

Capstone Project - The Battle of Neighborhoods

Italian Restaurant in Toronto

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Toronto

- Toronto is the most populous city in Canada, it is ethnically diverse and multicultural.
- We explore the best locations for Italian restaurants in Toronto. Italian food is one of the most popular cuisine in the world. Just the North America pasta market reached a volume of nearly 3 Million Tons in 2018.



Business Problems:

- Which areas of Toronto have the best and also highest number of Italian restaurants?
- Which Neighborhood have potential Italian restaurant arket?
- Where would I go in Toronto to have the best Italian food?
- Which areas dose not have any Italian restaurants?

Data

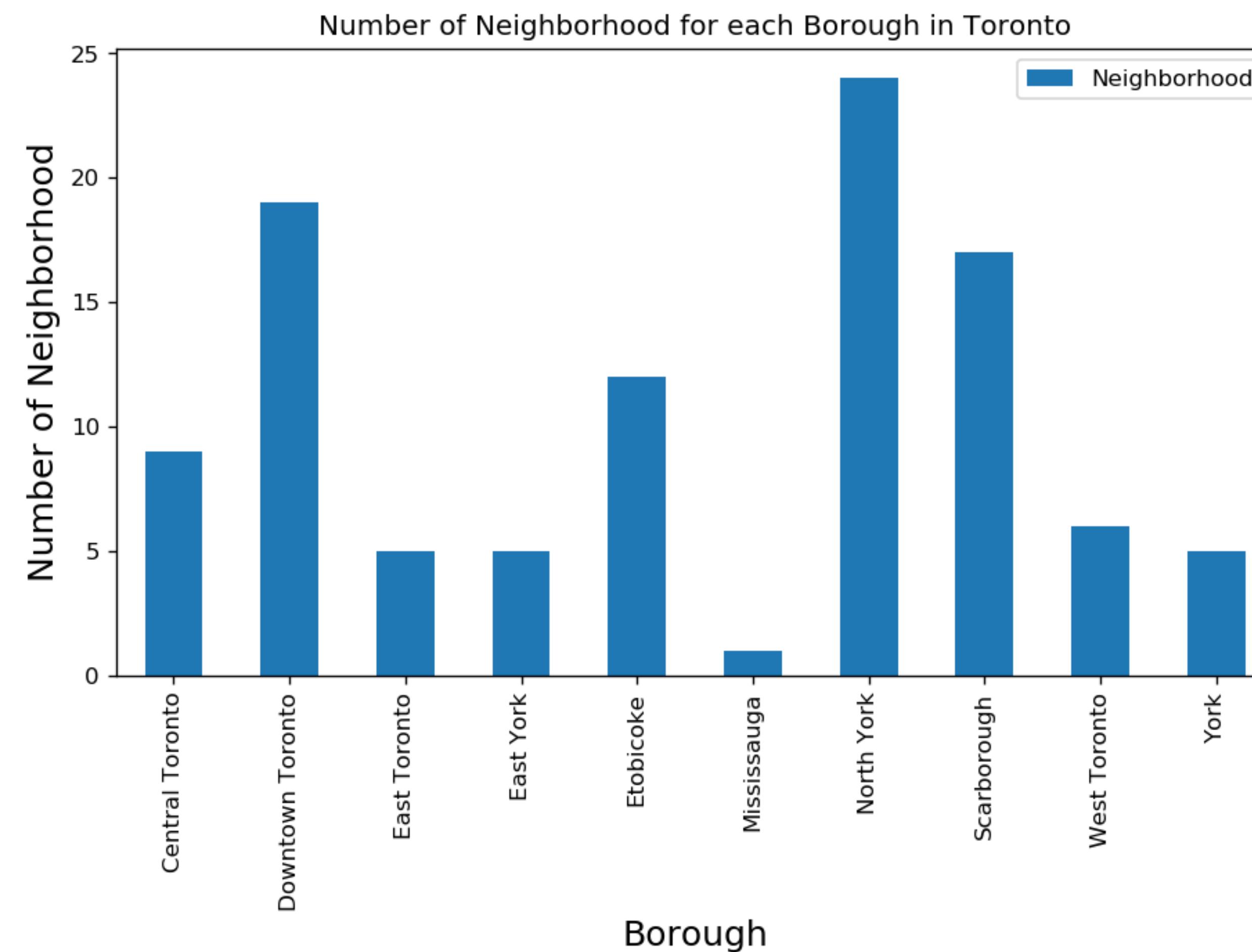
- Data sources will be needed to extract/generate the required information:
- Toronto data contains list of Boroughs, Neighborhoods and Postcodes. We will use this data set to explore various neighborhoods of Toronto. Obtained from https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
- Additional data including longitude and latitude for each postcode will be obtained from [http://cocl.us/Geospatial data](http://cocl.us/Geospatial_data)
- All data related to locations and quality of Italian restaurants in Toronto will be obtained via the [Foursquare API](#)

