Brooklyn, NYC Skate Parks Analysis

Business Problem

There may not be enough skate parks in the New York City, particularly in Boroughs outside of Manhattan. **Some of the existing skate parks may be suffering from overcrowding.** Also, in certain cases, some neighborhoods may have access to a larger number of skate parks, which in turn could result in **underutilization.** I am interested in seeing which neighborhoods might benefit from additional skate parks in their area versus neighborhoods that are fortunate to have more than enough. Another factor is that will be distance between a neighborhoods to the nearest skate park. **More specifically, within a 3 mile (4828.032m) radius.**

The borough of Brooklyn has a total of **70 neighborhoods.** Based on the population data that was collected, as of January 30, 2019 there is a total of **1,941,652 people** that live across each neighborhood. The **New York Department of Parks and Recreation** provided its residents with **36 outdoor and indoor skate parks** throughout the boroughs.

For this project, I will focus of the borough of Brooklyn. The methodology used can also be applied for other NYC boroughs and neighborhoods analysis.
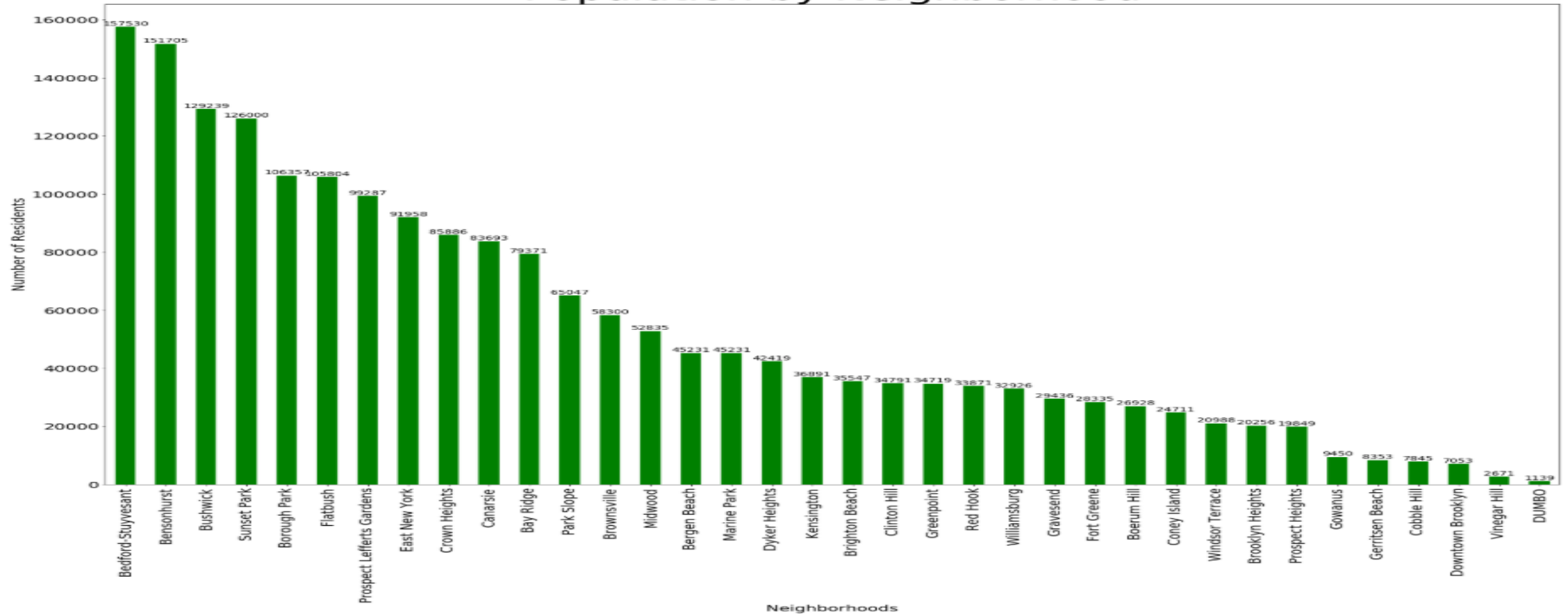
Methodology and Data

