

The image shows the interior of a restaurant with a rustic, industrial aesthetic. The space features exposed brick walls, wooden beams, and a variety of hanging light fixtures. In the foreground, there are several square wooden tables with dark grey upholstered chairs. In the background, a bar area is visible with shelves of bottles and a large green plant in the lower right corner. The overall atmosphere is warm and inviting.

OPENING A NEW AMERICAN RESTAURANT

IN BROOKLYN, NEW YORK

INTRODUCTION/BUSINESS PROBLEM

Because food is universal, it provides a commonality for people to prepare, eat and enjoy food with friends and partners. The entire experience can be the highlight of someone's day or week.

There are approximately 8.4 million Americans living in New York. This means there should be an avenue to cater for them. Having an American restaurant in that district will help the lives of those living there and also the community at large.

BUSINESS PROBLEM

A Client wants to find the most suitable location to open an American restaurant in Brooklyn, New York. It is important to consider competitiveness and the optimal location to this restaurant. An important factor is to make sure there aren't too many American restaurants in that vicinity as it can stifle the new business. The question will be posed as such- where can I open an American restaurant in Brooklyn, New York??

DATA SELECTION

The longitude and latitude of New York was generated using Geolocator after getting the neighborhoods of New York from a JSON file. Then the Foursquare API was used to generate locations around Brooklyn.

70 American restaurants are present in Brooklyn. The task will be to cluster them and see which neighborhoods have more restaurants than others.

```
american_r.shape
```

```
]: (70, 2)
```

METHODOLOGY

Foursquare API is used to explore neighborhoods around Brooklyn.

After that, a function is used to get the venue categories in each neighborhood.

Then the neighborhoods are grouped into clusters using the KMeans algorithm.

0 means there is that venue is not available in that neighborhood, 1 means it is

[illegible]

METHODOLOGY

Grouping each neighborhood and finding the frequency of venue occurrence in them. For example, American restaurants appear in 5% of Vinegar Hill