Methodology

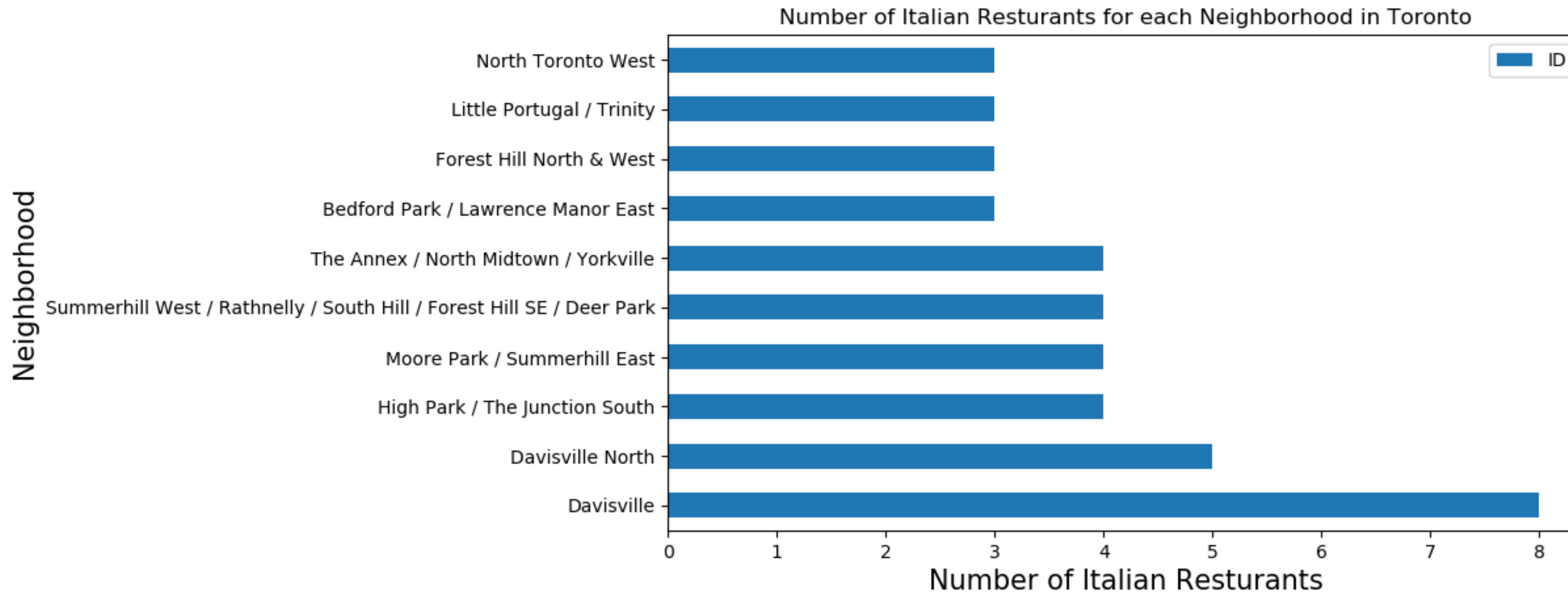
- The first step is to get required data about Toronto from Wikipedia by using **BeautifulSoup**, cleaned and transferred to dataframe.
- The longitude and latitude of each Neighborhood will be obtained from [http://cocl.us/Geospatial data](http://cocl.us/Geospatial_data) and transferred to another dataframe. Eventually two dataframes will be attached at the mutual column.
- By using **FourSquare API**, all venues for each Neighborhood can be transferred to dataframe. By filtering these data, Italian restaurants will be listed.
- In addition, the count of tips and likes, and rating is obtained by **FourSquare API** and transferred to dataframe.
- We will have the average rating for each Neighbourhood and Borough, and visualize the highest average ranking of Neighborhood using folium library.

