LOCATION SUGGESTION FOR AN ICE-CREAM PARLOUR IN BROOKLYN, NEW YORK

NEW YORK CITY

- New York City is not only the most populous city of the United States of America but it also the most densely populated city in the country.

- It had an estimated population of 8.4 million in 2018 over an area of 784 square kilometres.

- The city is located at the southern tip of the state of New York.

- The city is often referred to as the cultural, financial, and media capital of the world, and commands a very high impact upon commerce, entertainment, research, technology, education, politics, tourism, art, fashion, and sports.

- New York is situated on one of the world's largest natural harbours.

Brooklyn

Queens

Manhattan

The Bronx

Staten Island

5 BOROUGHS IN NEW YORK

BROOKLYN BOROUGH

- Brooklyn (Kings County) is situated on the western tip of Long Island.

- It is new York's most populous borough.

- Brooklyn is known for its cultural, social, and ethnic diversity, an independent art scene, distinct neighbourhoods, and a distinctive architectural heritage.

- Downtown Brooklyn is the largest central core neighbourhood in the outer boroughs.

- The borough has a long beachfront shoreline including Coney Island.

BROOKLYN ICE-CREAMS

- A small ice-cream parlour was opened in 2012 by a local resident Mr. Ridley Johnson in the Bay Ridge area of Brooklyn.

- Bay Ridge is a residential neighbourhood in the southwest corner of the New York City borough of Brooklyn.

- Being nearer to the coast, the area received high number of footfalls during the day which further increased during the night.

- Key attractors were the fruit flavoured ice creams which were loved by kids, adults and older people.

- Soon the business flourished and Mr. Johnson moved to a bigger parlour in the town centre in 2015 and named it 'Brooklyn Ice-Creams'.

- Since then the business has increased and daily footfall is 500 which includes not only people from the neighbourhood but lovers of the ice-cream from other parts of Brooklyn and Manhattan.

THE BUSINESS PROBLEM

- Mr. Ridley Johnson the owner of Brooklyn Ice-Creams wants the help of data in finding the next best locality for his shop.

- The research problem can be stated as "To suggest an appropriate location for an extension branch of Brooklyn Ice-Creams in in Brooklyn area down south.

- Following are the 6 areas of interest:

  i.   Sea Gate

  ii.   Coney Island

  iii. Brighton Beach

  iv.   Manhattan Beach

  v.   Sheepshed Bay

  vi.   Gerritsen

- Following two factors shall be considered while selecting a neighbourhood:

  - Neighbourhood should be similar to the Bay Ridge area as people with similar lining and neighbourhood locations shall increase the chance of success

  - The neighbourhood should not have ice-creame as among the most common venues.

TARGET AUDIENCE AND STAKEHOLDERS

- Mr. Ridley Johnson – Owner of Brooklyn Ice Crems

- Mr. Natham – Property Delaer

DATA SOURCE

- Twofold data is basically required for the project.

  - Brooklyn, New York neighbourhood data.

  - Nearby places data of each Brooklyn neighbourhood.

- A Jason file named '*newyork_data.json*' was available to the author at the web address :- *https://cocl.us/new_york_dataset*.

- The dataset included some **306** neighbourhood of the 5 boroughs of New York City including those in the Brooklyn borough.

