Location Choices of a Restaurant in New York City

By Freddy Li (Aug 1st, 2019)

Summary

- Problem: if someone plan to open a restaurant in New York City, how he should choose the location.

- Approach:

  - First: to find the best borough according to crime and income data.

  - Second: to explore and cluster neighborhoods in selected Staten Island.

  - Finally: the restaurant is recommended to open near these venues within the popular neighborhoods of worthy borough for different clusters.

- Recommendations: It depends but Bulls Head, Eltingville, West Brighton, Todt Hill and New Brighton in Staten Island could be good choices

- Who care: the investors, restaurants and food providers would feel interested in this project to help them make decision of location.

Data

- New York Neighborhoods data: The data is from "2014 New York City Neighborhood Names" provided by Department of City Planning, NY to give out neighborhoods' names and locations.

- New York crime data: The data is from "NYPD Complaint Data for Current Year" provided by NYPD to display the detailed crime data by case level.

- New York income data: The data is from NY QuickFacts provided by Census Bureau to give out the statistics until 2017 by boroughs in New York City.

- Geographic Data: The data is from Foursquare API. The explore endpoint is used to retrieval the recommended nearby venues around neighborhoods.

- Exploration areas: 5 boroughs and 306 neighborhoods

Exploratory Analysis

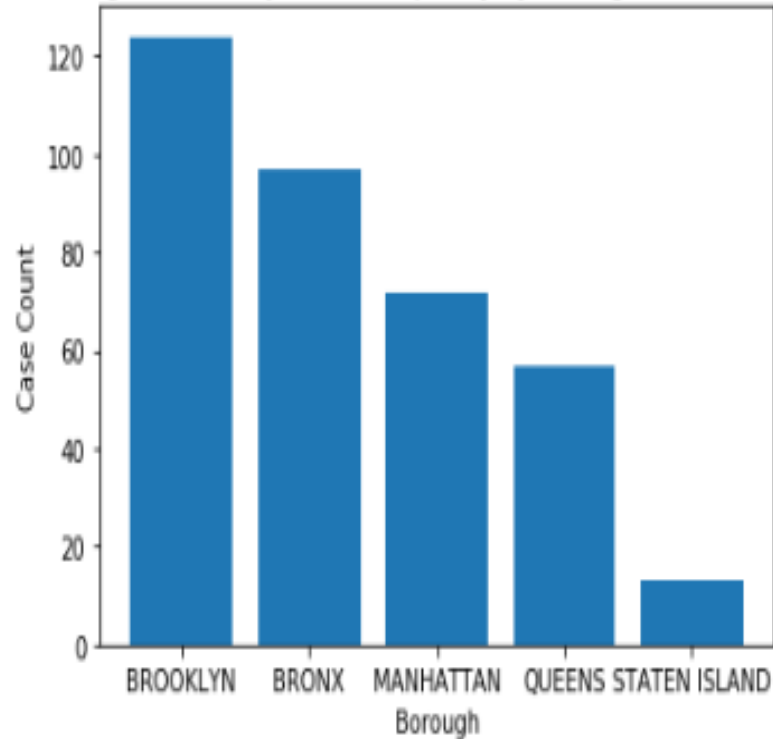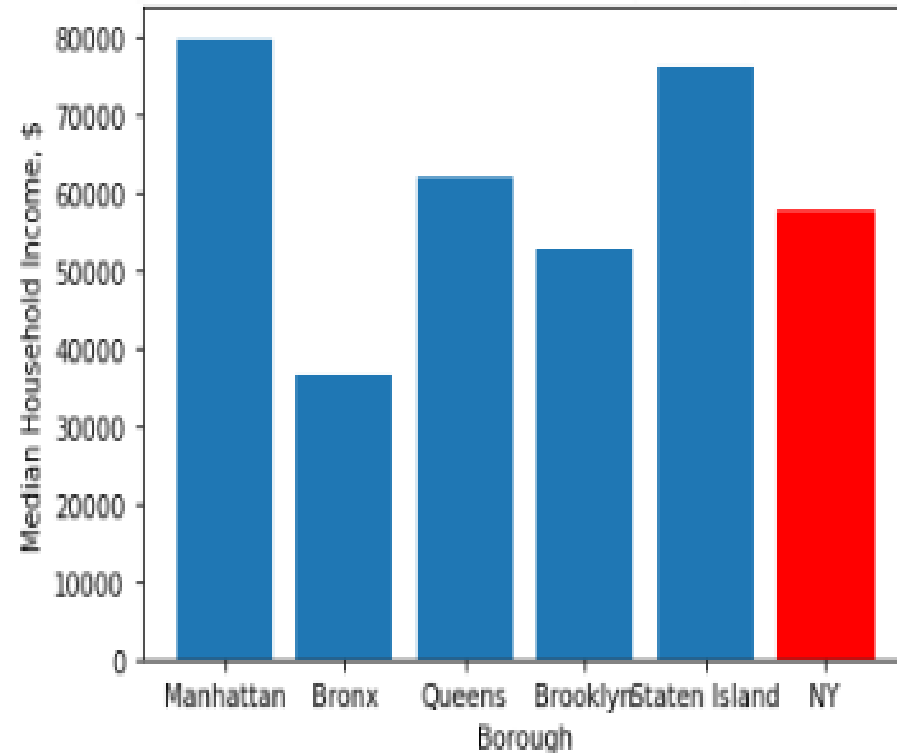Figure 1. Felony Crime Frequency by Borough in NY, 2019

