



CAPSTONE PROJECT.

THE BATTLE OF THE NEIGHBORHOODS

Toronto and York



Toronto vs York. Where to eat better?

- Eventually, at some point in life, we must leave behind the place we have lived in for years, for a job change, looking for better opportunities, or simply to gain new experiences.
- There are many elements that we must consider in order to decide about the place we will choose to live the next stage of our life. Since, in general, people change their home to live there for a long time, the resources available in the new home must be analyzed in depth, since the quality of life, that they have, will largely depend on it.
- One of the points that must be considered is food, so in this analysis we will focus on distinguishing which city has the best places to eat. The cities considered are those that contain the words Toronto (Downtown Toronto, East Toronto, West Toronto, Central Toronto) and York (North York, East York, York), we will treat each group as a different city.

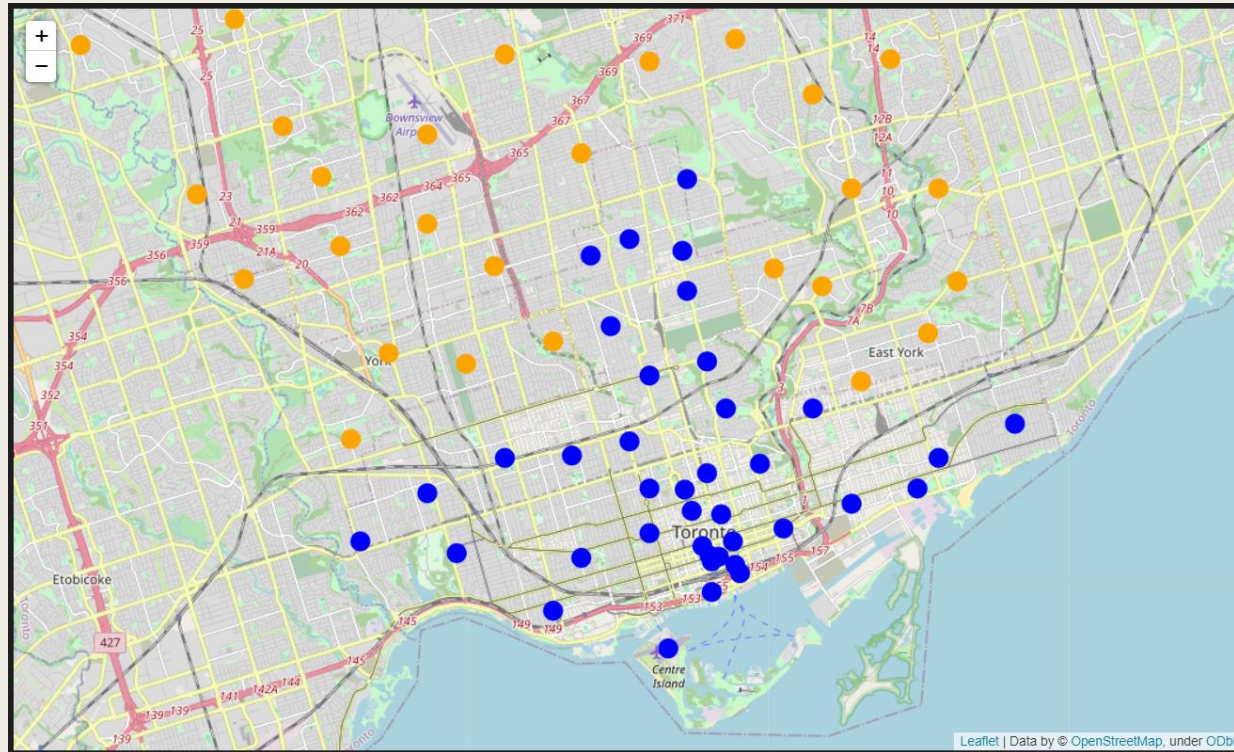
Data acquisition and cleaning

- We will use the data provided by Wikipedia to obtain the postal code of each city mentioned, we will unify the cities to have only two at the end (Toronto and York).
- We will use the latitude and longitude data to print each location on a map.
- Then we will use the Foursquare API to obtain the ratings of the restaurant category to finally obtain an average rating for each city and thus be able to select the best one.
- Ignore cells with a borough that is Not assigned.
- More than one neighborhood can exist in one postal code area.