- Further data revealed that information about 70 neighbourhood in Brooklyn area was available in the dataset.
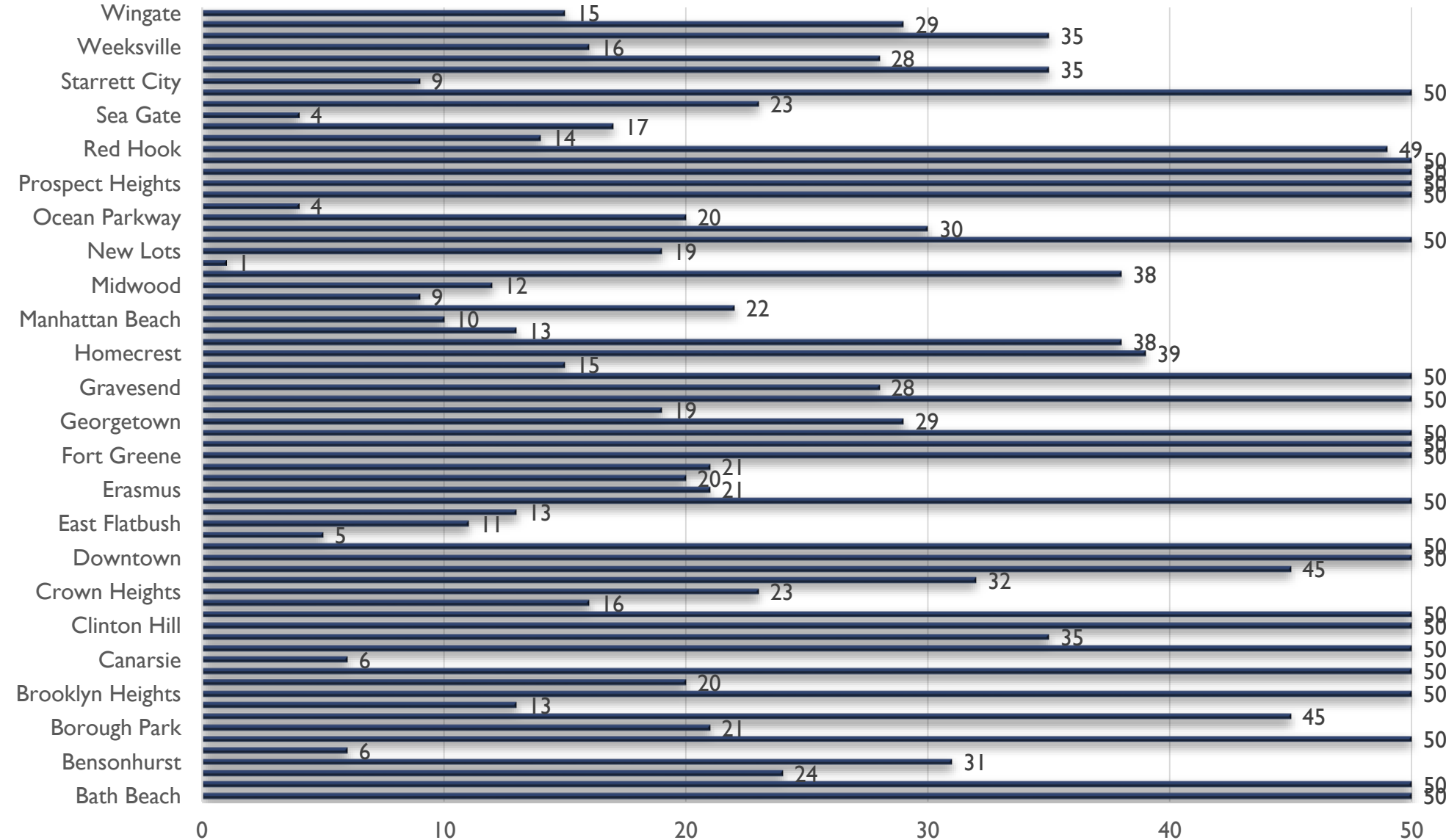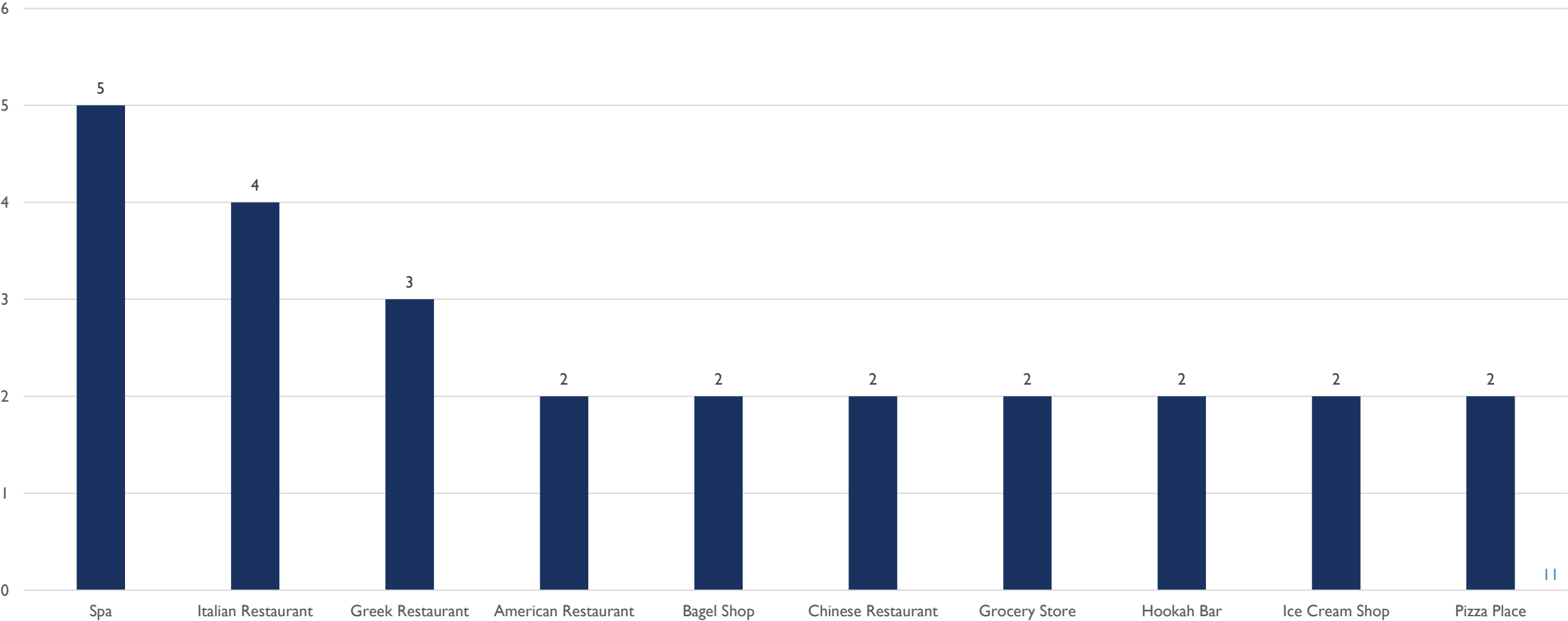

