20	20	20	20	20
Brighton Beach	44	44	44	44	44	44
Broadway Junction	13	13	13	13	13	13
Brooklyn Heights	100	100	100	100	100	100
Brownsville	22	22	22	22	22	22
Bushwick	76	76	76	76	76	76
Canarsie	7	7	7	7	7	7
Carroll Gardens	100	100	100	100	100	100
City Line	45	45	45	45	45	45
Clinton Hill	94	94	94	94	94	94

Asian Restaurant cluster- map;



Conclusion

As per final output of the analysis, cluster 1 provides most suitable neighborhoods to start an Asian restaurant. If we consider demographic locations of Asian population, neighborhoods such as Sheepshead, Bay Bensonhurst and sunset park can be considered as most popular area and these neighborhoods are clustered under cluster 1. Hence cluster 1 provides ideal locations to start Asian restaurant (figure 2);

Figure 2

	Neighborhood	Asian Restaurant
0	Bay Ridge	0.0
1	Bensonhurst	0.0
2	Sunset Park	0.0
3	Greenpoint	0.0
4	Gravesend	0.0
5	Brighton Beach	0.0
6	Sheepshead Bay	0.0
7	Manhattan Terrace	0.0
8	Flatbush	0.0
9	Crown Heights	0.0
10	East Flatbush	0.0
11	Kensington	0.0
12	Windsor Terrace	0.0
13	Prospect Heights	0.0
14	Brownsville	0.0
15	Williamsburg	0.0
16	Bushwick	0.0

It also noted that most of Asian restaurants are in outside Asian population area such as Brooklyn Heights, Downtown, Fort Hamilton, etc. Hence these locations cannot be considered as ideal location to start an Asian restaurant due to lack of target population and high competition among existing restaurants (figure 3)

Figure 3;

	Neighborhood	Asian Restaurant
18	Brooklyn Heights	0.020000
20	Carroll Gardens	0.010000
33	Bath Beach	0.020000
40	Downtown	0.020000
50	North Side	0.010000
53	Fort Hamilton	0.013889
66	Homecrest	0.023256