Battle Of the Neighbors

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April 30, 2021

Overview

Lots of people are migrating to various states of Canada and needed lots of research for good housing prices and reputed schools for their children.

This Capstone Project aim to create an analysis of features for a people migrating to Scarborough to search a best neighborhood as a comparative analysis between neighborhoods.

It will help people to get awareness of the area and neighborhood before moving to a new city, state, country or place for their work or to start a new fresh life.

Data:

Will use Scarborough dataset which we scrapped from wikipedia on Week 3. Dataset consisting of latitude and longitude, zip codes.

Foursquare API Data:

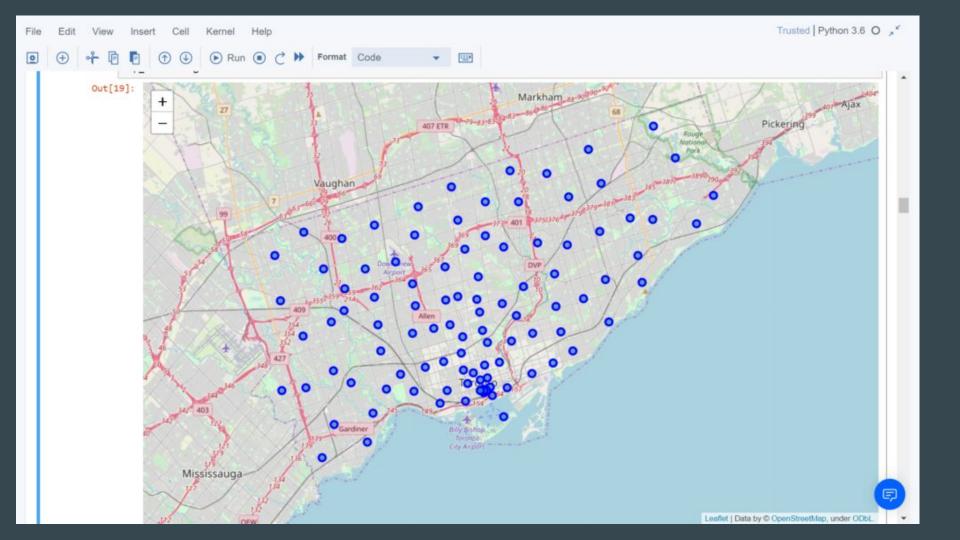
We will need data about different venues in different neighborhoods of that specific borough.

In order to gain that information we will use "Foursquare" locational information.

The information obtained per venue as follows:

- 1. Neighborhood
- 2. Neighborhood Latitude
- 3. Neighborhood Longitude
- 4. Venue
- 5. Name of the venue e.g. the name of a store or restaurant
- 6. Venue Latitude
- 7. Venue Longitude
- 8. Venue Category

Map Of Scarborough



Methodology

To compare the similarities of two cities, we decided to explore neighborhoods, segment them, and group them into clusters to find similar neighborhoods in a big city like New York and Toronto. To be able to do that, we need to cluster data which is a form of unsupervised machine learning: k-means clustering algorithm.

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In [36]:

neighborhoods_venues_sorted.insert(0, 'Cluster Labels', kmeans.labels_)

Scarborough_merged =df_2.iloc[:16,:]

merge toronto_grouped with toronto_data to add Latitude/Longitude for each neighborhood

Scarborough_merged = Scarborough_merged.join(neighborhoods_venues_sorted.set_index('Neighborhood'), on='Neighborhood')

Scarborough_merged.head()# check the Last columns!

Out[36]:

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
Rouge, Malvern	43.811525	-79.195517	0	Zoo Exhibit	Financial or Legal Service	Fast Food Restaurant	Construction & Landscaping	Fish & Chips Shop	Filipino Restaurant	Field	Fish Market	Farmers Market	Doner Restaurant
Highland Creek, Rouge Hill, Port Union	43.785665	-79.158725	0	Bar	Falafel Restaurant	Donut Shop	Dumpling Restaurant	Eastern European Restaurant	Electronics Store	Elementary School	Ethiopian Restaurant	Event Space	Yoga Studio
Guildwood, Morningside, West Hill	43.765815	-79.175193	2	Park	Gym / Fitness Center	Pool	Fried Chicken Joint	Indian Restaurant	Athletics & Sports	Ethiopian Restaurant	Donut Shop	Dumpling Restaurant	Eastern European Restaurant
Woburn	43.768369	-79.217590	0	Coffee Shop	Fast Food Restaurant	Business Service	Park	Yoga Studio	Dumpling Restaurant	Eastern European Restaurant	Electronics Store	Elementary School	Ethiopian Restaurant
Cedarbrae	43.769688	-79.239440	0	Flower Shop	Athletics & Sports	Thai Restaurant	Bank	Bakery	Caribbean Restaurant	Hakka Restaurant	Indian Restaurant	Eastern European Restaurant	Electronics Store
	Rouge, Malvern Highland Creek, Rouge Hill, Port Union Guildwood, Morningside, West Hill Woburn	Rouge, Malvern 43.811525 Highland Creek, Rouge Hill, Port Union Guildwood, Morningside, West Hill Woburn 43.768369	Rouge, Malvern 43.811525 -79.195517 Highland Creek, Rouge Hill, Port Union Guildwood, Morningside, West Hill Woburn 43.768369 -79.217590	Rouge 43.811525 -79.195517 0	Rouge, Malvern 43.811525 -79.195517 0 Zoo Exhibit Highland Creek, Rouge Hill, Port Union 43.765815 -79.158725 0 Bar West Hill 43.765815 -79.175193 2 Park Woburn 43.768369 -79.217590 0 Coffee Shop	Neighborhood Latitude Longitude Custer Labels Common Venue Common Venue Rouge, Malvern 43.811525 -79.195517 0 Zoo Exhibit Financial or Legal Service Highland Creek, Rouge Hill, Port Union 43.785665 -79.158725 0 Bar Falafel Restaurant Guildwood, Morningside, West Hill 43.765815 -79.175193 2 Park Pitness Center Woburn 43.768369 -79.217590 0 Coffee Shop Restaurant	Neighborhood Latitude Longitude Collater Labels Common Venue Common Venue Common Venue Rouge, Malvern 43.811525 -79.195517 0 Zoo Exhibit Financial or Legal Service Fast Food Restaurant Highland Creek, Rouge Hill, Port Union 43.785665 -79.158725 0 Bar Restaurant Falafel Restaurant Donut Shop Guildwood, Morningside, West Hill 43.765815 -79.175193 2 Park Pitness Center Pool Center Woburn 43.768369 -79.217590 0 Coffee Fast Food Shop Restaurant Business Service	Neighborhood Latitude Longitude Cluster Labels Common Venue Construction & East Food Restaurant Highland Creek, Rouge Hill, Port Union 43.785665 -79.158725 0 Bar Falafel Restaurant Donut Dumpling Restaurant Guildwood, Morningside, West Hill 43.765815 -79.175193 2 Park Fitness Center Pool Chicken Joint Woburn 43.768369 -79.217590 0 Coffee Shop Restaurant Fast Food Restaurant Business Service Park	Neighborhood Latitude Longitude Common Venue Construction Fish & Chips Shop Chips Shop Chips Shop Shop Fast Food Restaurant Construction Restaurant Fish & Chips Shop Chips Shop Fast Food Restaurant Donut Shop Restaurant Donut Shop Restaurant Fried Chicken Chicken Joint Restaurant Pool Chicken Staurant Park Staurant Yoga Studio Woburn 43.769688 -79.217590 0 Flower Athletics & Thai Bask Staurant Bask Staurant	Neighborhood Latitude Longitude Cluster Labels Common Venue Control Venue Control Venue Easter Chips Fill Plan Common Venue Control Venue Control Venue Control Venue Control Venue Easter Chips Fill Plan Fill Plan Easter Chips Fill Plan	Neighborhood Latitude Longitude Common Venue Construction Restaurant Common Venue Construction Restaurant <t< td=""><td>NeighborhoodLatitudeLongitudeCluster LabelsCommon VenueCommon Venue<t< td=""><td>Rouge, Malvern 43.811525 -79.195517 0 Zoo Exhibit Service Serv</td></t<></td></t<>	NeighborhoodLatitudeLongitudeCluster LabelsCommon VenueCommon Venue <t< td=""><td>Rouge, Malvern 43.811525 -79.195517 0 Zoo Exhibit Service Serv</td></t<>	Rouge, Malvern 43.811525 -79.195517 0 Zoo Exhibit Service Serv