Number of Neighborhoods in 5 New York Boroughs
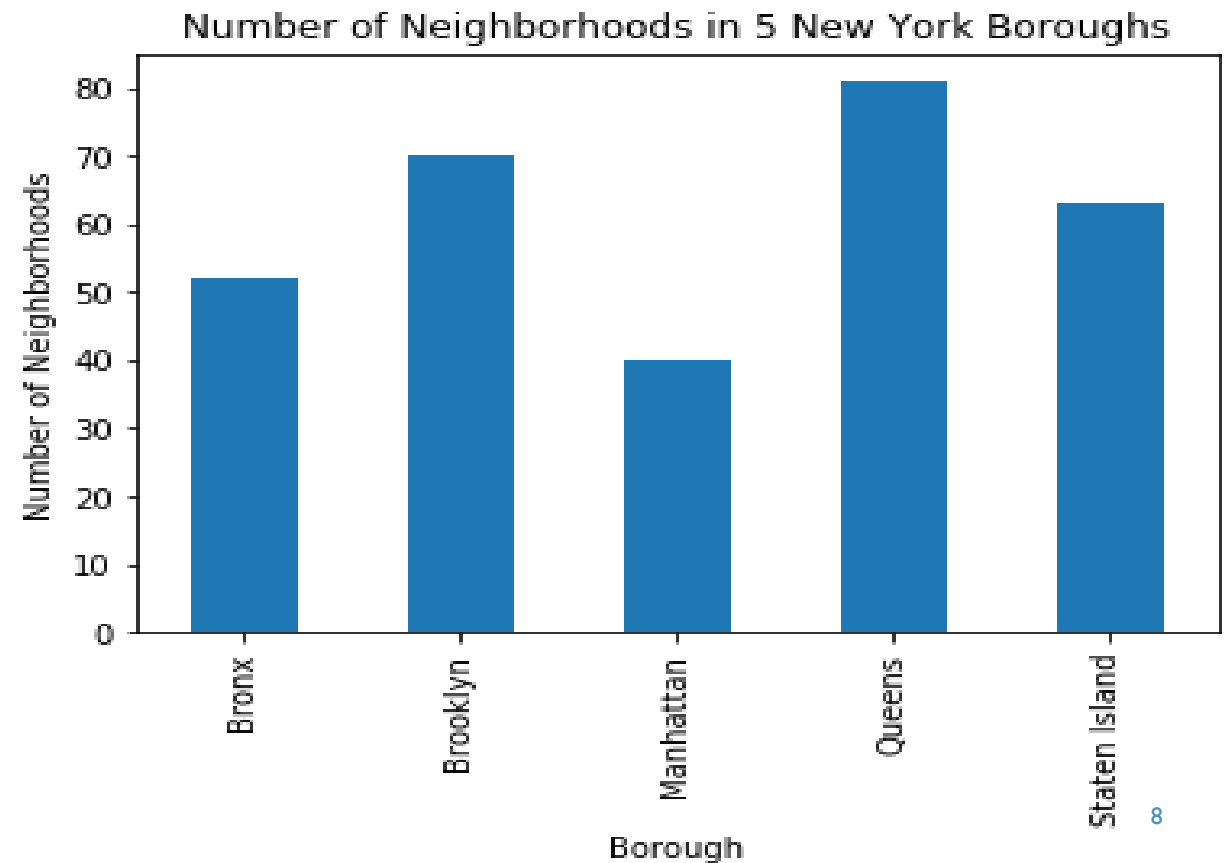
BROOKLYN NEIGHBOURHOODS

