THE BATTLE OF NEIGHBOURHOODS - FINDING A BETTER PLACE IN SCARBOROUGH, TORONTO

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OUTLINE

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1. Introduction

- This Project is to help people in exploring better facilities around their neighbourhoods. It will help people to make efficient decisions on selecting great neighbourhoods out of numbers of other neighbourhoods in Scarborough, Toronto.

2. Data Description

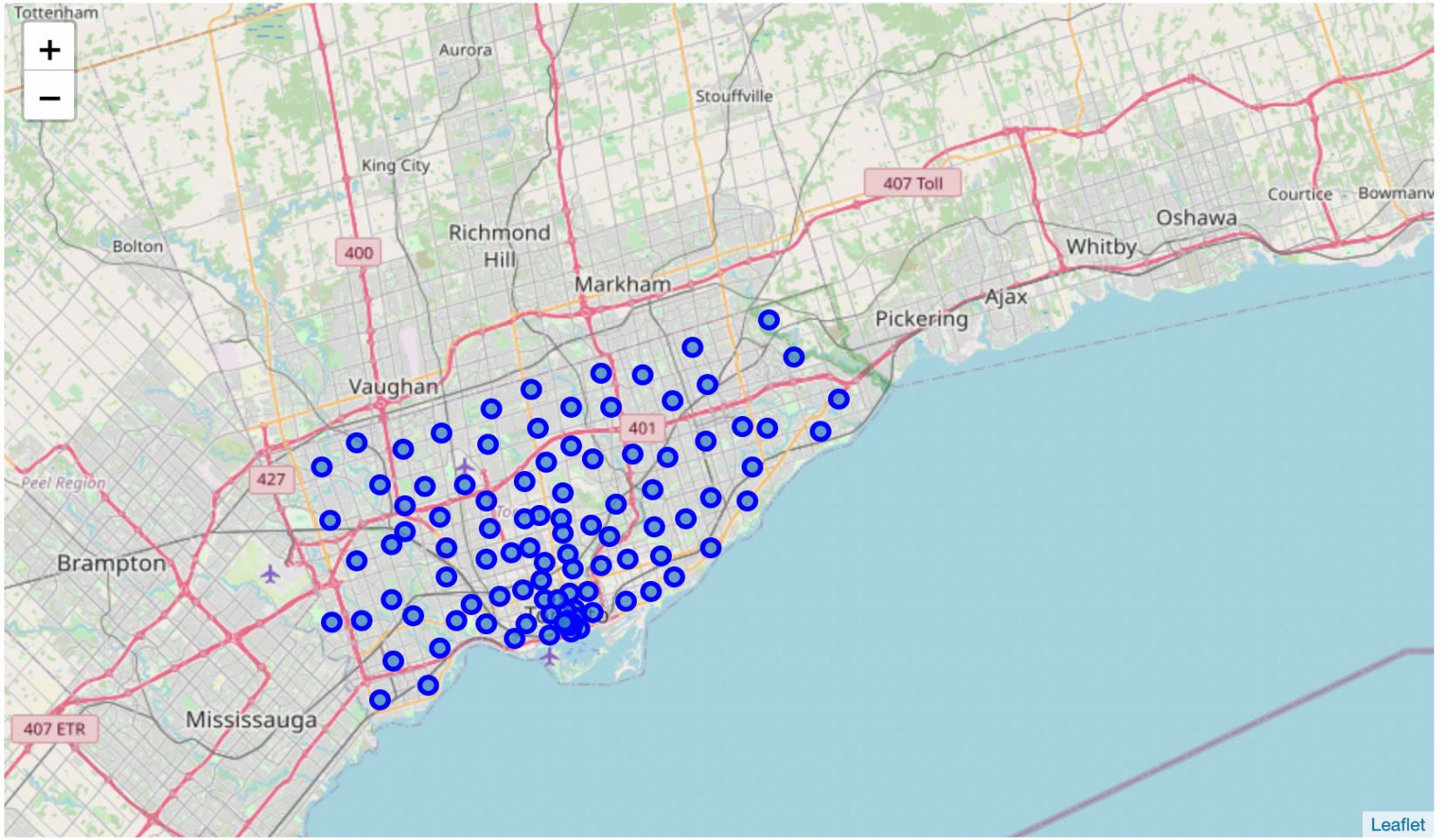
- **1. Scrapped Data Source**
  - Data Source Link: https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
  - Dataset consisting of latitude and longitude, zip codes