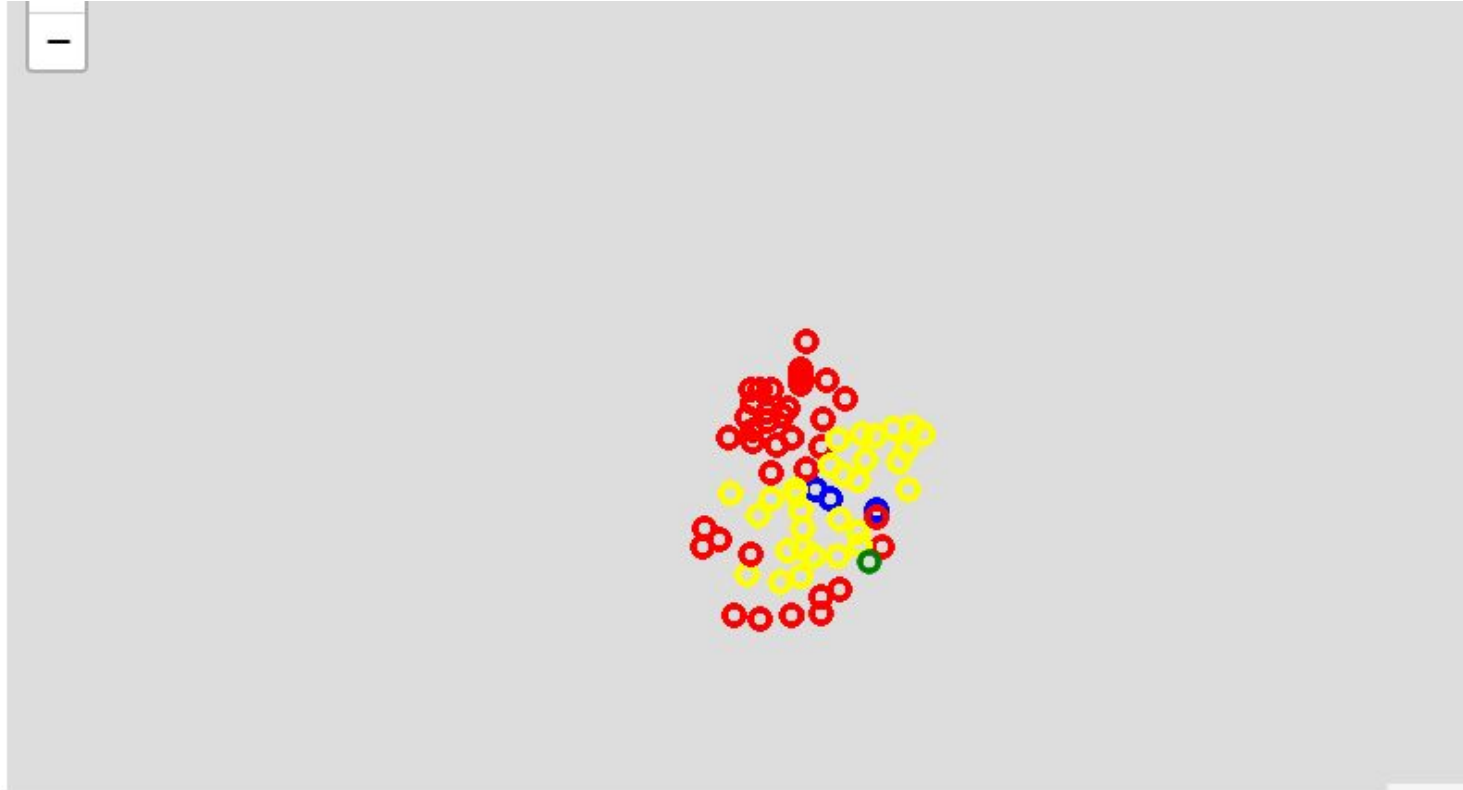
```
----Vinegar Hill----  
      venue  freq  
0      Café  0.07  
1 American Restaurant  0.05  
2      Bar   0.05
```

```
----Weeksville----  
      venue  freq  
0    Deli / Bodega  0.10  
1 Chinese Restaurant  0.07  
2      Gym   0.07
```

```
----Williamsburg----  
      venue  freq  
0      Bar   0.07  
1    Pizza Place  0.07  
2 Breakfast Spot  0.04
```

RESULTS

Cluster 0 = red, cluster 3 = yellow. These 2 clusters contain the most american restaurants in Brooklyn.



RESULTS/CLUSTER 0

[29]:	Neighborhood	American Restaurant	Cluster Labels	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
1	Bay Ridge	0.020619	0	40.625801	-74.030621	Greenhouse Cafe	40.629542	-74.028514	American Restaurant
1	Bay Ridge	0.020619	0	40.625801	-74.030621	Chadwick's Restaurant	40.621450	-74.031964	American Restaurant
2	Bedford Stuyvesant	0.021739	0	40.687232	-73.941785	Bert's Catering & Restaurant	40.689835	-73.936591	American Restaurant
5	Boerum Hill	0.010000	0	40.685683	-73.983748	The HiHi Room	40.687119	-73.990417	American Restaurant
9	Brooklyn Heights	0.010000	0	40.695864	-73.993782	Colonie	40.690733	-73.995963	American Restaurant
11	Bushwick	0.011236	0	40.698116	-73.925258	The Hart Bar	40.696320	-73.930100	American Restaurant
16	Cobble Hill	0.010000	0	40.687920	-73.998561	Colonie	40.690733	-73.995963	American Restaurant
22	Dumbo	0.037975	0	40.703176	-73.988753	Westville DUMBO	40.702021	-73.989596	American Restaurant
22	Dumbo	0.037975	0	40.703176	-73.988753	The Brasserie	40.702754	-73.989824	American Restaurant