Areas of Interest
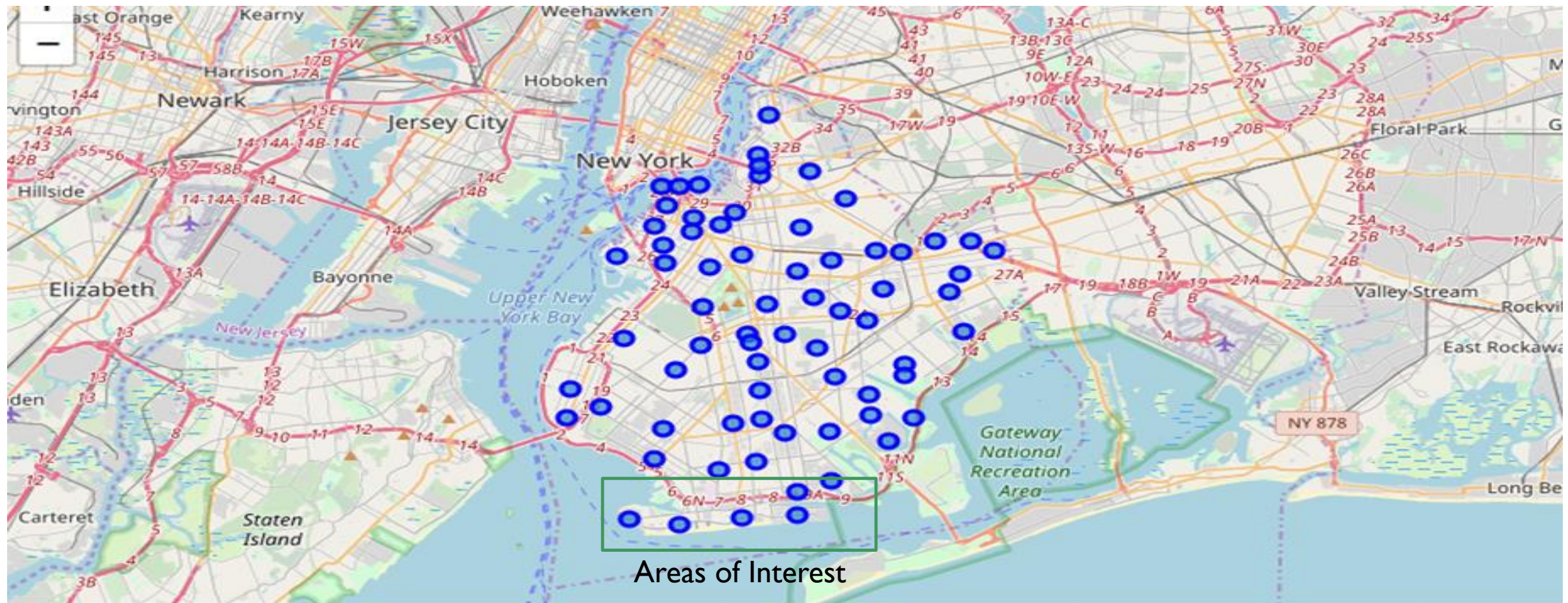
Venues Found in Each Neighbourhood

# BAY RIDGE AREA TOP VENUES (BY FREQUENCY)

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METHODOLOGY

- Data from New York json file was converted into a Brooklyn neighbourhood data frame which also contained geographical coordinates of each neighbourhood.

- Thereafter, using Four Square nearby API, 50 venues within 500 m radius of neighbourhood were fetched and further used to derive clustering model.

- As there was a requirement of clustering the neighbourhoods, it was considered appropriate to deploy K-Means Clustering.

- K-Means clustering is one of the simplest and popular unsupervised machine learning algorithms. A cluster usually refers to a collection of data points aggregated together because of certain similarities and in this case, we were looking for similar neighbourhoods.