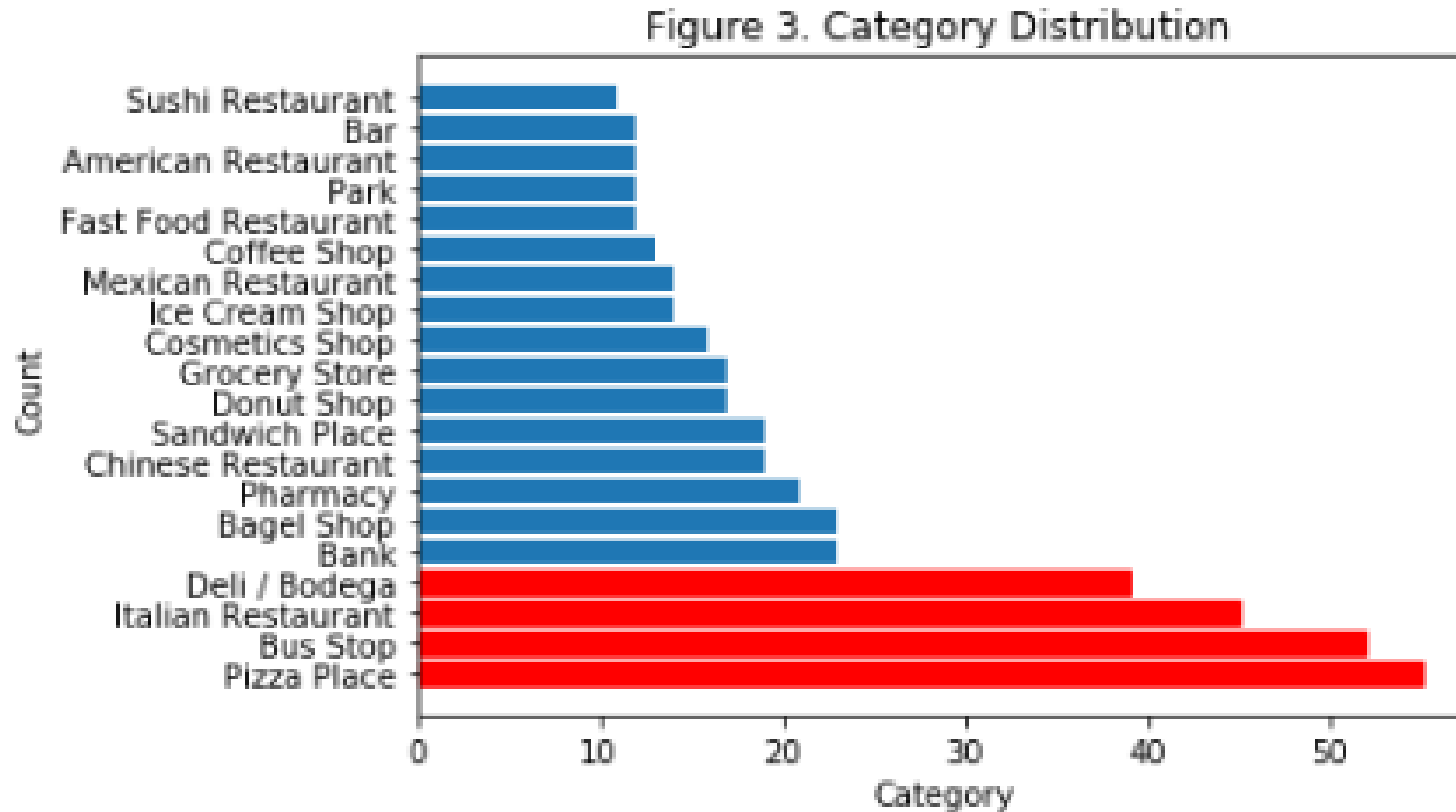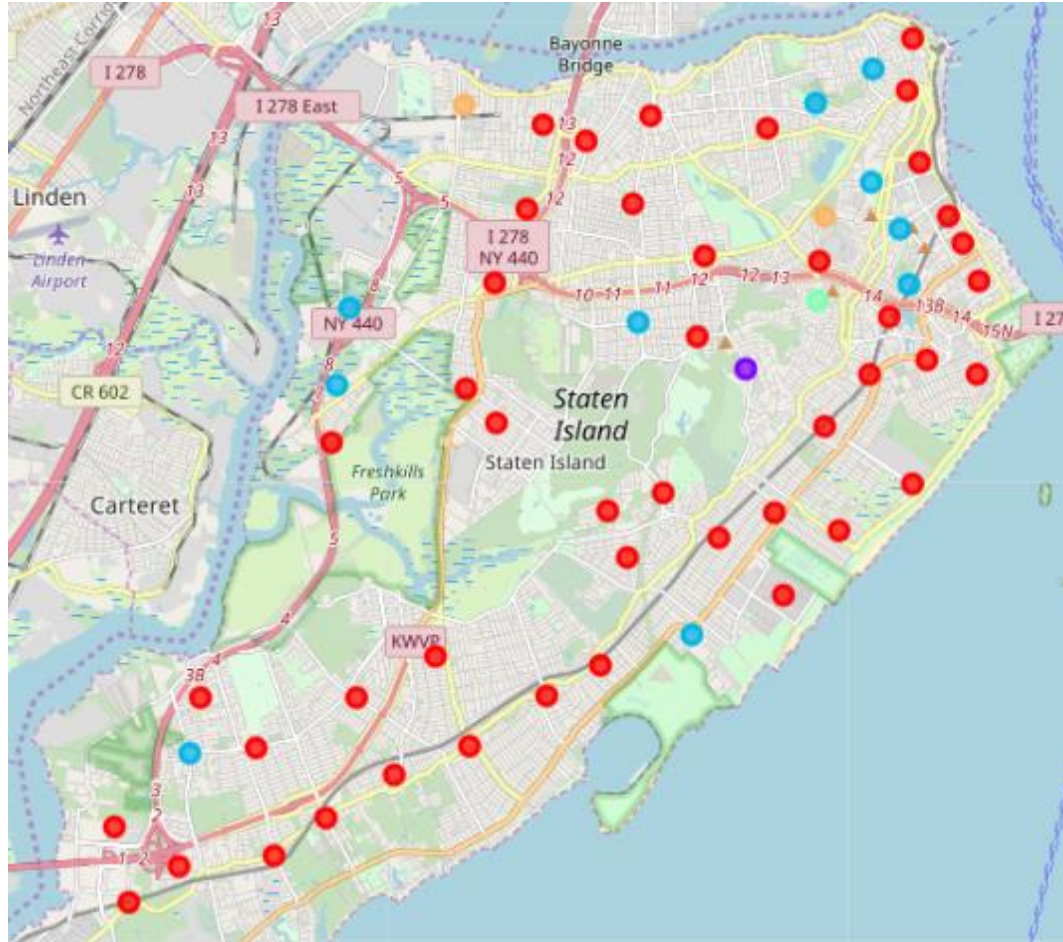Figure 2. Median Household Income by Borough in NY, 2017