RESULTS/CLUSTER 0

31	Fort Hamilton	0.017241	0	40.614768	-74.031979	Bay Ridge Eatery	40.618083	-74.029372	American Restaurant
32	Fulton Ferry	0.032787	0	40.703281	-73.995508	The River Café	40.703754	-73.994834	American Restaurant
32	Fulton Ferry	0.032787	0	40.703281	-73.995508	Westville DUMBO	40.702021	-73.989596	American Restaurant
35	Gowanus	0.020000	0	40.673931	-73.994441	Buttermilk Channel	40.676012	-73.999183	American Restaurant
37	Greenpoint	0.010000	0	40.730201	-73.954241	Anella	40.733272	-73.958019	American Restaurant
49	North Side	0.020000	0	40.714823	-73.958809	St. Anselm	40.714145	-73.955984	American Restaurant
49	North Side	0.020000	0	40.714823	-73.958809	The Commodore	40.714086	-73.955817	American Restaurant
53	Park Slope	0.034884	0	40.672321	-73.977050	Stone Park Café	40.672920	-73.983358	American Restaurant
53	Park Slope	0.034884	0	40.672321	-73.977050	Bonnie's Grill	40.674317	-73.982182	American Restaurant
53	Park Slope	0.034884	0	40.672321	-73.977050	Benchmark	40.673823	-73.983018	American Restaurant

RESULTS/ CLUSTER 0

60	Sea Gate	0.076923	0	40.576375	-74.007873	Gold Star Food	40.577187	-74.002121	American Restaurant
61	Sheepshead Bay	0.023256	0	40.586890	-73.943186	Applebee's Grill + Bar	40.583888	-73.943235	American Restaurant
62	South Side	0.050000	0	40.710861	-73.958001	Walter Sports	40.713444	-73.958582	American Restaurant
62	South Side	0.050000	0	40.710861	-73.958001	St. Anselm	40.714145	-73.955984	American Restaurant
62	South Side	0.050000	0	40.710861	-73.958001	Rabbithole	40.712258	-73.962796	American Restaurant
62	South Side	0.050000	0	40.710861	-73.958001	The Commodore	40.714086	-73.955817	American Restaurant
62	South Side	0.050000	0	40.710861	-73.958001	Simple Cafe	40.712420	-73.962736	American Restaurant
65	Vinegar Hill	0.047619	0	40.703321	-73.981116	Vinegar Hill House	40.702686	-73.981260	American Restaurant
65	Vinegar Hill	0.047619	0	40.703321	-73.981116	Superfine	40.702334	-73.987559	American Restaurant
68	Windsor Terrace	0.028571	0	40.656946	-73.980073	Krupa Grocery	40.659957	-73.980696	American Restaurant

RESULTS/CLUSTER 3

[32]:

	Neighborhood	American Restaurant	Cluster Labels	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
6	Borough Park	0.038462	3	40.633131	-73.990498	Orchidea	40.636390	-73.993899	American Restaurant
33	Georgetown	0.030303	3	40.623845	-73.916075	Gourmet Grill	40.619543	-73.916111	American Restaurant
39	Homecrest	0.023256	3	40.598525	-73.959185	Three Star Restaurant	40.599043	-73.954987	American Restaurant
46	Mill Basin	0.023256	3	40.615974	-73.915154	Gourmet Grill	40.619543	-73.916111	American Restaurant
63	Starrett City	0.066667	3	40.647589	-73.879370	Boston Market	40.647250	-73.882550	American Restaurant
64	Sunset Park	0.021277	3	40.645103	-74.010316	George's Restaurant	40.641116	-74.014348	American Restaurant

RECOMMENDATIONS

Based on the above dataframe, it is ideal to open a restaurant in one of the neighborhoods in cluster 3 due to limited competition. These neighborhoods are Borough Park, Sunset Park, Georgetown, Homecrest, Mill Basin or Starett city.

Sunset Park will be the optimal location choice due to having the lowest frequency of American Restaurants.