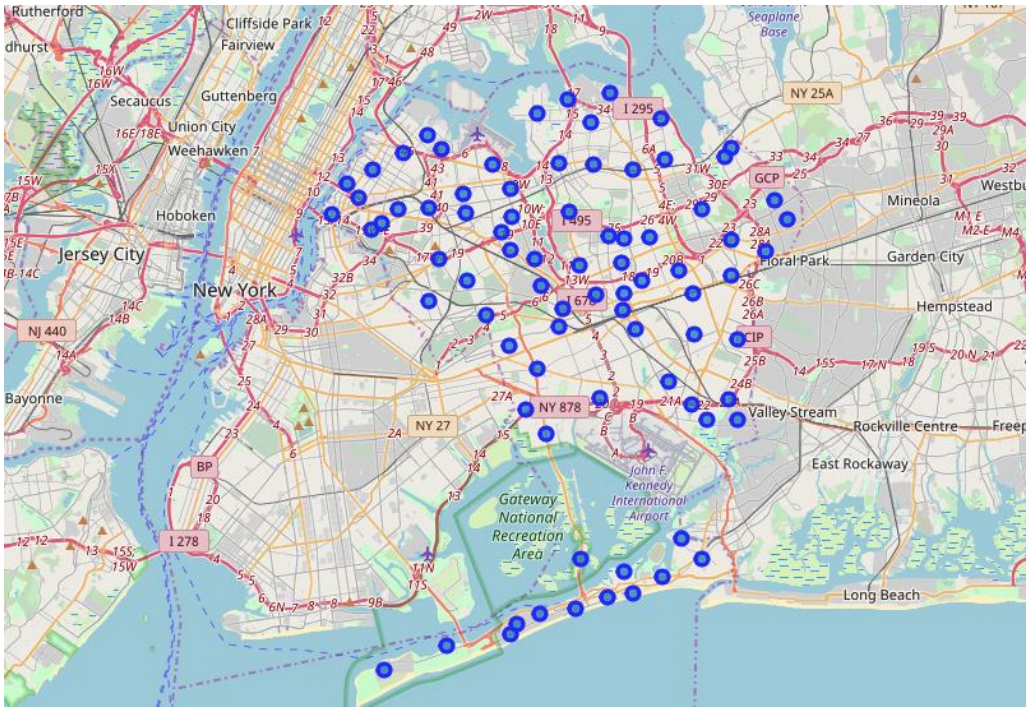
Finding the Best Location to Open a Bar in Queens, NY

1. Introduction

The borough of Queens in New York City is one of the most diverse and dense boroughs in the east coast. Finding a good location to open a bar in Queens can be a vital step when it comes to be a successful business. Python can be used to handle this type of analysis because it has a lot of useful libraries that can combine different things into meaningful data. Therefore, the task of finding a good location can become less complex and time consuming by using a good data set and the appropriate algorithms.

2. Data Extraction

The Queens neighborhood information such as names, longitude, and latitude comes from the JSON file: *nyu_2451_34572-geojson.json*. The JSON file is transformed into a pandas dataframe containing the following columns: Borough, Neighborhood, Latitude and Longitude. The venue information of each neighborhood is obtained through the Foursquare API. The goal is to find the top 10 venue categories by neighborhood.

