The Battle of Neighborhoods
Data description

Neighborhoods Data:

The Wikipedia page was scraped to pull out the information:
https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M

The information contains postal codes, borough and neighborhoods. Later that was converted into a pandas data frame for further analysis.

	Postal Code	Borough	Neighborhood
0	M5A	Downtown Toronto	Regent Park , Harbourfront
1	M7A	Downtown Toronto	Queen's Park , Ontario Provincial Government
2	M5B	Downtown Toronto	Garden District, Ryerson
3	M5C	Downtown Toronto	St. James Town
4	M5E	Downtown Toronto	Berczy Park
5	M5G	Downtown Toronto	Central Bay Street
6	M6G	Downtown Toronto	Christie
7	M5H	Downtown Toronto	Richmond , Adelaide , King
8	M5J	Downtown Toronto	Harbourfront East , Union Station , Toronto Is...
9	M5K	Downtown Toronto	Toronto Dominion Centre , Design Exchange
10	M5L	Downtown Toronto	Commerce Court , Victoria Hotel
11	M5S	Downtown Toronto	University of Toronto , Harbord
12	M5T	Downtown Toronto	Kensington Market , Chinatown , Grange Park
13	M5V	Downtown Toronto	CN Tower , King and Spadina , Railway Lands , ...
14	M4W	Downtown Toronto	Rosedale
15	M5W	Downtown Toronto	Stn A PO Boxes
16	M4X	Downtown Toronto	St. James Town , Cabbagetown
17	M5X	Downtown Toronto	First Canadian Place , Underground city
18	M4Y	Downtown Toronto	Church and Wellesley

Location of Neighborhoods:

The following information from csv file gave us the geographical coordinates of each postal code: http://cocl.us/Geospatial_data
The information from the table will transformed into a pandas data frame for further analysis.

	Postal Code	Borough	Neighborhood	Latitude	Longitude
0	M5A	Downtown Toronto	Regent Park , Harbourfront	43.654260	-79.360636
1	M7A	Downtown Toronto	Queen's Park , Ontario Provincial Government	43.662301	-79.389494
2	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937
3	M5C	Downtown Toronto	St. James Town	43.651494	-79.375418
4	M5E	Downtown Toronto	Berczy Park	43.644771	-79.373306
5	M5G	Downtown Toronto	Central Bay Street	43.657952	-79.387383
6	M6G	Downtown Toronto	Christie	43.669542	-79.422564
7	M5H	Downtown Toronto	Richmond , Adelaide , King	43.650571	-79.384568
8	M5J	Downtown Toronto	Harbourfront East , Union Station , Toronto Is...	43.640816	-79.381752
9	M5K	Downtown Toronto	Toronto Dominion Centre , Design Exchange	43.647177	-79.381576
10	M5L	Downtown Toronto	Commerce Court , Victoria Hotel	43.648198	-79.379817
11	M5S	Downtown Toronto	University of Toronto , Harbord	43.662696	-79.400049
12	M5T	Downtown Toronto	Kensington Market , Chinatown , Grange Park	43.653206	-79.400049
13	M5V	Downtown Toronto	CN Tower , King and Spadina , Railway Lands , ...	43.628947	-79.394420
14	M4W	Downtown Toronto	Rosedale	43.679563	-79.377529
15	M5W	Downtown Toronto	Stn A PO Boxes	43.646435	-79.374846
16	M4X	Downtown Toronto	St. James Town , Cabbagetown	43.667967	-79.367675
17	M5X	Downtown Toronto	First Canadian Place , Underground city	43.648429	-79.382280
18	M4Y	Downtown Toronto	Church and Wellesley	43.665860	-79.383160

Using Foursquare API:

The Foursquare API allows application developers to interact with the Foursquare platform. The API itself is a RESTful set of addresses to which you can send requests, so there's really nothing to download onto your server and can easy get information, for example: venues, ratings..

We will be use Foursquare API for exploring of the neighborhoods. We set LIMIT parameter to 100 venues and radius to 500 metres for each neighborhood

Taken Information for each venue is:
- Name of neighborhood
- Neighborhood Longitude and latitude
- Name of venue
- Venue category
- Venue Longitude and latitude

Using Clustering:

Using k-means clustering algorithm we need to cluster data. It make possible to group similar neighborhoods and find the best Neighborhood for new office in Toronto

Visualising:

We will use folium library and matplotlib for visualize clasters

Other Packages and Libraries:

JSON -for I/O Json files
Pandas – for DataFrame
Scikit Learn – for using clastering algorithm
Requests – for http requests