

# Capstone Project Report - The Battle of Neighborhoods

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## **Introduction**

Toronto is the provincial capital of Ontario, Canada. It is the most populous city in Canada and the 4<sup>th</sup> in North America. With large amount of population, stores beside streets are good businesses. Coffee as a daily habit for most of the people, operating a coffee shop is a good idea but the question is where to operate it. The main question is to figure out which neighbourhood in Toronto has more population and is best for stores owners to operate. If I want to open a coffee shop, it is important for me to find a place with more customers that my daily sales will be large in order to increase the profit.

## **Data acquisition**

The data used to solve the problem and execute the idea is collected from Wikipedia. It provides the neighborhoods' name and the postal code (clustering different neighborhoods), as well as the location of different boroughs, and the numbers of neighborhoods in each borough. By using the data, I am able to segment and clustering neighborhoods in Toronto. Data visualization helps to showing the result more directly that could identify the most suitable neighborhoods to operate a coffee shop with large customer population.

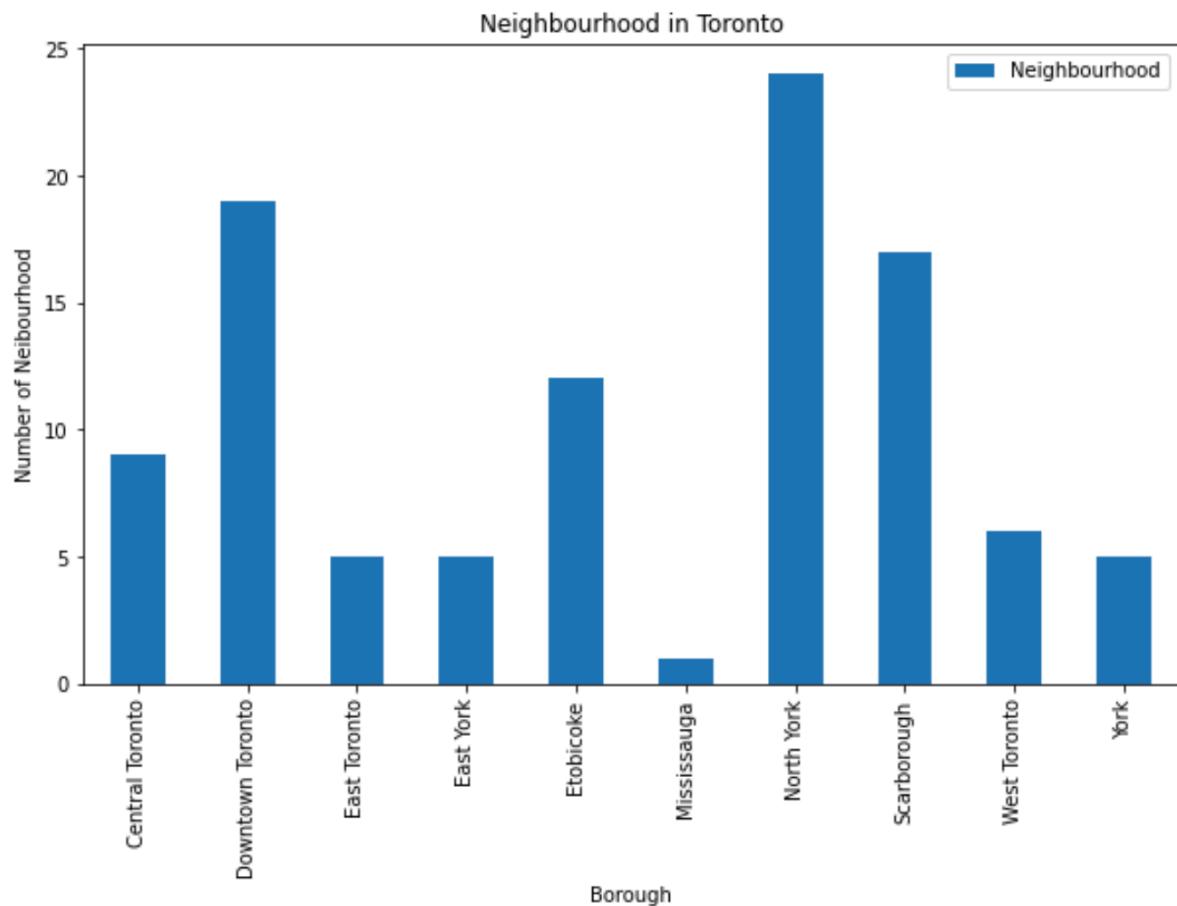
## Data analysis

<b>Postal Code</b>	<b>Borough</b>	<b>Neighbourhood</b>
2 M3A	North York	Parkwoods
3 M4A	North York	Victoria Village
4 M5A	Downtown Toronto	Regent Park, Harbourfront
5 M6A	North York	Lawrence Manor, Lawrence Heights
6 M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government