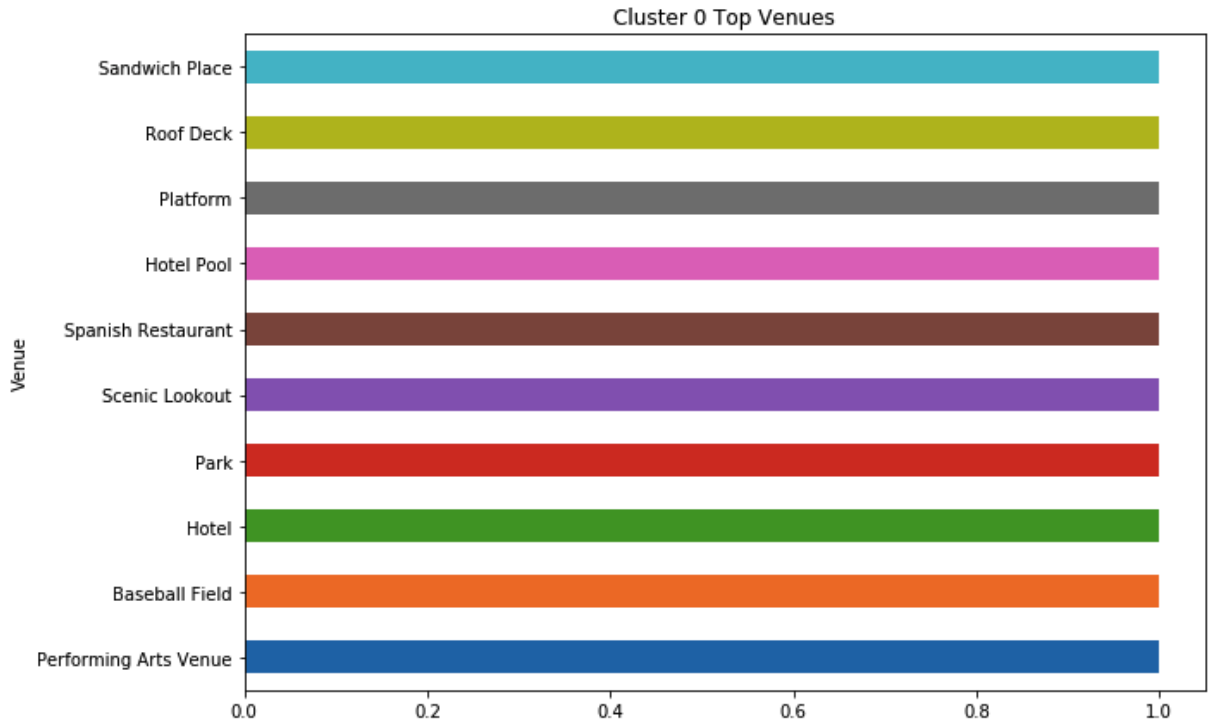


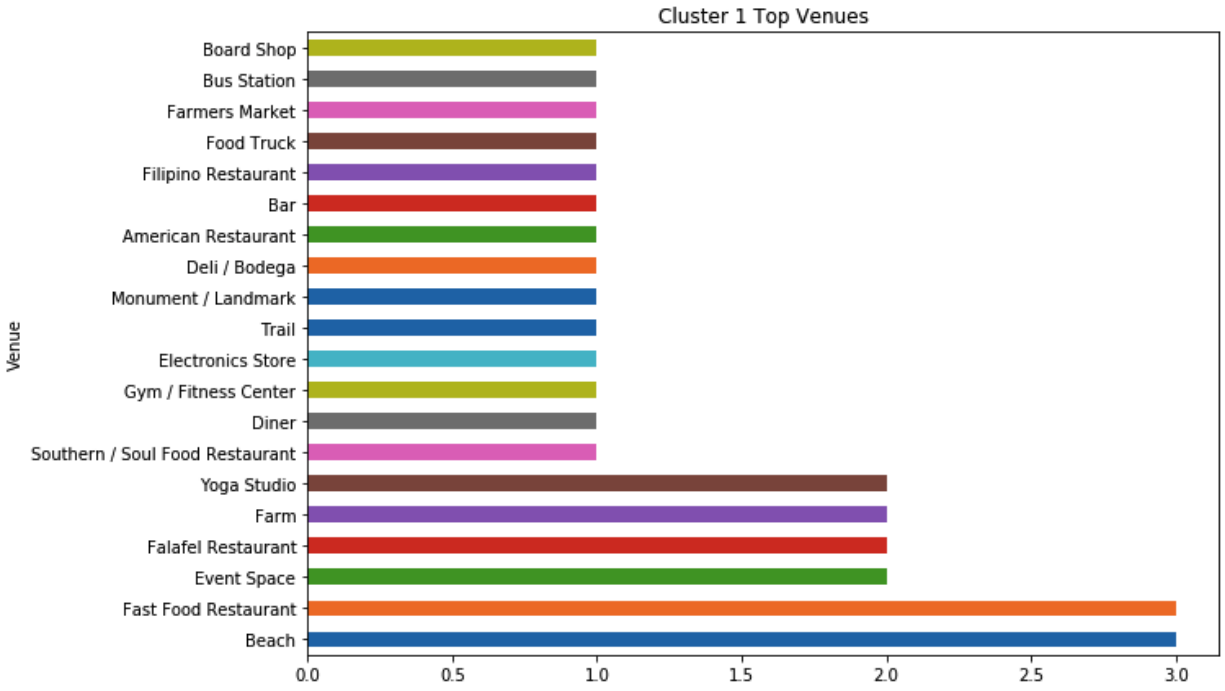
3. Methodology

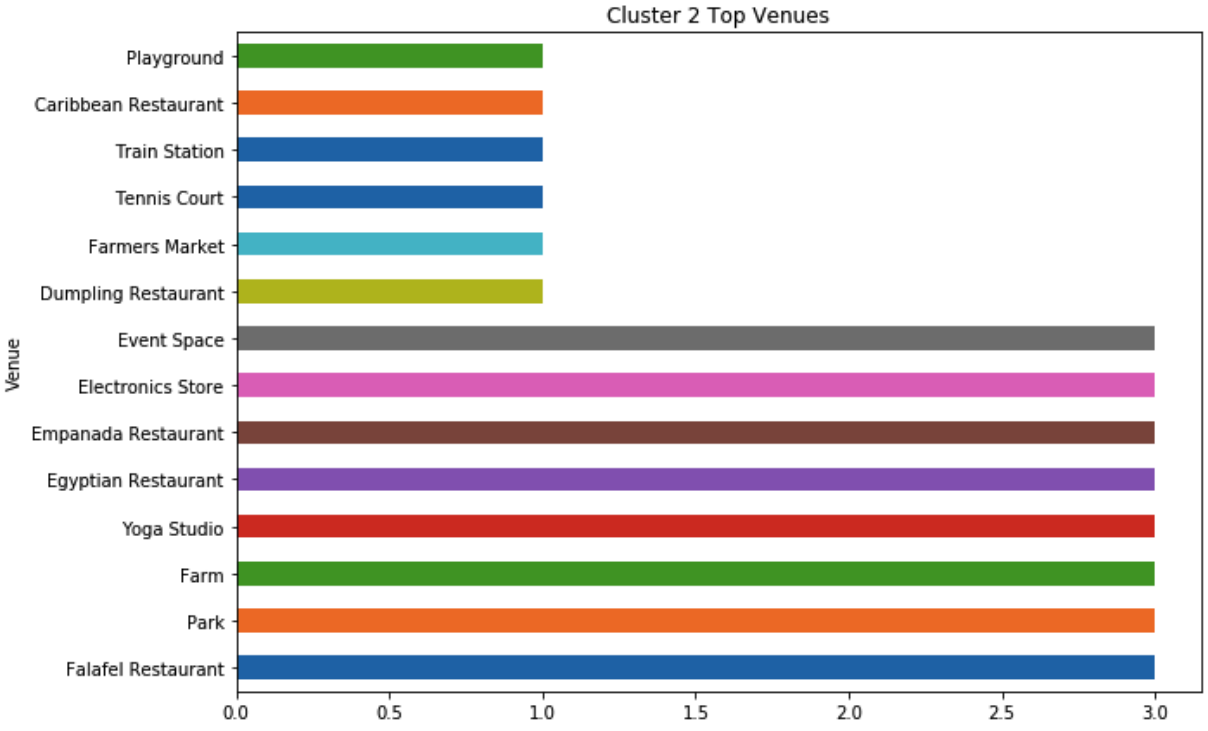
By exploring the most popular venues in each neighborhood, we can determine which neighborhoods are more likely to have less bars. After extracting the venues information from Foursquare, a dataframe is created by grouping venues by category.