- **2. API Data Source – Foursquare,** INCLUDES:
  - Neighbourhoods
  - Neighbourhoods Latitude
  - Neighbourhoods Longitude
  - Venue
  - Name of the venue e.g. the name of a store or restaurant
  - Venue Latitude
  - Venue Longitude
  - Venue Category

2. DATA DESCRIPTION CONT.

- 3. MAP OF SCARBOROUGH

[25]:



3. METHODOLOGY

CLUSTERING APPROACH

K-MEANS CLUSTERING APPROACH

[42]:
```
neighborhoods_venues_sorted.insert(0, 'Cluster Labels', kmeans.labels_)

Scarborough_merged =df_clean_final_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()
```

[42]:

	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	8t Co
0	M1B	Scarborough	Malvern, Rouge	43.81139	-79.19662	1	Zoo Exhibit	Fast Food Restaurant	Construction & Landscaping	Creperie	Cosmetics Shop	Escape Room	Ethiopian Restaurant	
1	M1C	Scarborough	Rouge Hill, Port Union, Highland Creek	43.78574	-79.15875	1	Bar	Construction & Landscaping	Fish & Chips Shop	Farmers Market	Electronics Store	Escape Room	Ethiopian Restaurant	
2	M1E	Scarborough	Guildwood, Morningside, West Hill	43.76575	-79.17470	2	Park	Gymnastics Gym	Gym / Fitness Center	Athletics & Sports	Dry Cleaner	Dumpling Restaurant	Eastern European Restaurant	Elec
3	M1G	Scarborough	Woburn	43.76812	-79.21761	0	Coffee Shop	Park	Chinese Restaurant	Fast Food Restaurant	Falafel Restaurant	Eastern European Restaurant	Electronics Store	
4	M1H	Scarborough	Cedarbrae	43.76944	-79.23892	0	Bakery	Hakka Restaurant	Caribbean Restaurant	Gas Station	Athletics & Sports	Bank	Thai Restaurant	Play

3. METHODOLOGY CONT.

CLUSTERING APPROACH

K-MEANS CLUSTERING APPROACH

[40]:
```
num_top_venues = 10

indicators = ['st', 'nd', 'rd']

columns = ['Neighborhood']
for ind in np.arange(num_top_venues):
    try:
        columns.append('{}{} Most Common Venue'.format(ind+1, indicators[ind]))
    except:
        columns.append('{}th Most Common Venue'.format(ind+1))

neighborhoods_venues_sorted = pd.DataFrame(columns=columns)
neighborhoods_venues_sorted['Neighborhood'] = Scarborough_grouped['Neighborhood']

for ind in np.arange(Scarborough_grouped.shape[0]):
    neighborhoods_venues_sorted.iloc[ind, 1:] = return_most_common_venues(Scarborough_grouped.iloc[ind, :], num_top_venues)

neighborhoods_venues_sorted.head()
```

