

Finding a Better Place in Scarborough, Toronto



Introduction

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 project is for those people who are looking for better neighborhoods for ease of access to Cafe, Schools, Hospitals, Grocery shops, Malls, Theatres, like minded people, etc.

The purpose of this project is to help people in exploring better facilities around their neighborhood. It will help people in making smart and efficient decision on selecting great neighborhood out of numbers of other neighborhoods in Scarborough, Toronto.

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.

Approach

Create an analysis of features for people migrating to Scarborough to search best neighborhood as a comparative analysis between neighborhoods. The features include median housing price and better school according to ratings, crime rates of that particular area, road connectivity, weather conditions, good management for emergency, water resources both fresh and waste water and excrement conveyed in sewers and recreational facilities.

Data to be used

1. Data source :

https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M

Description - his data set contains the required information. And we will use this data set to explore various neighborhoods of new york city. Indian restaurants in each neighborhood of New York city.

2. Data source : Foursquare API

Description : By using this API we will get all the venues in each neighborhood. We can filter these venues to get only Indian Restaurants.

3. Data source :

<https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm>

Description : By using this geo space data we will get the New York Borough boundaries that will help us to visualize choropleth map.

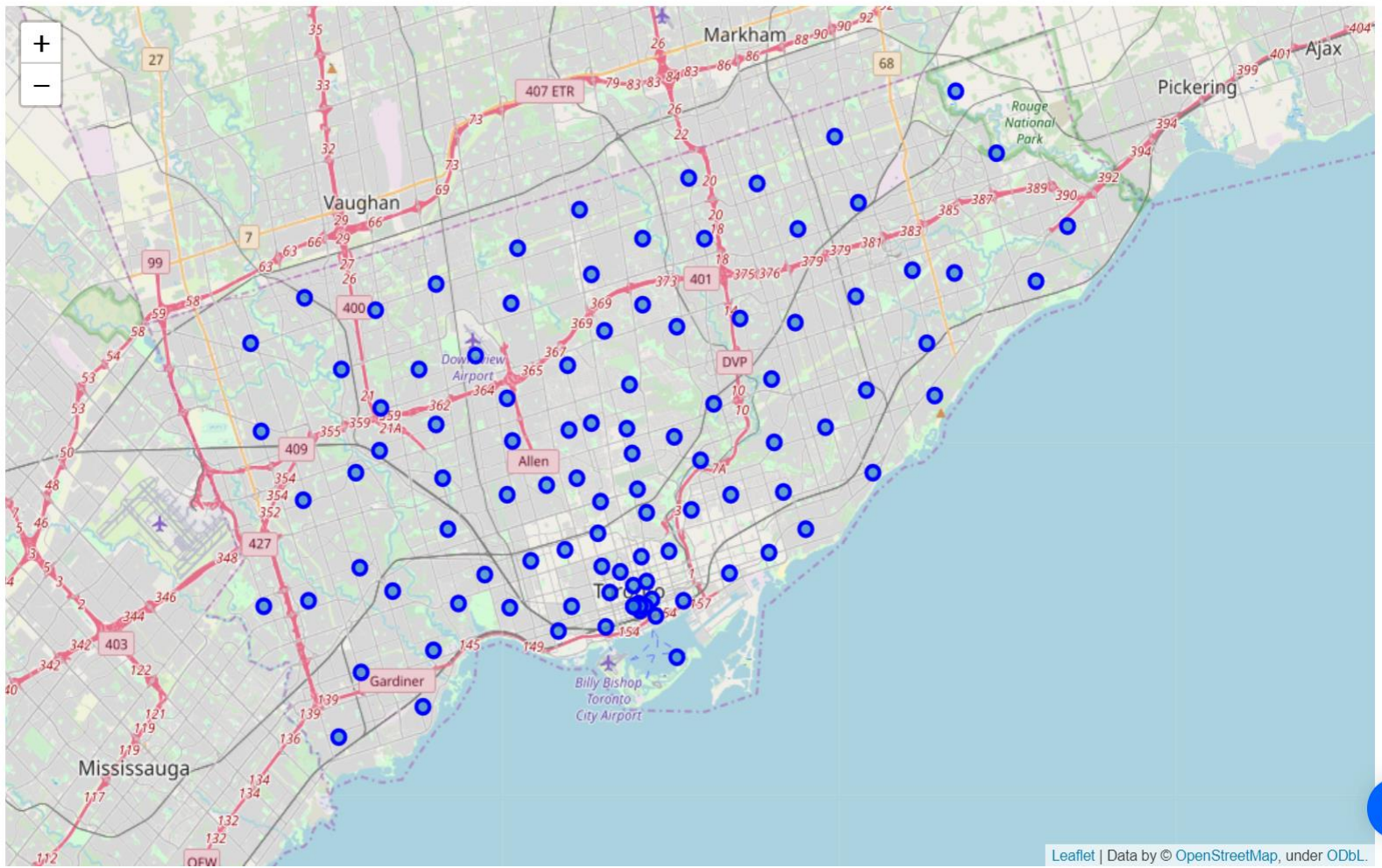
Map of Scarborough

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Run Format Code

Out[19]:



Libraries to be used

pandas and numpy for handling data.

request module for using FourSquare API.