Clustering data with borough and count the number of neighborhoods in each borough. By comparing the numbers, we can get the result that:

1. North York has the most neighborhoods (24 neighborhoods)
2. Downtown Toronto is the second borough with 19 neighborhoods
3. Scarborough is the third borough

<b>Neighbourhood</b>	<b>Borough</b>
Central Toronto	9
Downtown Toronto	19
East Toronto	5
East York	5
Etobicoke	12
Mississauga	1
North York	24
Scarborough	17
West Toronto	6
York	5

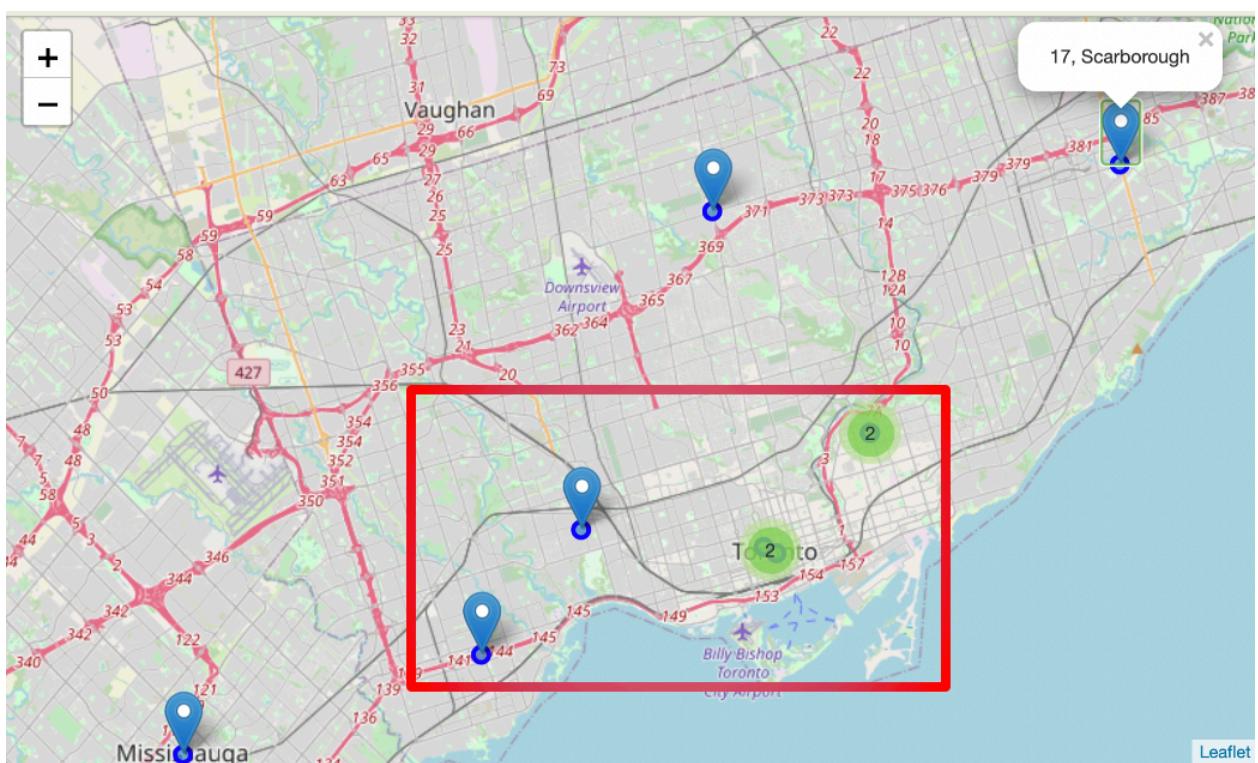
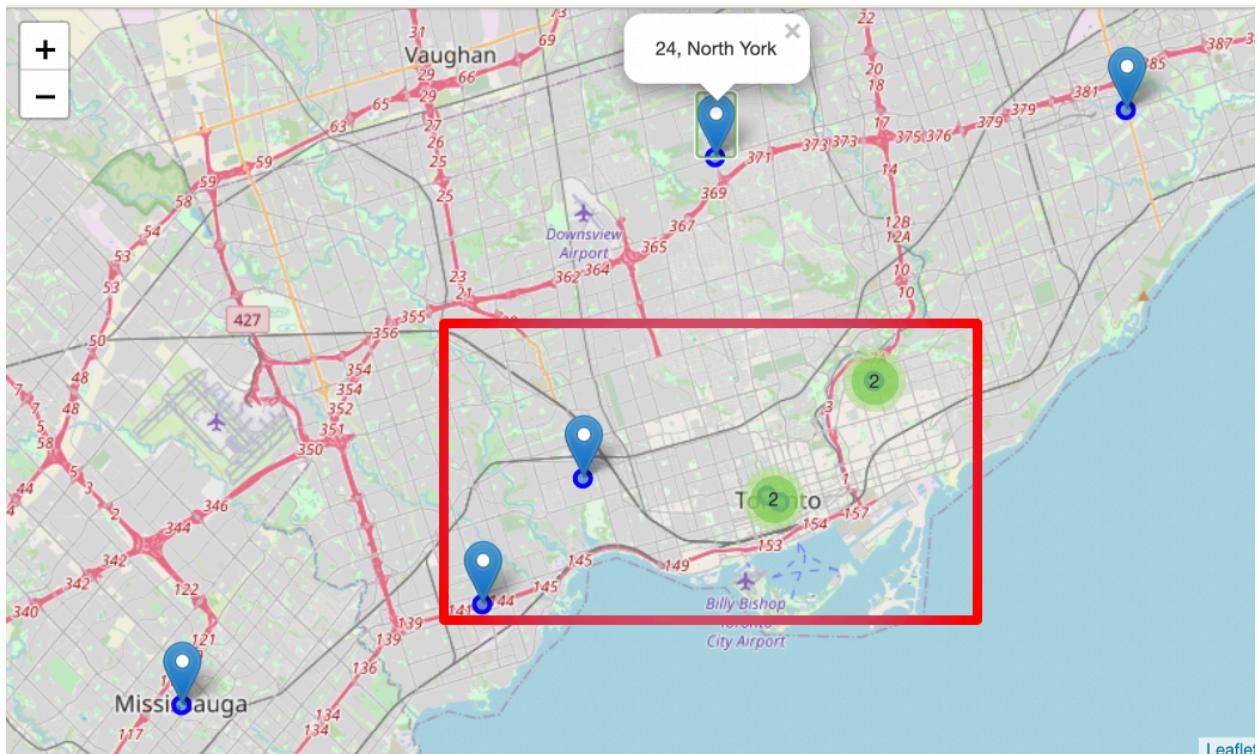


