BATTLE OF THE NEIGHBOURHOODS
TORONTO VS NEW YORK CITY
FOR THE BEST LOCATION
FOR THE BEST ORGANIZATION.

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PROBLEM STATEMENT

Understand the similarities and differences of neighbourhoods between scarborough borough in toronto and queens borough in New York city . select the best neighbourhood for an organization to move its headquarters based on venues.

OBJECTIVE

- Collect the neighbourhoods top venues using foursquare.

- Form neighbourhood, based on venue categories using unsupervised k-means clustering algorithm.

- Identify and understand the similarities and differences between scarborough and queens neighbourhoods to obtain insights into the neighbourhoods.

DATA ACQUISITION

The data used for this project will be acquired from the respective cities wikipedia website pages. The datasets consists of the postal codes, neighbourhood names, latitude, and longitude information for each neighbourhood. Foursquare API search feature will be used to collect neighbourhood venue information. Details about local venues and locality will be provide insight into the qualities of A neighbourhood. In addition to foursquare, various *python packages will be used to create maps and machine learning models* to further provide insights into our neighbourhood battle project.

Here we collect the neighbourhoods top venues using foursquare form neighbourhood based on venue categories using unsupervised k-means clustering algorithm.

I used the following datasets from these websites:
Toronto neighbourhoods - https://en.Wikipedia.Org/wiki/list_of_postal_codes_of_canada:_m.
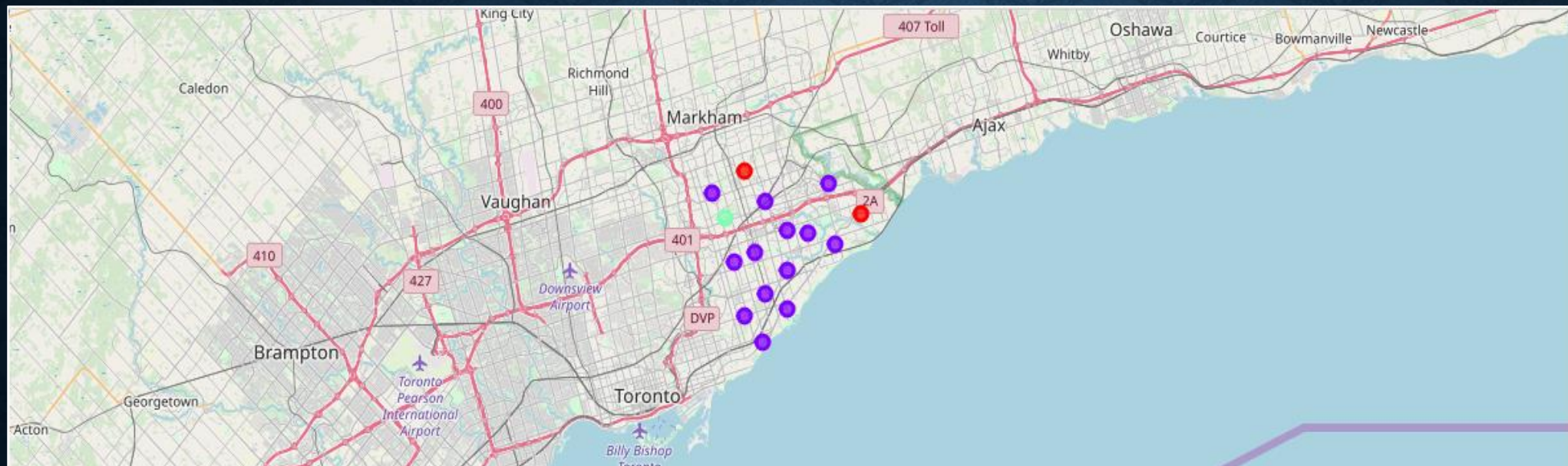Toronto latitude and longitude - http://cocl.Us/geospatial_data
New york city neighbourhoods - https://geo.Nyu.Edu/catalog/nyu_2451_34572
New york city latitude and longitude = python geolibrar .

HOW IT WILL BE USED TO SOLVE THE PROBLEM

This project will analyse neighbourhoods between toronto, canada and New York city, New York. For an organization is looking to move its headquarters to either toronto or New York. The company wants insight into the neighbourhoods and local businesses in the cities so that its employees may have the optimum living standards and quality of life for family and himself. This project will explore the similarities and dissimilarities between certain neighbourhoods in the two cities, and determine which neighbourhoods best fit the culture of the organization for employees.