BeautifulSoup to scrape information from web pages.

geopy to get co-ordinates.

Using K-Means Clustering Approach

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Format Markdown

```
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	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
Scarborough	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
Scarborough	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
Scarborough	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
Scarborough	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
Scarborough	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

Map of Clusters

```
In [37]: kclusters = 10
```

```
In [38]: # create map
```

Most Common venues near Neighborhood

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Format Markdown

```
In [34]: import numpy as np
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)

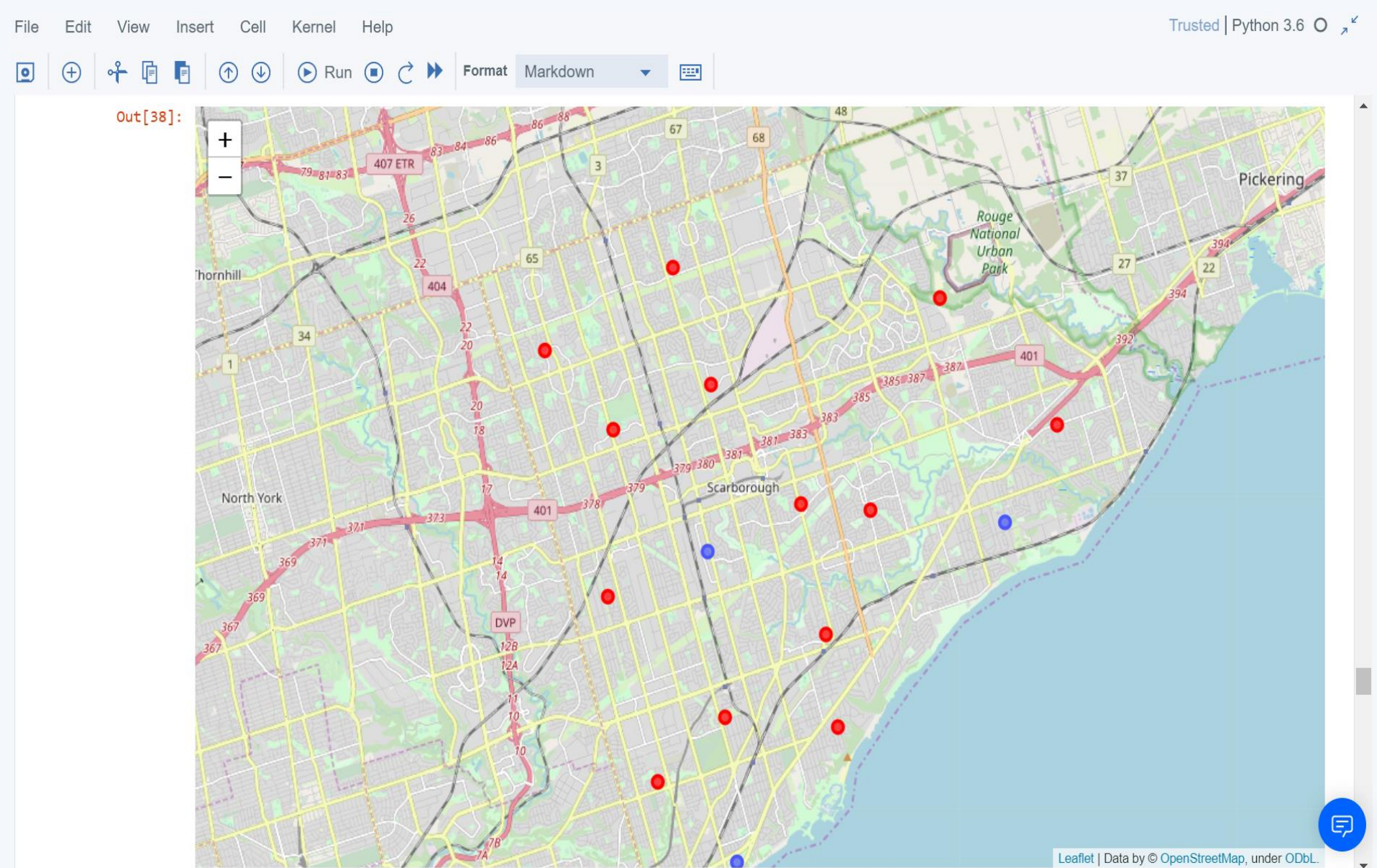
neighborhoods_venues_sorted.head()
```

Out[34]:

	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	Adelaide, King, Richmond	Coffee Shop	Café	Hotel	Gastropub	Burger Joint	Asian Restaurant	Bar	Restaurant	American Restaurant	Steakhouse
1	Agincourt	Chinese Restaurant	Shopping Mall	Pizza Place	Supermarket	Sushi Restaurant	Breakfast Spot	Print Shop	Mediterranean Restaurant	Coffee Shop	Pool
2	Agincourt North, L'Amoreaux East, Milliken, St...	Pharmacy	Sandwich Place	Sushi Restaurant	Doner Restaurant	Donut Shop	Dumpling Restaurant	Eastern European Restaurant	Electronics Store	Elementary School	Ethiopian Restaurant
3	Albion Gardens, Beaumond Heights, Humbergate, ...	Grocery Store	Park	Sandwich Place	Discount Store	Japanese Restaurant	Fried Chicken Joint	Beer Store	Hardware Store	Pizza Place	Fast Food Restaurant