Staten Island is a best borough to open restaurants.

	Neighborhood	Venue Count
0	Bulls Head	42
1	Eltingville	40
2	West Brighton	37
3	Charleston	31
4	St. George	30
5	Stapleton	29
6	New Dorp	27
7	Tompkinsville	27
8	New Springville	27
9	Grant City	26

Top 10 Popular Neighborhoods

The most popular Venue Categories

Figure 3. Category Distribution

Clustering Map

▶ Cluster 1 (47): more popular; More potential clients but more fierce competition

▶ Cluster 2 (1): only one Park

▶ Cluster 3 (10): Bus stops, parks, fast food

▶ Cluster 4 (1): no significant features

▶ Cluster 5 (2): Silver Lake with more restaurants but Arlington with more transportation places

Conclusion

- Staten Island is the best choice of borough in New York City to open small-sized restaurants because of the lower felony crime rate and higher median household income.

- The neighborhoods in Cluster 1 have lots of potential clients for restaurants but face the highly competition. Therefore, a medium- or big-sized restaurants with differential features could be good choice for these locations. Considering the popularity, Bulls Head, Eltingville and West Brighton are best choices of neighborhoods.

- Todt Hill is a good neighborhood to provide fast food, health food or drinks to people who love park or outdoor activities.

- Cluster 3 is a group of neighborhoods to open fast food restaurants or food trucks to provide people who are waiting buses. Considering popularity, New Brighton is the best choice.

- Cluster 4 & 5 are less recommended locations to open restaurants due to the lower popularity.