

# The Battle of Neighbourhoods

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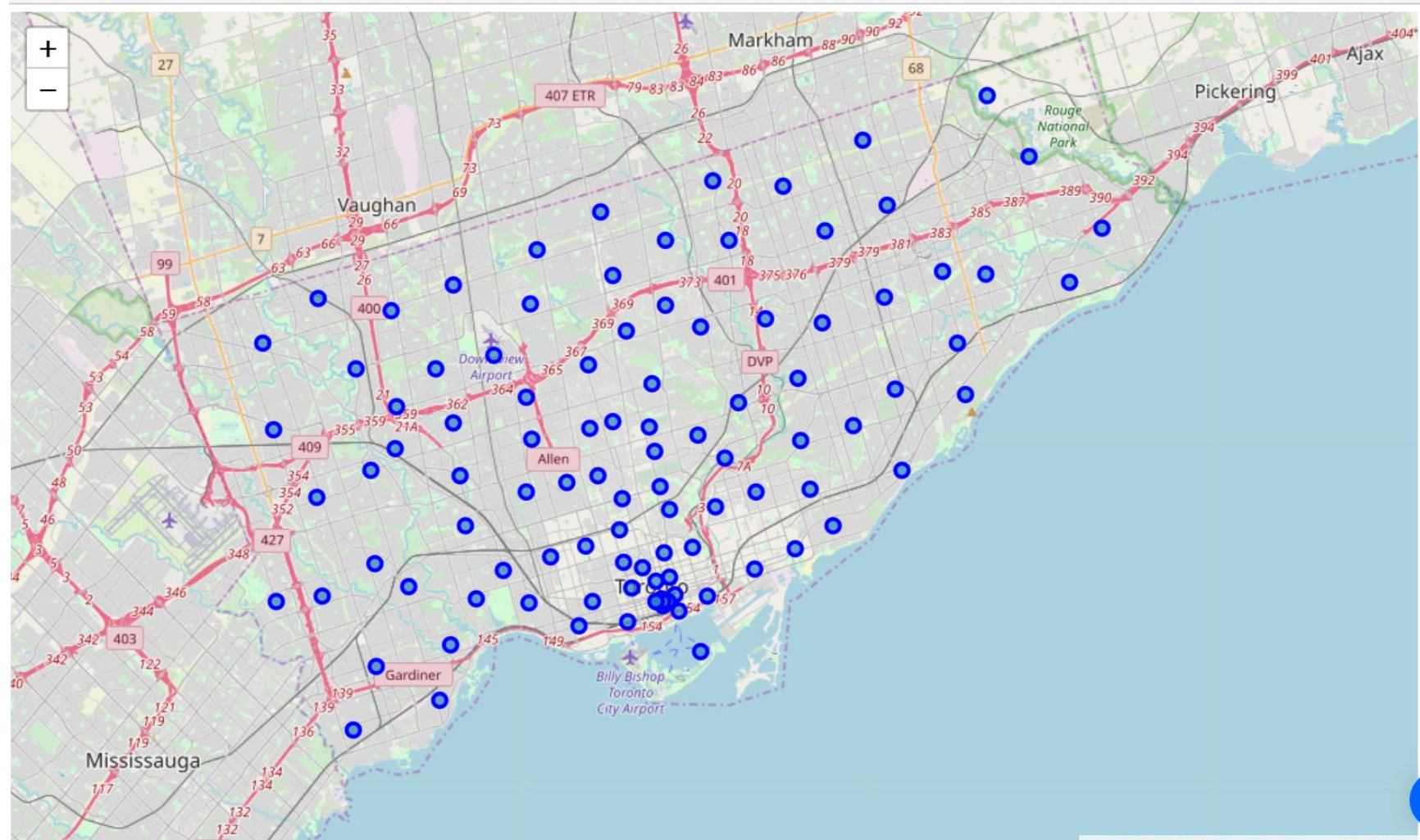
# Introduction

- Purpose is to provide better neighbourhood
- Drives people in choosing efficient neighbourhood
- Provides details on various amenities in neighbourhood

# Data Requirements

- Scarborough Data  
: [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)
- Foursquare API
- Libraries: Pandas, Scikit-Learn, XML, Folium, Matplotlib, JSON  
Geocoder: To access location data  
BeautifulSoup : To scrape the data from the web  
Requests: To handle http requests

# Map of Scarborough



# Methodology

- A unsupervised learning algorithm is needed
- K-Means Clustering found to be effective
  - To explore neighbourhoods, explore them, segment them
- Group them into clusters
- Evaluate the similarity in finding the better neighbourhood

```

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!