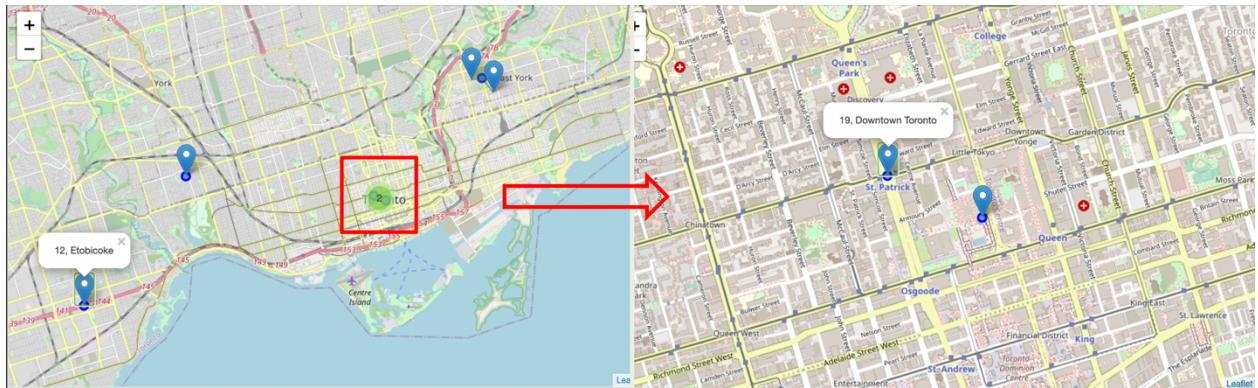
From the website, we can get the location of each borough with latitude and longitude that can locate on the map. A new data frame be formed with the borough name, number of neighborhoods and specific location.

	Borough	Neighbourhood	Latitude	Longitude
0	Central Toronto		9	43.6532 -79.3832
1	Downtown Toronto		19	43.6548 -79.3883
2	East Toronto		5	43.6912 -79.3417
3	East York		5	43.6912 -79.3417
4	Etobicoke		12	43.6205 -79.5132
5	Mississauga		1	43.5890 -79.6441
6	North York		24	43.7615 -79.4111
7	Scarborough		17	43.7764 -79.2318
8	West Toronto		6	43.6606 -79.4692
9	York		5	43.6957 79.4504

After locating each borough on the map and visualize the distance between each borough on the map, we can clearly see the result.







## Conclusion

Even though North York borough has the most neighborhoods around 24, but it is far away from central Toronto. The central Toronto area near the lake has up to 6 neighborhoods with more than 56 neighborhoods near around. Hence, it is more suitable to operate a store near the central of Toronto.