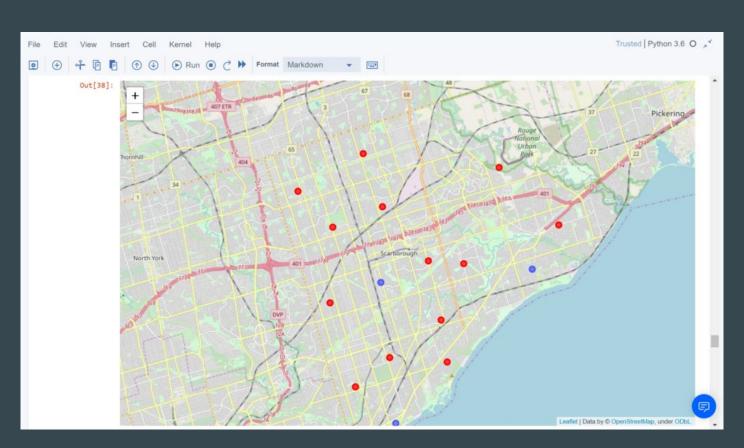
Map of Clusters

In [37]: kclusters = 10

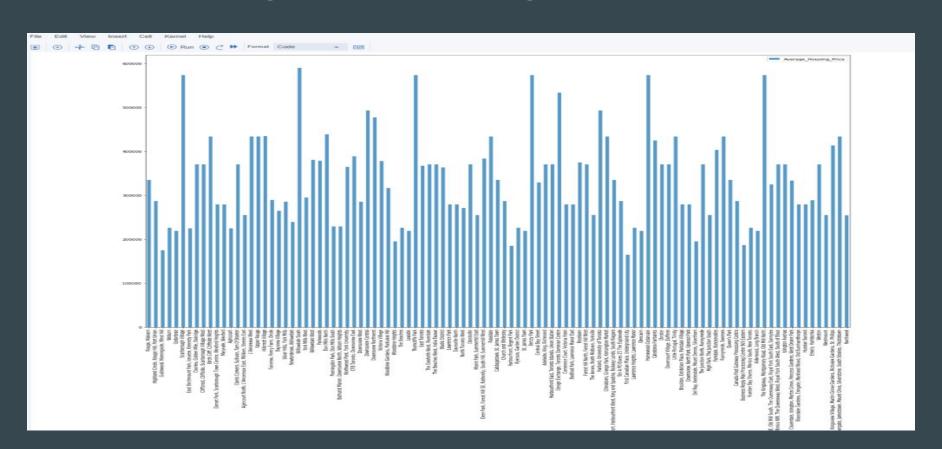
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Results

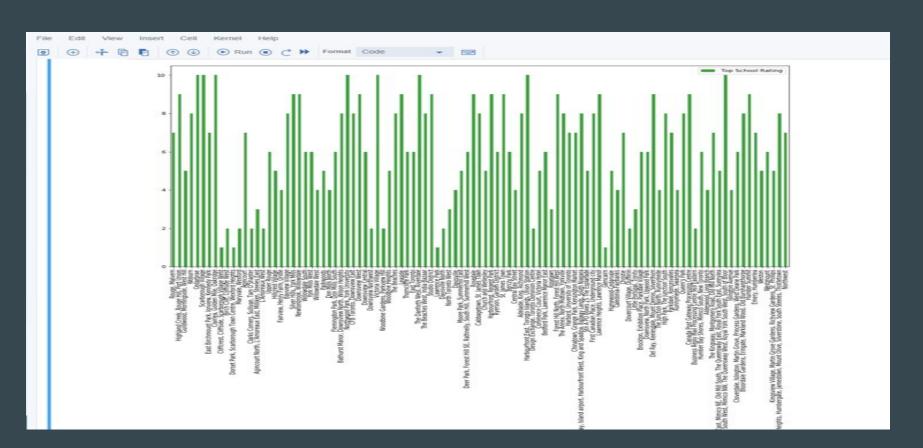
Map of Clusters in Scarborough



Avg. House Pricing by cluster



School Rating by cluster



Conclusion

In this Capstone project, using k-means cluster algorithm I separated the neighborhood into 10(Ten) different clusters and for 103 different lattitude and logitude from dataset, which have very-similar neighborhoods around them. Using the charts above results presented to a particular neighborhood based on average house prices and school rating have been made.