- Find the population of the each of the main Brooklyn neighborhoods
- Capture data related to Brooklyn from the New York Dataset
  - Borough Name
  - Neighborhood Name
  - Neighborhood Latitude & Longitude
- Use Foursquare data source to find all of the skate parks in Brooklyn (within 3 miles)
  - Venue Name
  - The Venue's Latitude & Longitude
  - The Venue's category so that I can filter on skate parks
  - The Neighborhood that the Venue is located
  - The Neighborhood's Latitude & Longitude
- Use the K-Means Clustering Model
  - Determine the best K-Means Clustering data point to use
  - Determine k for the number of clusters to create
  - Run data through the K-Means model
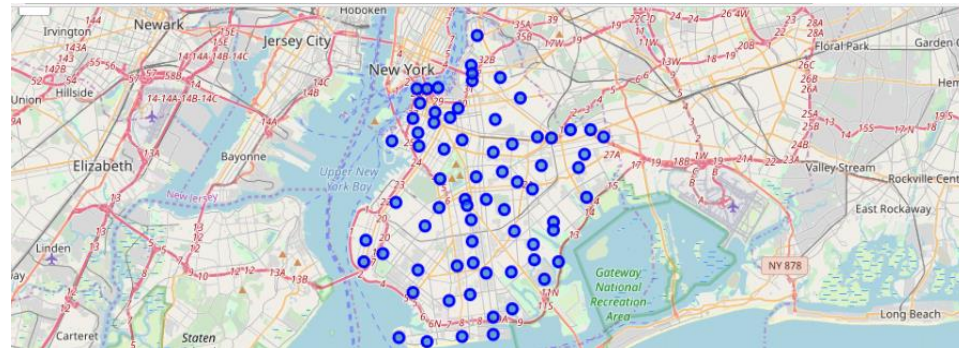- Create Graphs & Maps for visualization