4	Alderwood, Long Branch	Convenience Store	Pub	Sandwich Place	Coffee Shop	Gas Station	Dance Studio	Gym	Pharmacy	Pizza Place	Falafel Restaurant

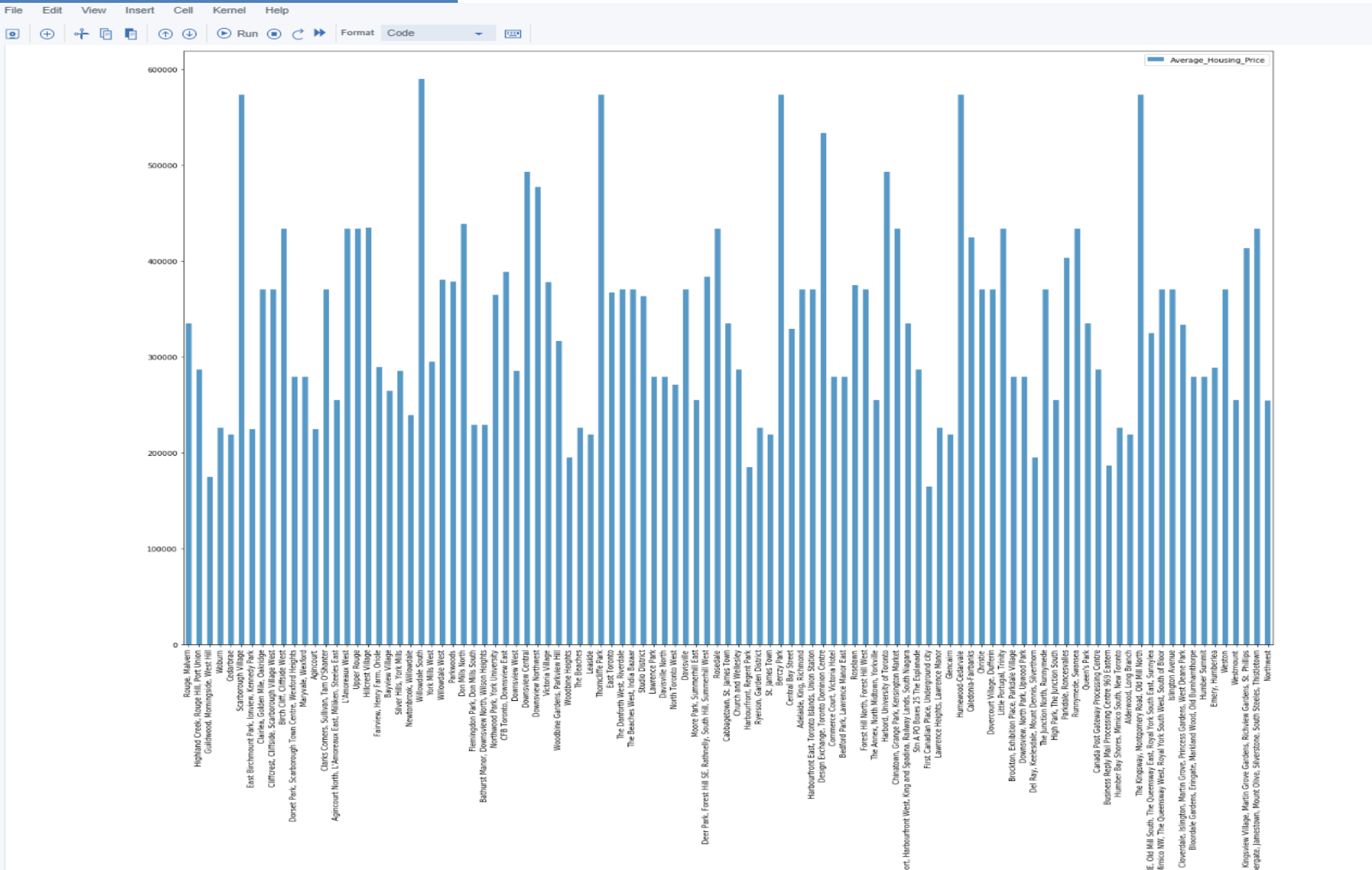
Result

- Map of Clusters in Scarborough



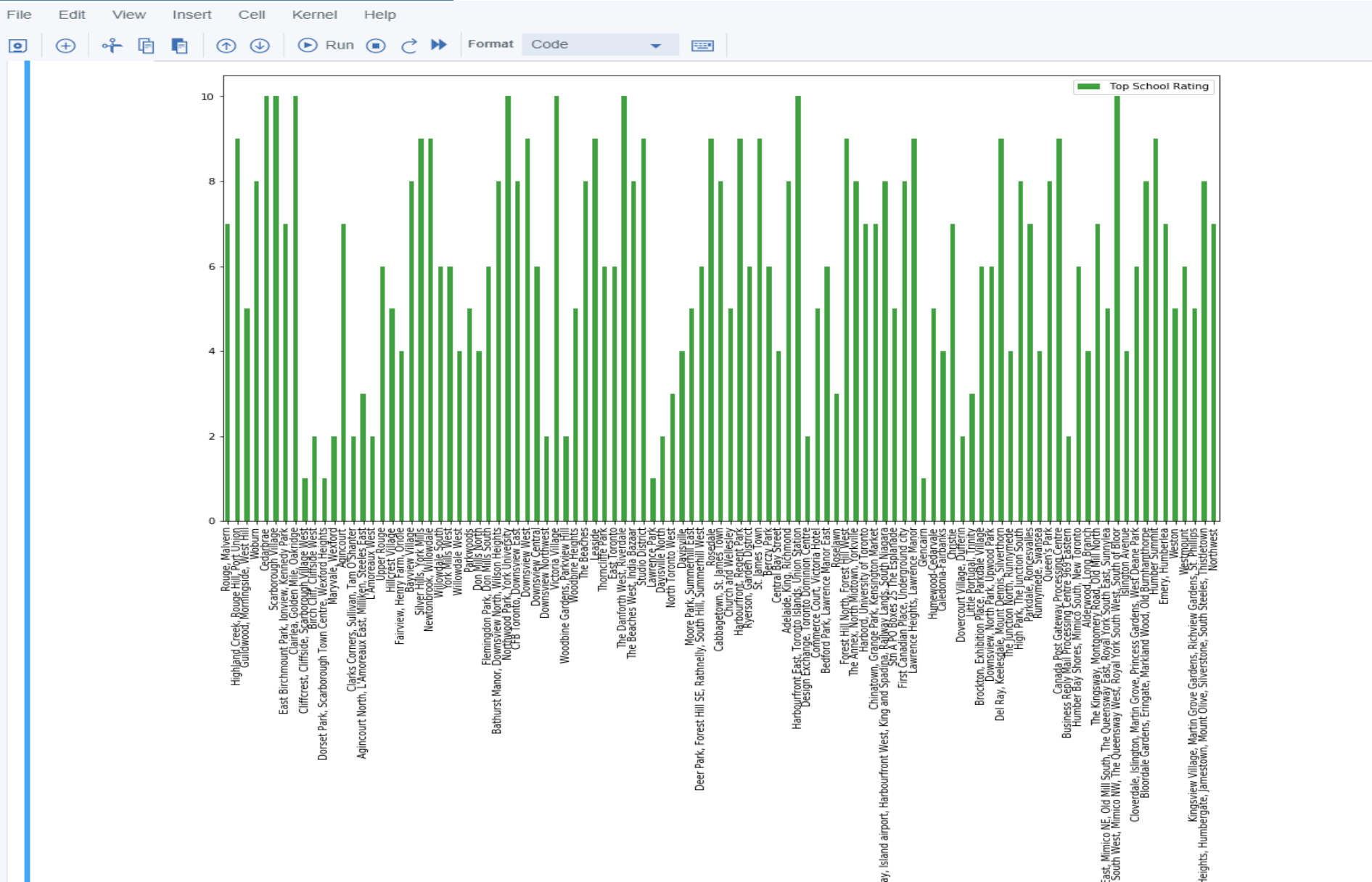
Result

- Average Housing Price by Clusters in Scarborough



Result

- School Ratings by Clusters in Scarborough



Conclusion

Using k-means clustering algorithm, I separated the neighborhood into 10 different clusters and for 103 different latitude and longitude from dataset, which have very-similar neighborhoods around them.

The mapping with Folium is a very powerful technique to consolidate information and make the analysis and decision better with confidence.



Thank you

Any queries ?