Results & Discussion

The following table includes the dataset of 103 Neighborhoods in Toronto.
The largest number of Neighborhoods in each Borough is in North York



According to API data, there are 105 Italian restaurants in Toronto. The number of Italian restaurants in each Neighborhood is shown:



Davisville in Central Toronto has the largest number (eight) of Italian restaurants.

The number of Italian restaurants in each Borough is shown:

- Central Toronto has the most number of Italian restaurants in all Boroughs in Toronto.



- Further information such as likes, rating and tips for each restaurant for additional analysis:

```
italian_details_csv=pd.read_csv('italian_details_csv.csv')
italian_details_csv.head(6)
```

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Downtown Toronto	Regent Park / Harbourfront	4ad776eef964a520e20a21e3	Mangia and Bevi Resto-Bar	77	8.4	40
1	Downtown Toronto	Regent Park / Harbourfront	4cbdc6784495721ea262617a	Fusaro's	57	8.5	22
2	Downtown Toronto	Regent Park / Harbourfront	56d8dff7498eb4e5e661e78d	Ardo	15	7.4	8
3	Downtown Toronto	Queen's Park / Ontario Provincial Government	4a8355bff964a520d3fa1fe3	Mercatto	56	7.8	26
4	Downtown Toronto	Queen's Park / Ontario Provincial Government	5a69ba9112138476a91996f8	Dal Moro's Fresh Pasta To Go	9	8.2	6
5	Downtown Toronto	Garden District / Ryerson	4b49183ff964a520a46526e3	Terroni	278	8.1	95

Based on this dataframe:

- 1- The most number of likes (275 times) belongs to **Terroni** in Garden District/Ryerson in Downtown Toronto.
- 2- The highest Rating Italian restaurant is **Nodo** in High Park/The Junction South in West Toronto (rating=9).
- 3- The maximum tips belongs to **Terroni** in Garden District / Ryerson in Downtown Toronto with 95 tips.

Restaurants grouped by Neighborhood & average Rating

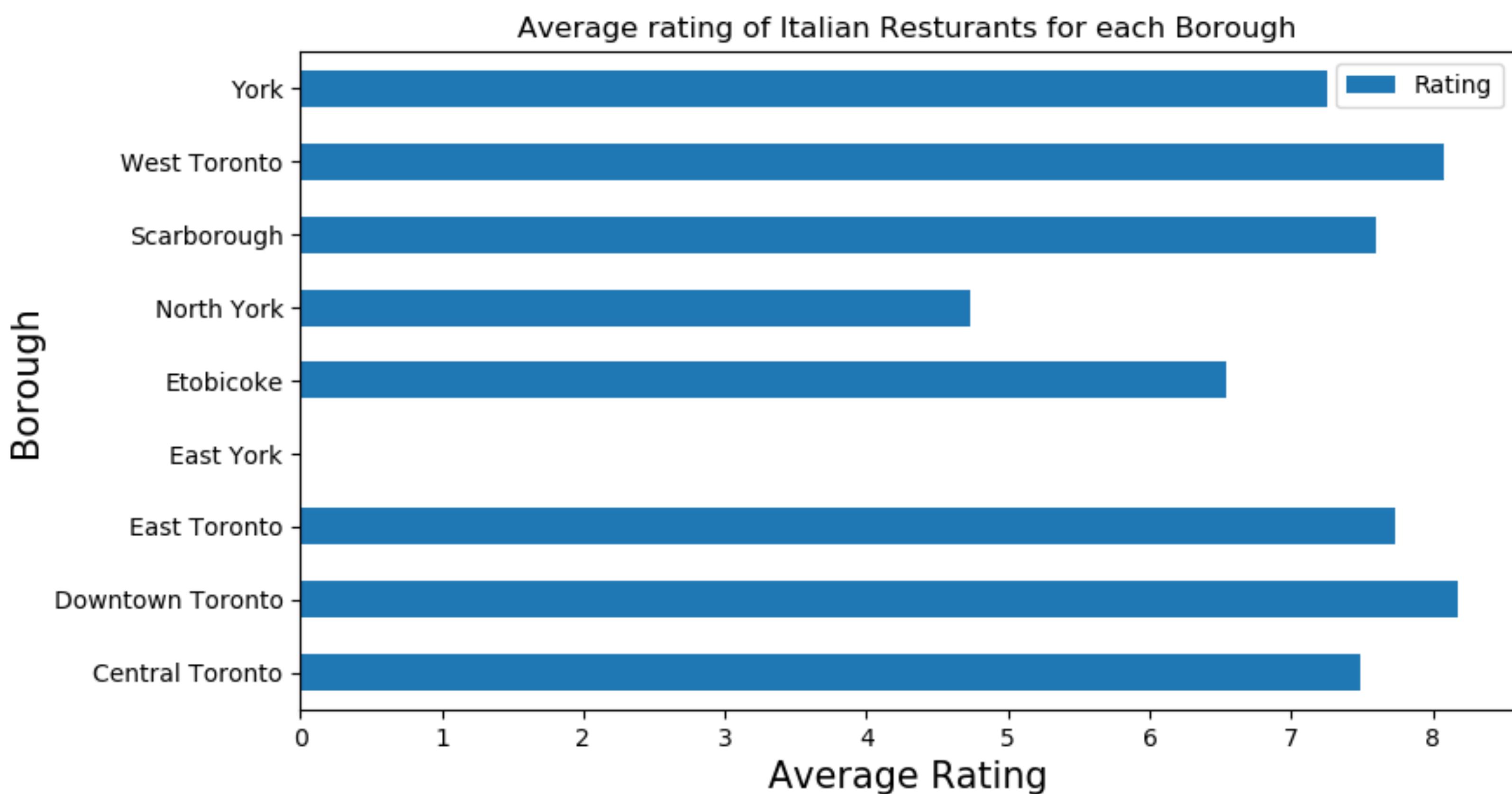
- Italian restaurants in New Toronto / Mimico South / Humber Bay Shores has the highest average Rating (8.7/10)

```
[19]: neighborhood_detail.sort_values(['Average Rating'], ascending=False).head(10)
```