RESULTS AFTER K-MEANS CLUSTERING
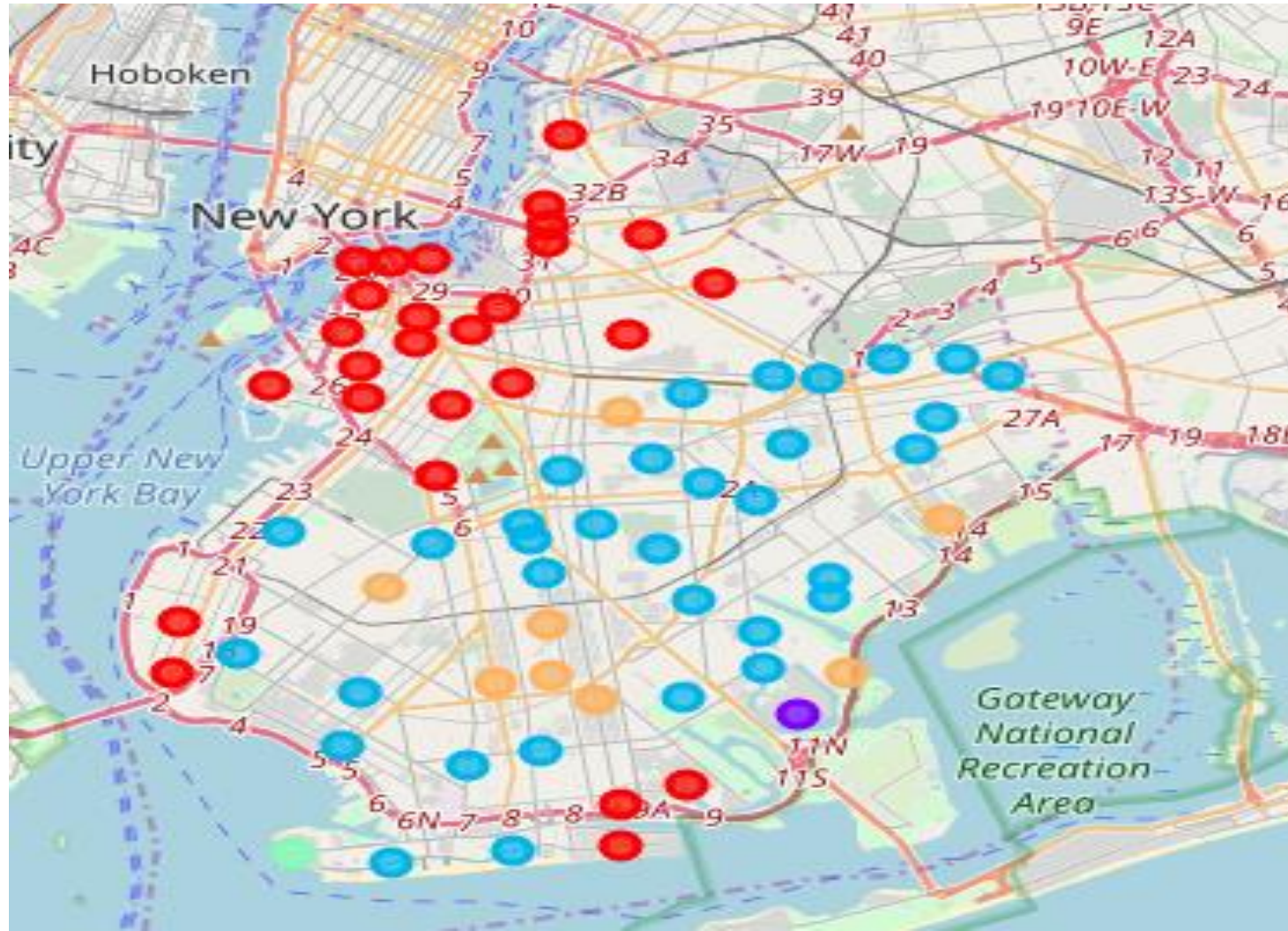
CLUSTER DETAILS

Cluster	Colour Depiction	Number of Neighbourhoods
Cluster-1	Red	27
Cluster-2	Purple	1
Cluster-3	Blue	33
Cluster-4	Green	1
Cluster-5	Orange	8

DISCUSSIONS – CLUSTERS OF AREAS OF INTEREST

Only 3 out 6 tentative neighbourhoods lie in cluster 1 which has Bay Ridge where currently the Ice-Parlour is present.