Visualizations
Graphs & Maps

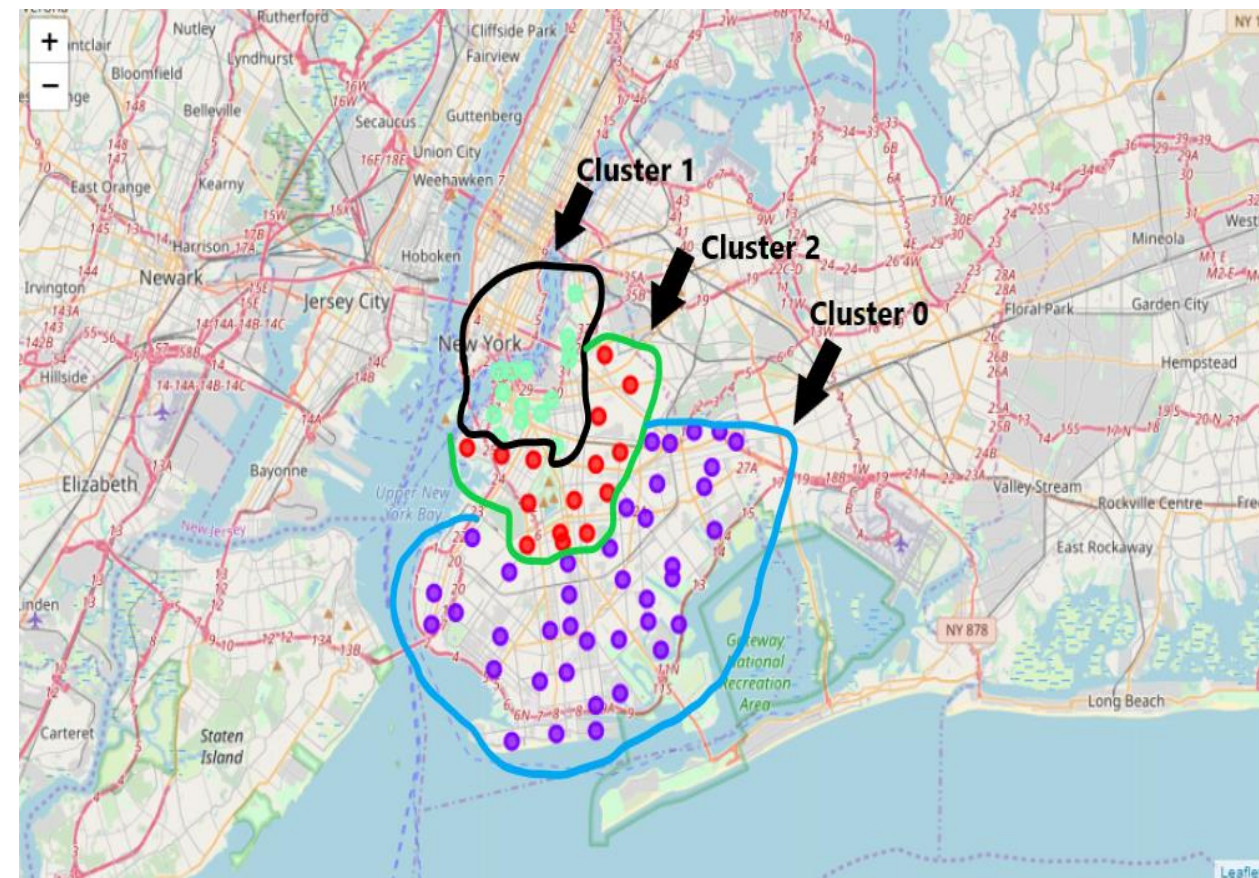Population by Neighborhood

Visualizations
Graphs & Maps

Location of all of the Brooklyn Neighborhoods

Brooklyn Neighborhoods with the skate parks within a 3 miles radius

Analysis

Cluster 0

	Neighborhood	Cluster Labels	Skate Park
32	Coney Island	0	1
28	Canarsie	0	1
33	Bath Beach	0	2
27	Starrett City	0	2
4	Gravesend	0	2
59	Paerdegat Basin	0	2
53	Fort Hamilton	0	3
66	Homecrest	0	3
35	Dyker Heights	0	3
52	Ocean Parkway	0	3
1	Bensonhurst	0	3
0	Bay Ridge	0	3
58	New Lots	0	3
30	Mill Island	0	4
60	Mill Basin	0	4
10	East Flatbush	0	4
7	Manhattan Terrace	0	4
31	Manhattan Beach	0	4
68	Madison	0	4
57	Remsen Village	0	4
6	Sheepshead Bay	0	4
48	Georgetown	0	4
26	East New York	0	4
37	Marine Park	0	4
36	Gerritsen Beach	0	4
45	Bergen Beach	0	4
25	Cypress Hills	0	4
5	Brighton Beach	0	4
44	City Line	0	4
14	Brownsville	0	5
8	Flatbush	0	5
29	Flatlands	0	5
43	Ocean Hill	0	5
64	Broadway Junction	0	5
46	Midwood	0	5
67	Highland Park	0	5
2	Sunset Park	0	6
56	Rugby	0	6
34	Borough Park	0	6

Cluster 1

	Neighborhood	Cluster Labels	Skate Park
13	Prospect Heights	1	13
20	Carroll Gardens	1	14
19	Cobble Hill	1	14
3	Greenpoint	1	15
50	North Side	1	16
41	Boerum Hill	1	16
51	South Side	1	16
61	Fulton Ferry	1	17
65	Dumbo	1	17
15	Williamsburg	1	17
62	Vinegar Hill	1	18
18	Brooklyn Heights	1	18
40	Downtown	1	19
23	Fort Greene	1	20
38	Clinton Hill	1	20

Cluster 2

	Neighborhood	Cluster Labels	Skate Park
47	Prospect Park South	2	7
55	Wingate	2	7
69	Erasmus	2	7
54	Ditmas Park	2	7
63	Weeksville	2	8
16	Bushwick	2	8
11	Kensington	2	8
42	Prospect Lefferts Gardens	2	9
12	Windsor Terrace	2	9
21	Red Hook	2	10
9	Crown Heights	2	10
24	Park Slope	2	11
17	Bedford Stuyvesant	2	12
49	East Williamsburg	2	12
22	Gowanus	2	12

Analysis & Results

▶ The largest number of skate parks (21) are located in the northern portion of Brooklyn and are north of Eastern Parkway.

▶ 9 out of the 21 skate parks for the northern section are in the borough of Manhattan.

▶ 11 skate parks in the southern portion of Brooklyn.

▶ 1 skate park is located in the borough of Staten Island.

Analysis & Results

▶ Neighborhoods with 3 – 5 parks within 1.5 miles:

Bedford Stuyvesant	Boerum Hill	Brooklyn Heights
Bushwick	Carroll Gardens	Clinton Hill
Cobble Hill	Downtown	Dumbo
East Williamsburg	Fort Greene	Fulton Ferry
Gerritsen Beach	Gowanus	Greenpoint
North Side	Park Slope	Prospect Heights
Prospect Lefferts Gardens	Red Hook	Sheepshead Bay
South Side	Vinegar Hill	Williamsburg
Windsor Terrace	Wingate	

▶ Neighborhoods with 3 – 5 parks within 1.5 miles:

Bedford Stuyvesant - 12	Boerum Hill - 16	Brooklyn Heights - 18
Carroll Gardens - 14	Clinton Hill - 20	Cobble Hill - 14
Crown Heights - 10	Downtown - 19	Dumbo - 17
Park Slope - 11	Prospect Heights - 13	Red Hook - 10
South Side - 16	Vinegar Hill - 18	Williamsburg - 17

Conclusion

▶ Neighborhoods that would benefit from having additional skate parks:

  ▶ Coney Island

  ▶ Canarsie

  ▶ Bath Beach

  ▶ Gravesend

  ▶ Paerdegat

Note: Build a 1 skate park between Coney Island and Canarsie