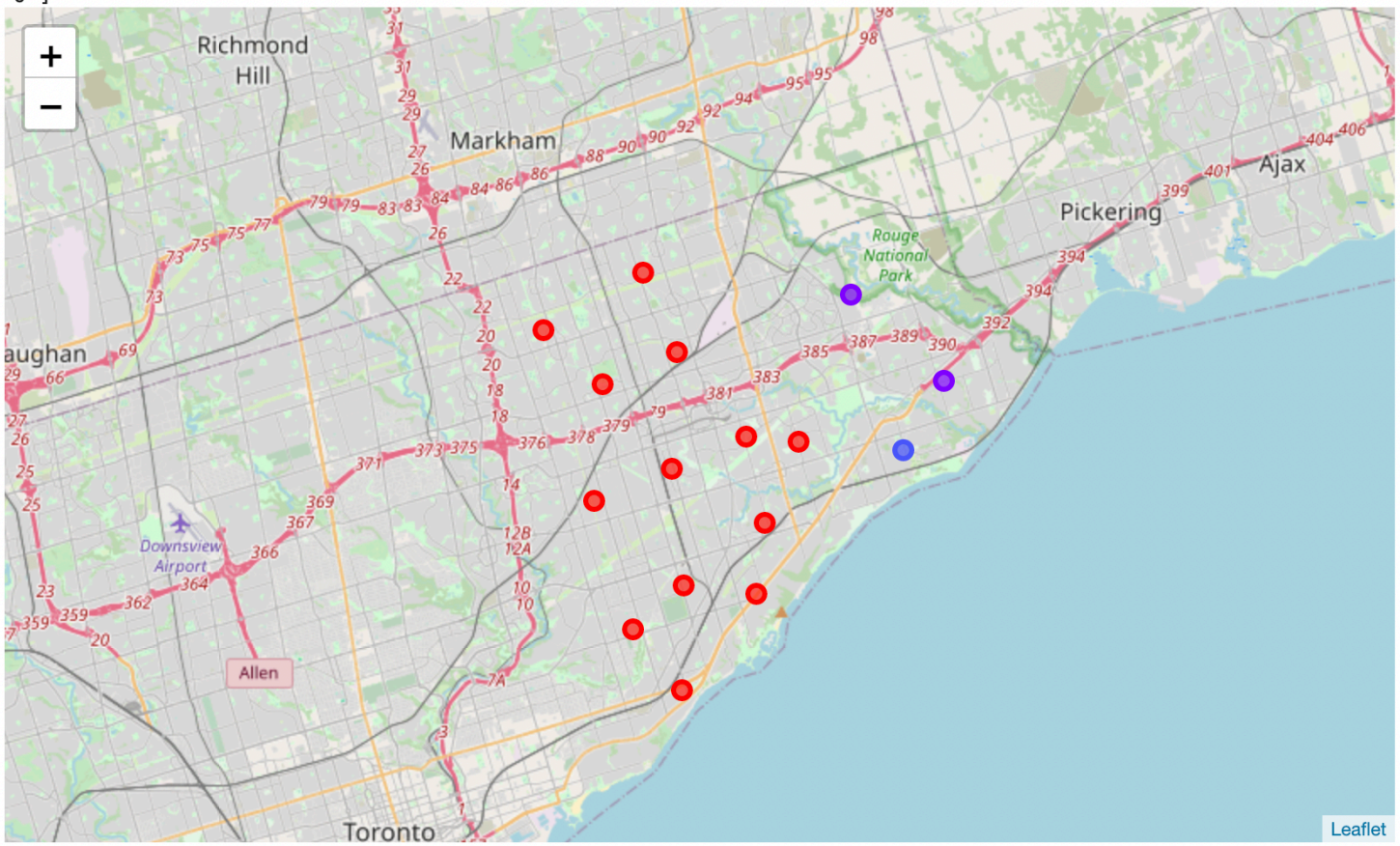
[40]:

	Neighborhood	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	Agincourt	Shopping Mall	Hong Kong Restaurant	Badminton Court	Bank	Sushi Restaurant	Supermarket	Latin American Restaurant	Breakfast Spot	Bubble Tea Shop	Sandwich Place
1	Alderwood, Long Branch	Coffee Shop	Gym	Gas Station	Pub	Playground	Pizza Place	Sandwich Place	Dry Cleaner	Dumpling Restaurant	Eastern European Restaurant
2	Bathurst Manor, Wilson Heights, Downsview North	Coffee Shop	Park	Sandwich Place	Convenience Store	Pizza Place	Middle Eastern Restaurant	Mediterranean Restaurant	Deli / Bodega	Mobile Phone Shop	Restaurant