	Neighborhood	Average Rating
31	New Toronto / Mimico South / Humber Bay Shores	8.700000
42	St. James Town / Cabbagetown	8.600000
28	Little Portugal / Trinity	8.433333
41	St. James Town	8.333333
5	Christie	8.300000
6	Church and Wellesley	8.300000
19	Garden District / Ryerson	8.300000
37	Richmond / Adelaide / King	8.200000
21	Harbourfront East / Union Station / Toronto Is...	8.200000
17	First Canadian Place / Underground city	8.200000

Restaurants grouped by Borough & average Rating

- Italian restaurants in Downtown Toronto has the highest average Rating (8.1/10)



- The Neighborhood with average rating of 8.5 or higher is filtered, and merged to Toronto dataframe.

```
[103]: neighborhood_detail1=neighborhood_detail[neighborhood_detail['Average Rating']>=8.5]
```

```
[104]: neighborhood_detail1.sort_values(['Average Rating'],ascending=False).head()
```

	Neighborhood	Average Rating
31	New Toronto / Mimico South / Humber Bay Shores	8.7
42	St. James Town / Cabbagetown	8.6

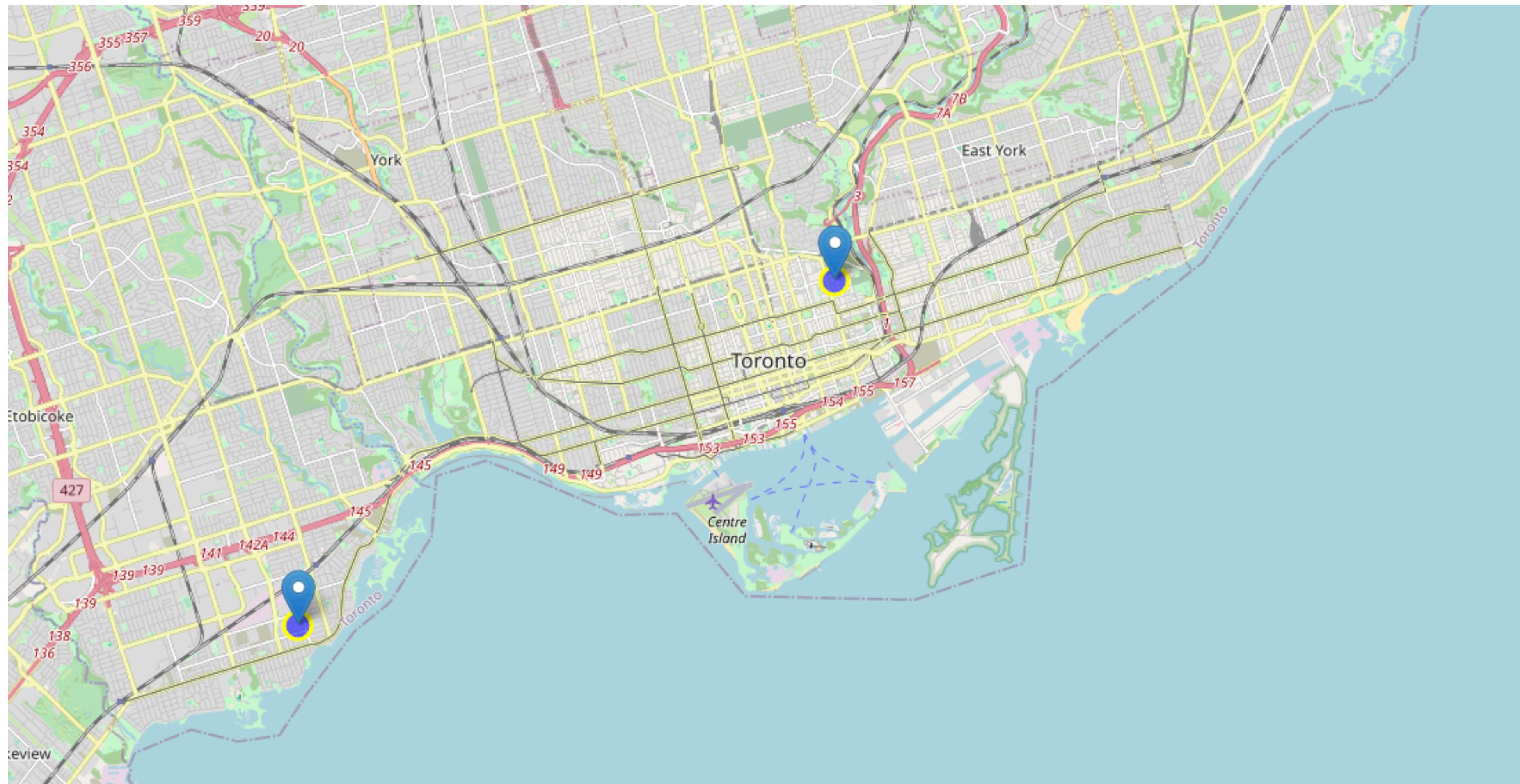
```
[105]: neighborhood_detail1=pd.merge(neighborhood_detail1, toronto_data_csv, on='Neighborhood')
```

```
[106]: neighborhood_detail1=neighborhood_detail1[['Borough','Neighborhood','Latitude','Longitude','Average Rating']]