```

ut[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
orough	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
orough	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
orough	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
orough	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
orough	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

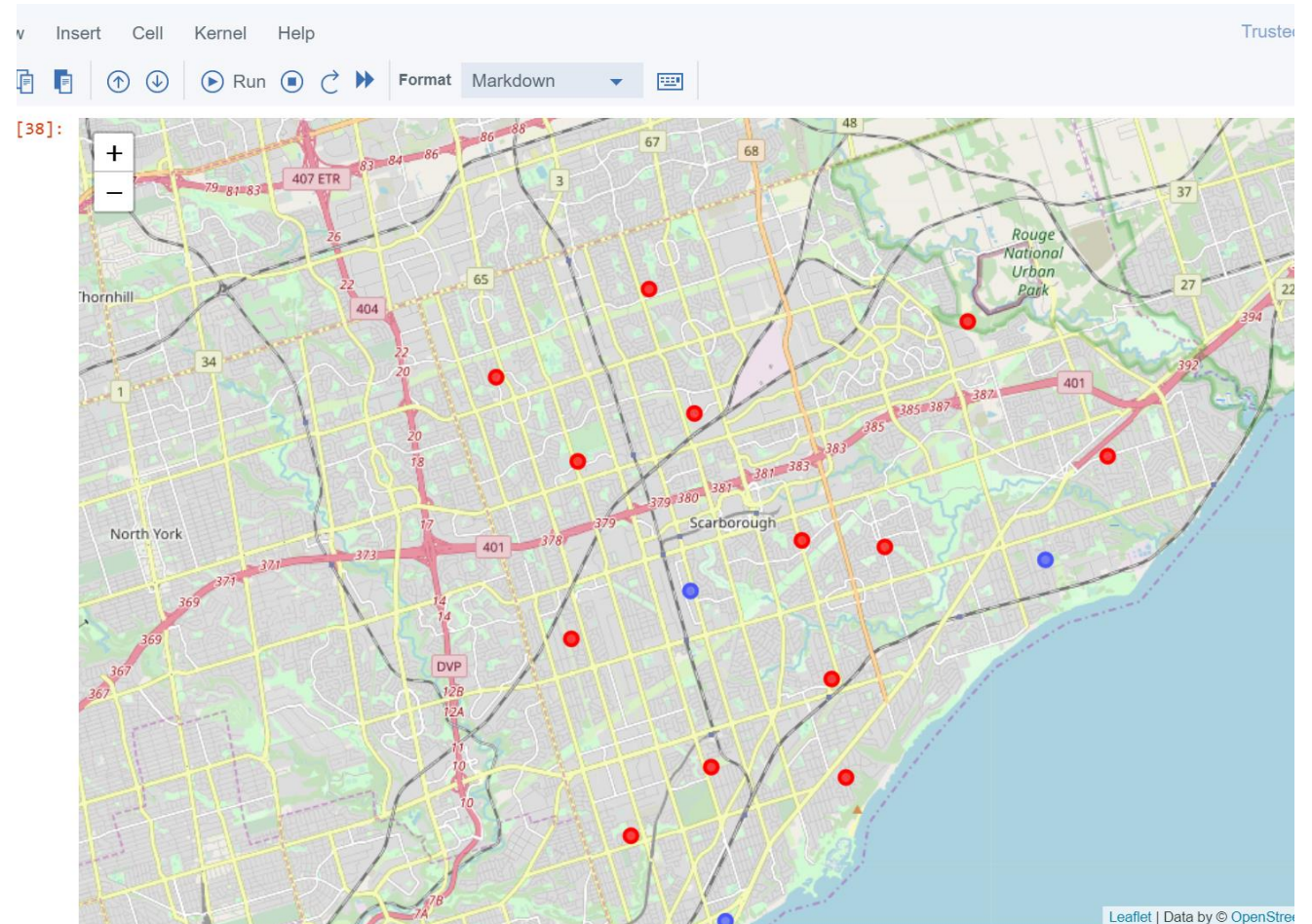




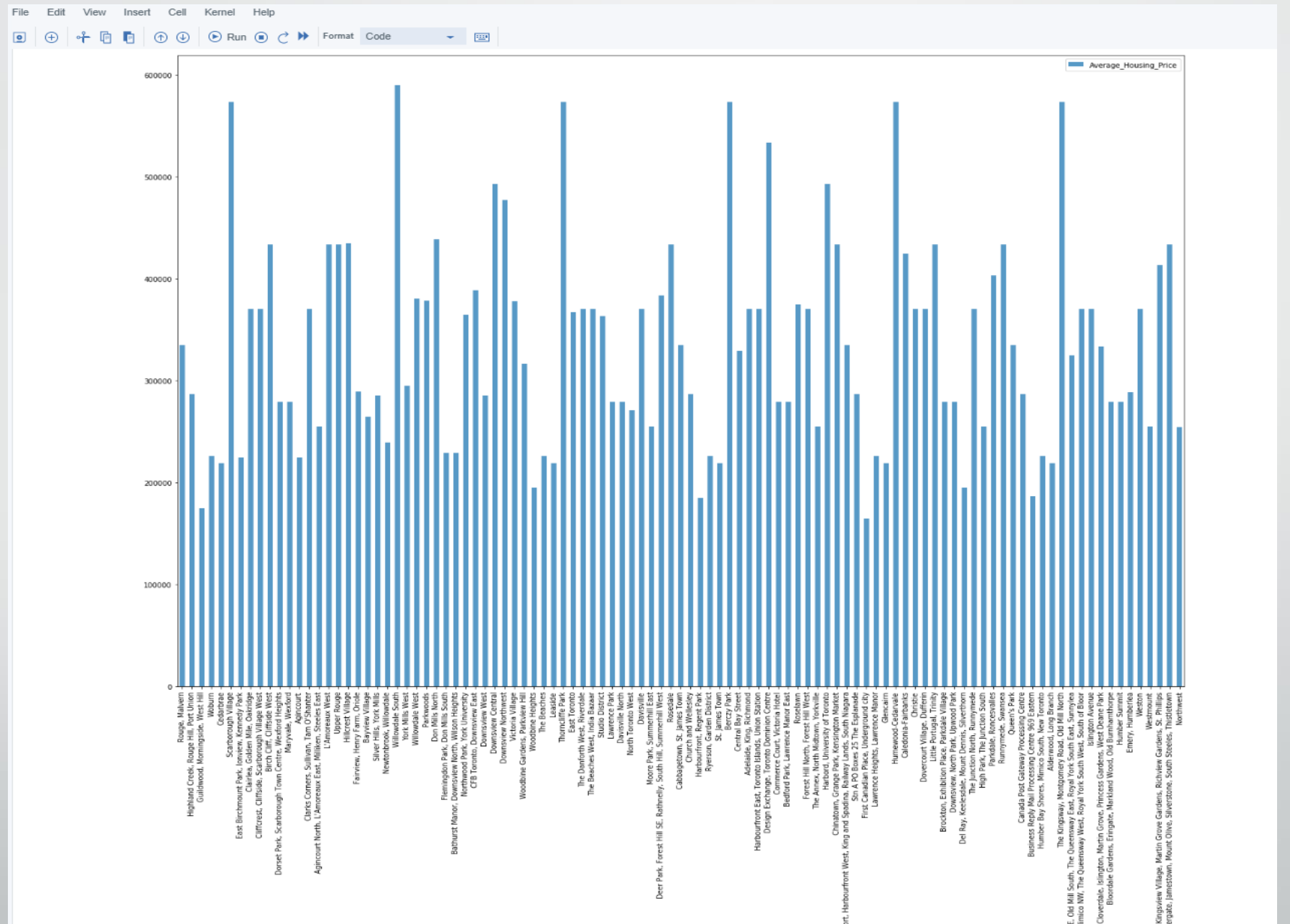
# Workflow

- Use Foursquare API credentials to find the venues in neighbourhood
- Due to API limitations the venues in neighbourhood is set to 100
- Radius parameter is set to 100