Map of Scarborough In Toronto

Different neighbourhood Clusters based on Most common venues

	PostalCode	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue
0	M1B	Scarborough	Rouge,Malvern	43.806686	-79.194353	1	Fast Food Restaurant	Vietnamese Restaurant	Clothing Store	Grocery Store	General Entertainment	Furniture / Home Store	Fried Chicken Joint	Electronics Store
1	M1C	Scarborough	Highland Creek,Rouge Hill,Port Union	43.784535	-79.160497	0	History Museum	Bar	Moving Target	Vietnamese Restaurant	Clothing Store	General Entertainment	Furniture / Home Store	Fried Chicken Joint
2	M1E	Scarborough	Guildwood,Morningside,West Hill	43.763573	-79.188711	1	Pizza Place	Rental Car Location	Intersection	Breakfast Spot	Medical Center	Mexican Restaurant	Electronics Store	Spa
3	M1G	Scarborough	Woburn	43.770992	-79.216917	1	Coffee Shop	Insurance Office	Korean Restaurant	Vietnamese Restaurant	Gym Pool	General Entertainment	Furniture / Home Store	Fried Chicken Joint
4	M1H	Scarborough	Cedarbrae	43.773136	-79.239476	1	Hakka Restaurant	Athletics & Sports	Bakery	Bank	Fried Chicken Joint	Caribbean Restaurant	Thai Restaurant	College Stadium

Map of Queens In New York City

Different neighbourhood Clusters based on Most common venues

	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Queens	Astoria	40.768509	-73.915654	0	Bar	Middle Eastern Restaurant	Hookah Bar	Greek Restaurant	Seafood Restaurant	Bakery	Italian Restaurant	Pizza Place	Deli / Bodega	Indian Restaurant
1	Queens	Woodside	40.746349	-73.901842	0	Grocery Store	Thai Restaurant	Bakery	Pub	Restaurant	Donut Shop	Filipino Restaurant	Bar	Latin American Restaurant	American Restaurant
2	Queens	Jackson Heights	40.751981	-73.882821	0	Latin American Restaurant	South American Restaurant	Peruvian Restaurant	Bakery	Mexican Restaurant	Mobile Phone Shop	Spanish Restaurant	Thai Restaurant	Shoe Store	Kids Store
3	Queens	Elmhurst	40.744049	-73.881656	0	Mexican Restaurant	Thai Restaurant	Chinese Restaurant	Vietnamese Restaurant	South American Restaurant	Bubble Tea Shop	Indonesian Restaurant	Hotpot Restaurant	Bank	Colombian Restaurant
4	Queens	Howard Beach	40.654225	-73.838138	0	Italian Restaurant	Pharmacy	Bagel Shop	Sandwich Place	Spa	Fast Food Restaurant	Mexican Restaurant	Flower Shop	Deli / Bodega	Chinese Restaurant

COMPARISON BETWEEN NEIGHBOURHOODS SCARBOROUGH VS QUEENS

Scarborough has 81 distinct venues in 54 categories
The most common venues in Scarborough are coffee shops, international restaurants, and Pharmacy.

```
print('There are {} distinct venues in {} categories.'.format(
    len(scarborough_venues['Venue'].unique()),len(scarborough_venues['Venue Category'].unique())))

#print('There are {} uniques categories.'.format(len(scarborough_venues['Venue Category'].unique())))

There are 81 distinct venues in 54 categories.
```

```
Neighborhood                                L'Amoreaux West
1st Most Common Venue              Fast Food Restaurant
2nd Most Common Venue               Chinese Restaurant
3rd Most Common Venue                    Camera Store
4th Most Common Venue                        Pharmacy
5th Most Common Venue                  Discount Store
6th Most Common Venue                     Coffee Shop
7th Most Common Venue                   Grocery Store
8th Most Common Venue                  Breakfast Spot
9th Most Common Venue                        Gym Pool
10th Most Common Venue                    Pizza Place
Name: 11, dtype: object
```

Queens has 1805 distinct venues in 269 categories
The most common venues in Queens are bodegas, bakeries, coffee shops, and fitness centre.

```
print('There are {} distinct venues in {} categories.'.format(
    len(queens_venues['Venue'].unique()),len(queens_venues['Venue Category'].unique())))

There are 1805 distinct venues in 269 categories.
```

```
In [66]:   neighborhoods_venues_sorted.iloc[47,]

Out[66]:   Neighborhood                              Long Island City
           1st Most Common Venue                          Coffee Shop
           2nd Most Common Venue                                Hotel
           3rd Most Common Venue                                 Café
           4th Most Common Venue                   Mexican Restaurant
           5th Most Common Venue                          Pizza Place
           6th Most Common Venue                                  Bar
           7th Most Common Venue                 Gym / Fitness Center
           8th Most Common Venue                        Deli / Bodega
           9th Most Common Venue                                  Gym
           10th Most Common Venue                          Donut Shop
           Name: 47, dtype: object
```

CONCLUSION

- Based on the quantity of venues and variety of venues, Queens is a better choice than Scarborough to relocate the headquarters of the organization.

- Queens offer a greater amount of gyms, grocery stores, restaurants for individual and families of the employees.

Thank you