```

```
[164]: neighborhood_detail1
```

	Borough	Neighborhood	Latitude	Longitude	Average Rating	Label
0	Etobicoke	New Toronto / Mimico South / Humber Bay Shores	43.605647	-79.501321	8.7	New Toronto / Mimico South / Humber Bay Shores...
1	Downtown Toronto	St. James Town / Cabbagetown	43.667967	-79.367675	8.6	St. James Town / Cabbagetown, Downtown Toronto...

- By means of merged dataframe and Folium library, we can see the two Neighborhoods with highest average Rating.



Conclusion

- Davisville (Downtown Toronto) has the most number of Italian restaurants in Toronto.
- New Toronto (Etobicoke), St. James Town(Downtown Toronto), Little Portugal (West Toronto) are some of the best Neighborhoods for Italian cuisine in Toronto.
- Downtown Toronto have potential for Italian restaurant market, there are multiple Neighborhoods in Downtown Toronto with average ratings exceeding 8.1.
- East Park ranks last in average rating (0 from 10) of Italian restaurants. It might be as a result of limitation of data providing only by Foursquare.
- I would go to Terroni in Downtown Toronto for the best Italian food based on 278 likes and Rating of 8.1. Downtown Toronto and West Toronto are the best place to stay if you prefer Italian Cuisine.