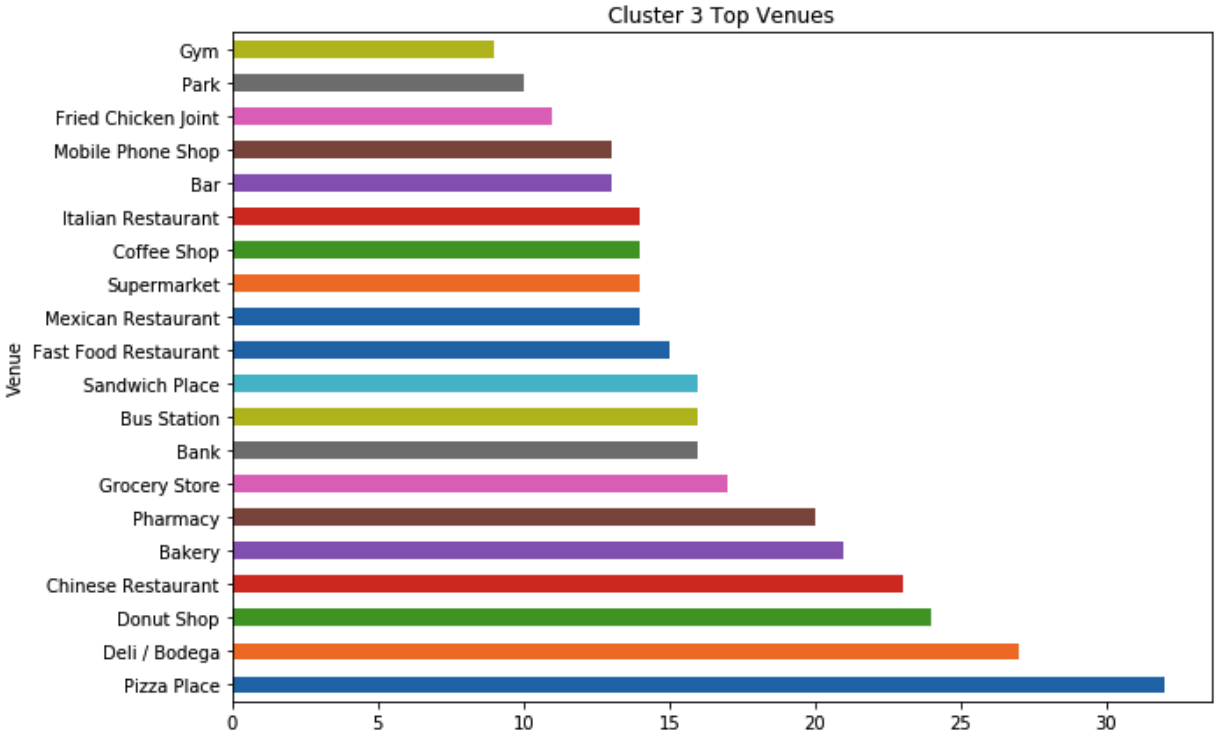
3.1 Clustering Analysis

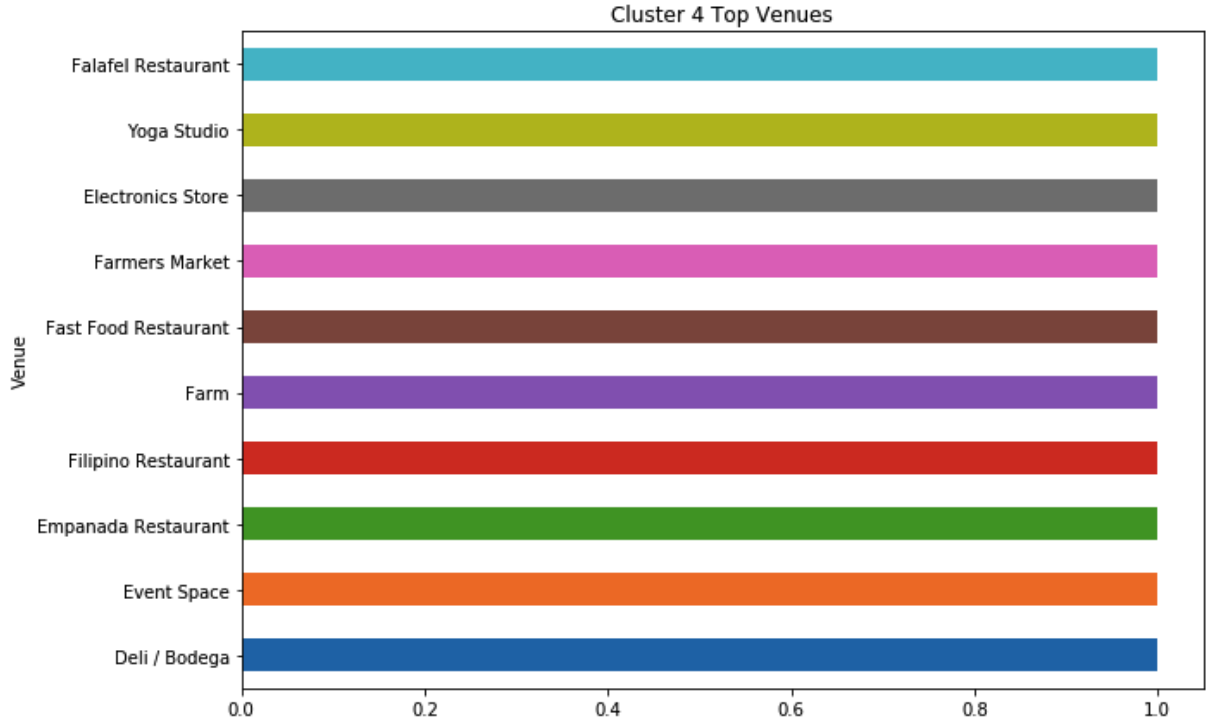
A clustering analysis is used to determine the relationships among the neighborhoods based on the venue categories. Before the analysis, one hot encoding is performed on the Foursquare dataframe and the mean per neighborhood is calculated. By using the k-means clustering algorithm, 5 clusters are created. A column containing the cluster number (0-4) is added to our final dataframe, which contains the borough name, neighborhood name, latitude, longitude, and top 10 venues.