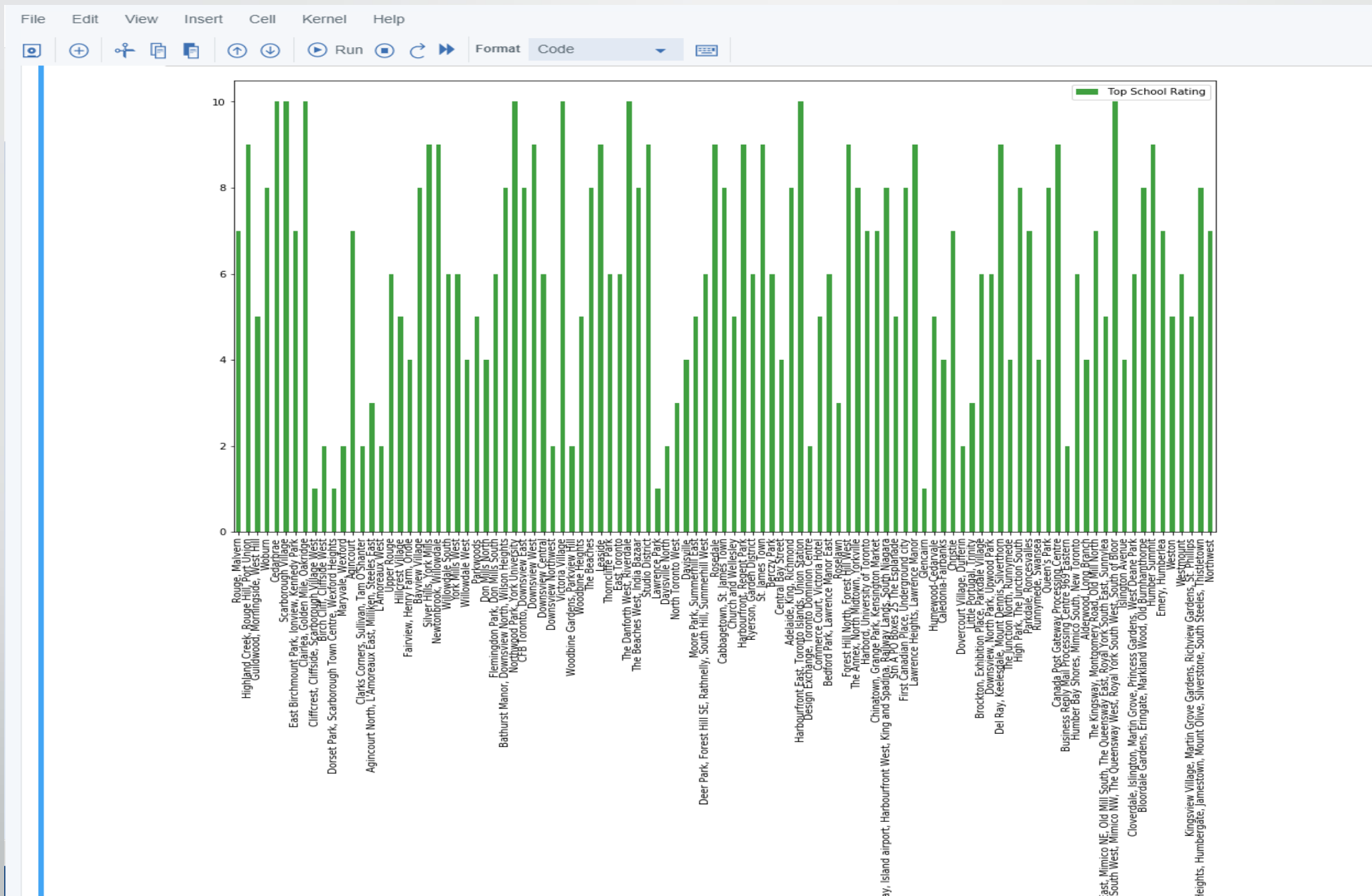
# Results



Map of clusters in  
Scarborough



Average House Pricing by Clusters in Scarborough



Top School Ratings by Clusters in Scarborough

# Discussions



Problems tried to solve:

Sorted list of  
house in terms of housing  
prices

Sorted list of schools  
by ratings, locations, fee and  
reviews.



Thrives to provide social  
presence of like-minded  
people



Provides details about  
connectivity to the airport,  
city-center etc

# Conclusion

- Provides insightful information to people in finding a better neighbourhood
- Tried separating 10 neighbourhoods from 103 different latitude and longitude values in dataset
- Folium helps in consolidating information with data driven analysis and decision making with confidence