Thus, it was concluded that , Bay Ridge, Sheepshead Bay, Manhattan Beach, Gerritsen Beach have similar neighbourhood and thus can be explored further for opening the shop.
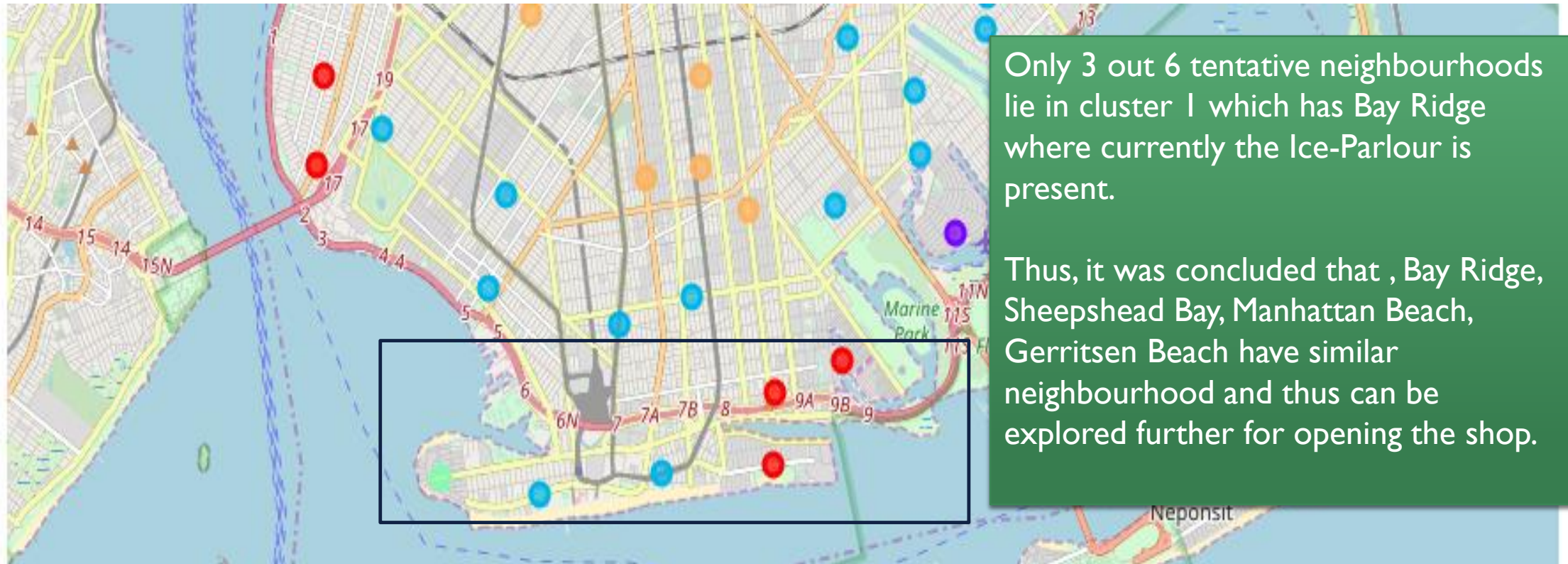
SUMMARY OF CLUSTER ANALYSIS

Cluster	Neighbourhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
1	Bay Ridge	Spa	Italian Restaurant	Greek Restaurant	Ice Cream Shop	Pizza Place
1	Sheepshead Bay	Dessert Shop	Turkish Restaurant	Sandwich Place	Yoga Studio	Grocery Store
1	Manhattan Beach	Bus Stop	Café	Ice Cream Shop	Beach	Sandwich Place
1	Gerritsen Beach	Ice Cream Shop	Bar	Pizza Place	American Restaurant	Convenience Store
3	Brighton Beach	Russian Restaurant	Restaurant	Beach	Eastern European Restaurant	Bank
3	Coney Island	Caribbean Restaurant	Baseball Stadium	Monument / Landmark	Fried Chicken Joint	Food Stand
4	Sea Gate	Bus Station	Spa	Home Service	Beach	Women's Store

DISCUSSIONS

- Manhattan Beach has ice cream as the third most common venue

- Gerritsen Beach had Ice-Cream venues as the most common.

- Thus, only Sheepshead Bay was found to be appropriate for opening of new outlet of Brooklyn Ice-Creams.

CONCLUSION

Mr. Johnson and Mr. Wright should explore appropriate location Sheepshead Bay area as it met their requirements of similar neighbourhood and lesser number of existing ice-cream shops