4. RESULT

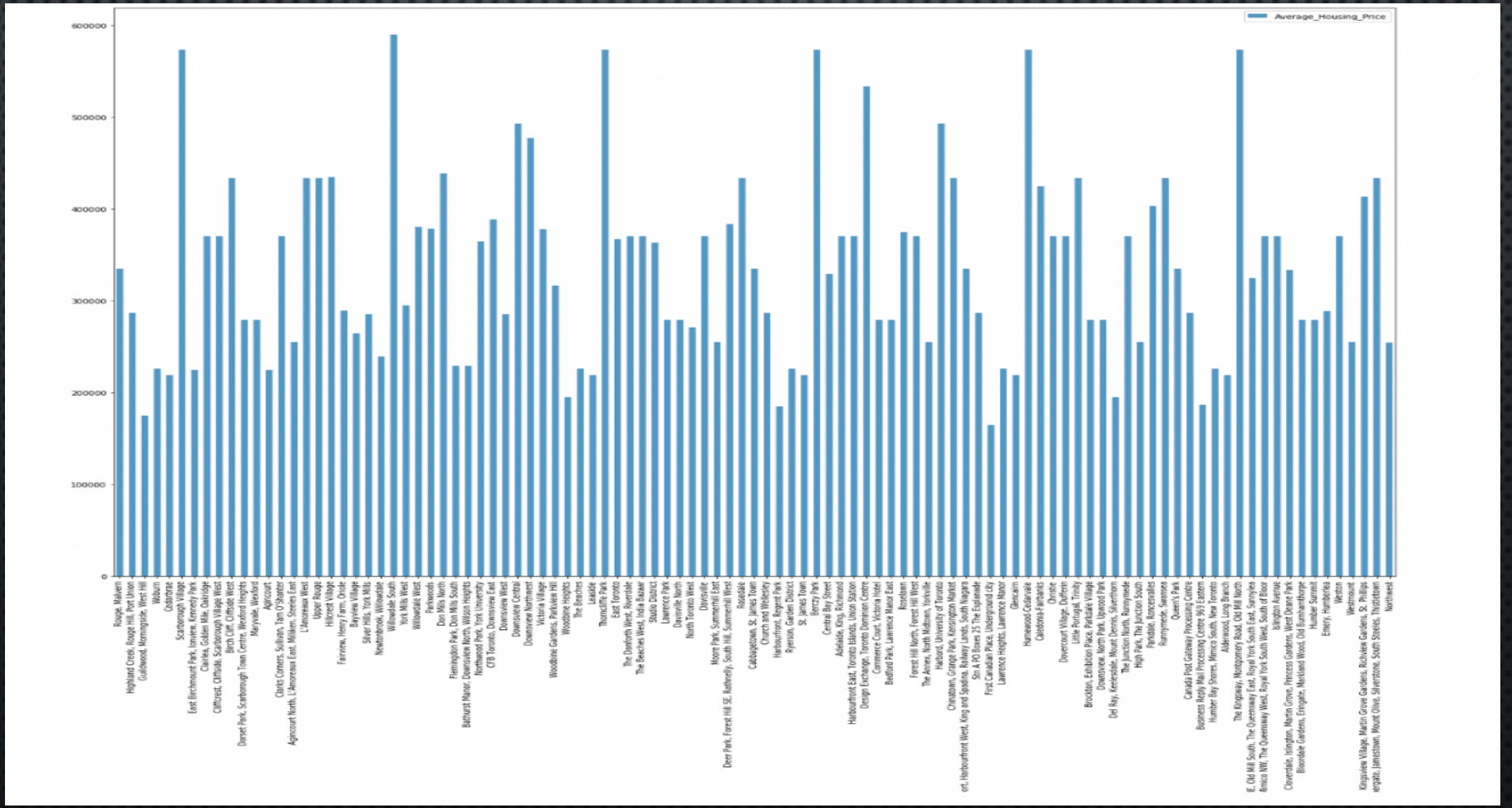
1. Map of Clusters in Scarborough

[43]:



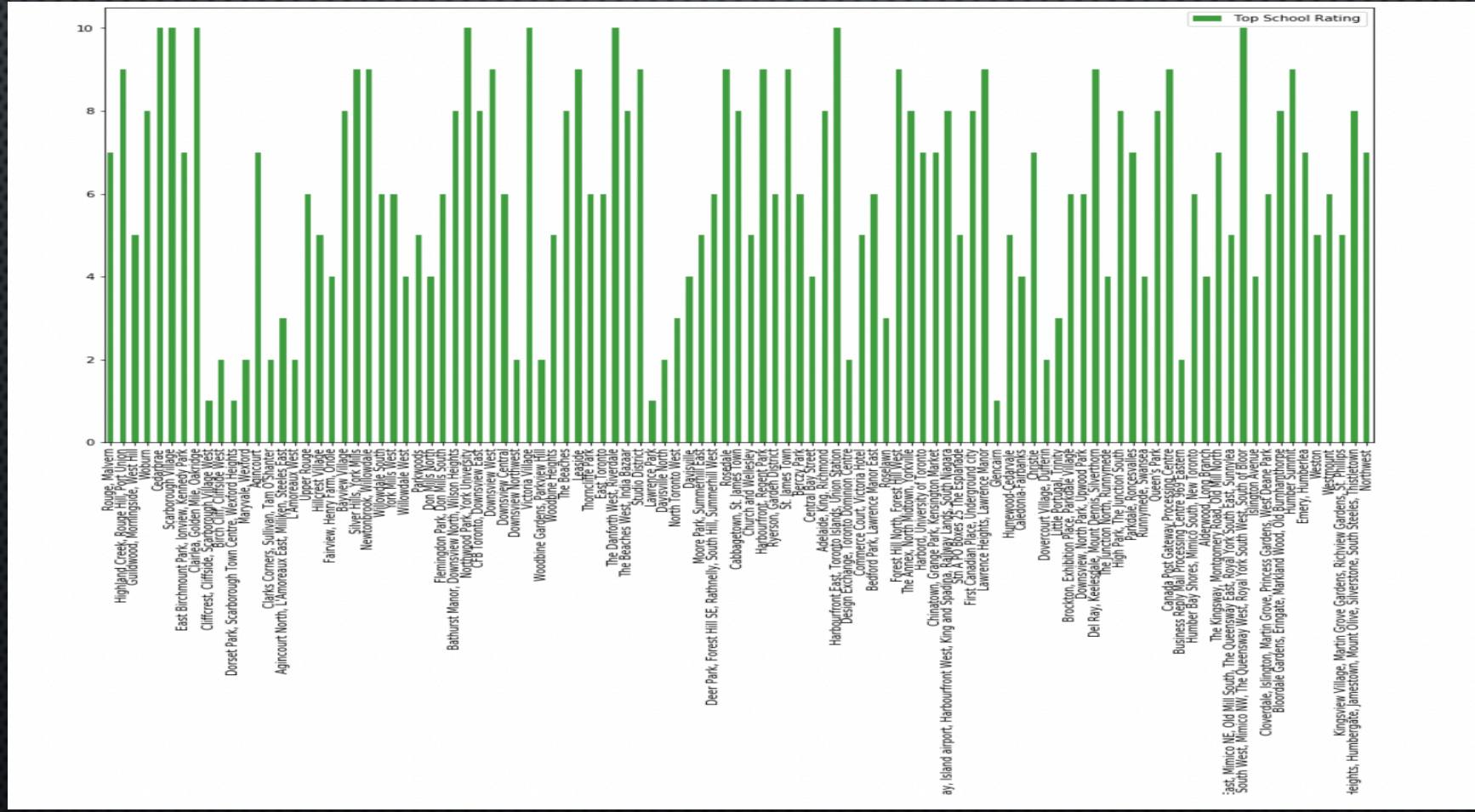
4. RESULT

2. Average Housing Price by Clusters in Scarborough



4. RESULT

3. School Ratings by Clusters in Scarborough



5. Problem Solved

Purpose: to suggest a better neighbourhoods in a new city for the person who are shifting there

Solution:

1. Sorted list of house in terms of housing prices in a ascending or descending order
2. Sorted list of schools in terms of location, fees, rating and reviews

5. Conclusion

In this project, using k-means cluster algorithm I separated the neighborhood into 10(Ten) different clusters and for 103 different latitude and longitude 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.

6. Next Step

This project can be continued for making it more precise in terms to find best house in Scarborough. Best means on the basis of all required things(daily needs or things we need to live a better life) around and also in terms of cost effective.