Cluster 1 Top Venues
Venue
Board Shop
Bus Station
Farmers Market
Food Truck
Filipino Restaurant
Bar
American Restaurant
Deli / Bodega
Monument / Landmark
Trail
Electronics Store
Gym / Fitness Center
Diner
Southern / Soul Food Restaurant
Yoga Studio
Farm
Falafel Restaurant
Event Space
Fast Food Restaurant
Beach
0.0
0.5
1.0
1.5
2.0
2.5
3.0


Cluster 2 Top Venues
Venue
Playground
Caribbean Restaurant
Train Station
Tennis Court
Farmers Market
Dumpling Restaurant
Event Space
Electronics Store
Empanada Restaurant
Egyptian Restaurant
Yoga Studio
Farm
Park
Falafel Restaurant
0.0
0.5
1.0
1.5
2.0
2.5
3.0


Cluster 3 Top Venues
Venue
Gym
Park
Fried Chicken Joint
Mobile Phone Shop
Bar
Italian Restaurant
Coffee Shop
Supermarket
Mexican Restaurant
Fast Food Restaurant
Sandwich Place
Bus Station
Bank
Grocery Store
Pharmacy
Bakery
Chinese Restaurant
Donut Shop
Deli / Bodega
Pizza Place
0
5
10
15
20
25
30


Cluster 4 Top Venues
Venue
Falafel Restaurant
Yoga Studio
Electronics Store
Farmers Market
Fast Food Restaurant
Farm
Filipino Restaurant
Empanada Restaurant
Event Space
Deli / Bodega
0.0
0.2
0.4
0.6
0.8
1.0

4. Analysis Results

   By looking at each cluster, we can see that clusters 1 and 3 contain “bar” as a top venue, so we can discard the neighborhoods in cluster 1 and 3. Consequently, the following neighborhoods can be a good location to open a bar:

	Borough	Neighborhood	Latitude	Longitude	Cluster Labels
0	Queens	Laurelton	40.667884	-73.740256	2
1	Queens	Somerville	40.597711	-73.796648	2
2	Queens	Brookville	40.660003	-73.751753	4
3	Queens	Bayswater	40.611322	-73.765968	2
4	Queens	Queensbridge	40.756091	-73.945631	0

5. Observations

   Bayswater or Somerville can be a perfect location if the plan is to open a bar in the summer because they are close to the beach. On the other hand, Laurelton and Brookville are close to the JFK Airport, which can attract travelers. In addition, information containing the average income of the final 5 neighborhoods can help decide which neighborhood is the best to open a bar.

6. Conclusion

   A good data set and the right analysis can speed up the process of finding a good place to start a business. Foursquare makes things easier by providing existing business information. By using Python, we can combine information from multiple sources, such as files and APIs, and use different analysis tools or algorithms depending on the needs of the project.