Complete dataset with the Latitude and Longitude values for each Neighborhood.

	PostalCode	Borough	Neighborhood	Latitude	Longitude
0	M5A	Toronto	Regent Park, Harbourfront	43.654260	-79.360636
1	M7A	Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494
2	M5B	Toronto	Garden District, Ryerson	43.657162	-79.378937
3	M5C	Toronto	St. James Town	43.651494	-79.375418
4	M4E	Toronto	The Beaches	43.676357	-79.293031
...
68	M3N	York	Downsview	43.761631	-79.520999
69	M6N	York	Runnymede, The Junction North	43.673185	-79.487262
70	M9N	York	Weston	43.706876	-79.518188
71	M2P	York	York Mills West	43.752758	-79.400049
72	M2R	York	Willowdale, Willowdale West	43.782736	-79.442259

Map is more populated with Toronto (blue) venues than York (orange).



Get only the Restaurant category from the data.

	Borough	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue ID	Venue Name	Venue Latitude	Venue Longitude	Venue Category
0	Toronto	Regent Park, Harbourfront	43.654260	-79.360636	5612b1cc498e3dd742af0dc8	Impact Kitchen	43.656369	-79.356980	Restaurant
1	Toronto	Regent Park, Harbourfront	43.654260	-79.360636	53a22c92498ec91fda7ce133	Cluny Bistro & Boulangerie	43.650565	-79.357843	French Restaurant
2	Toronto	Regent Park, Harbourfront	43.654260	-79.360636	51ddecee498e1ffd34185d2f	El Catrin	43.650601	-79.358920	Mexican Restaurant
3	Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494	4a8355bff964a520d3fa1fe3	Mercatto	43.660391	-79.387664	Italian Restaurant
4	Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494	52d884c5498ecf5c7cafe5ab	Nando's	43.661728	-79.386391	Portuguese Restaurant
...
443	York	Willowdale, Willowdale East	43.770120	-79.408493	4bb628fbef159c74e18075f7	Shawarma Max	43.766012	-79.410844	Middle Eastern Restaurant
444	York	Willowdale, Willowdale East	43.770120	-79.408493	544ad69a498eeb86b7a4a8d0	Kinton Ramen	43.769684	-79.413049	Ramen Restaurant
445	York	Willowdale, Willowdale East	43.770120	-79.408493	4b4779f0f964a520543326e3	Pho 88 Vietnamese Cuisine	43.770456	-79.413064	Vietnamese Restaurant
446	York	Willowdale, Willowdale East	43.770120	-79.408493	4b8bffcc6f964a52076b732e3	Ichiban Fish House	43.765995	-79.410813	Japanese Restaurant

Use a function to get the rating for each restaurant in the dataset. This function uses a Premium call of Foursquare.

	Venue ID	Venue Name	Venue Rating
0	5612b1cc498e3dd742af0dc8	Impact Kitchen	8.8
1	53a22c92498ec91fda7ce133	Cluny Bistro & Boulangerie	8.3
2	51ddecee498e1ffd34185d2f	El Catrin	7.9
3	4a8355bff964a520d3fa1fe3	Mercatto	8.3
4	52d884c5498ecf5c7cafe5ab	Nando's	8.1

	Venue Rating	Afghan Restaurant	American Restaurant	Asian Restaurant	Belgian Restaurant	Brazilian Restaurant	Cajun / Creole Restaurant	Caribbean Restaurant	Chinese Restaurant	Colombian Restaurant	...	Ramen Restaurant	Restaurant
0	8.8	0	0	0	0	0	0	0	0	0	0 ...	0	1
1	8.3	0	0	0	0	0	0	0	0	0	0 ...	0	0
2	7.9	0	0	0	0	0	0	0	0	0	0 ...	0	0
3	8.3	0	0	0	0	0	0	0	0	0	0 ...	0	0
4	8.3	0	0	0	0	0	0	0	0	0	0 ...	0	0
...
425	6.2	0	0	0	0	0	0	0	0	0	0 ...	0	0
426	6.4	0	0	0	0	0	0	0	0	0	0 ...	0	0
427	6.1	0	0	0	0	0	0	0	0	0	0 ...	1	0
428	6.1	0	0	0	0	0	0	0	0	0	0 ...	0	0
429	5.7	0	0	0	0	0	0	0	0	0	0 ...	0	0

430 rows x 48 columns

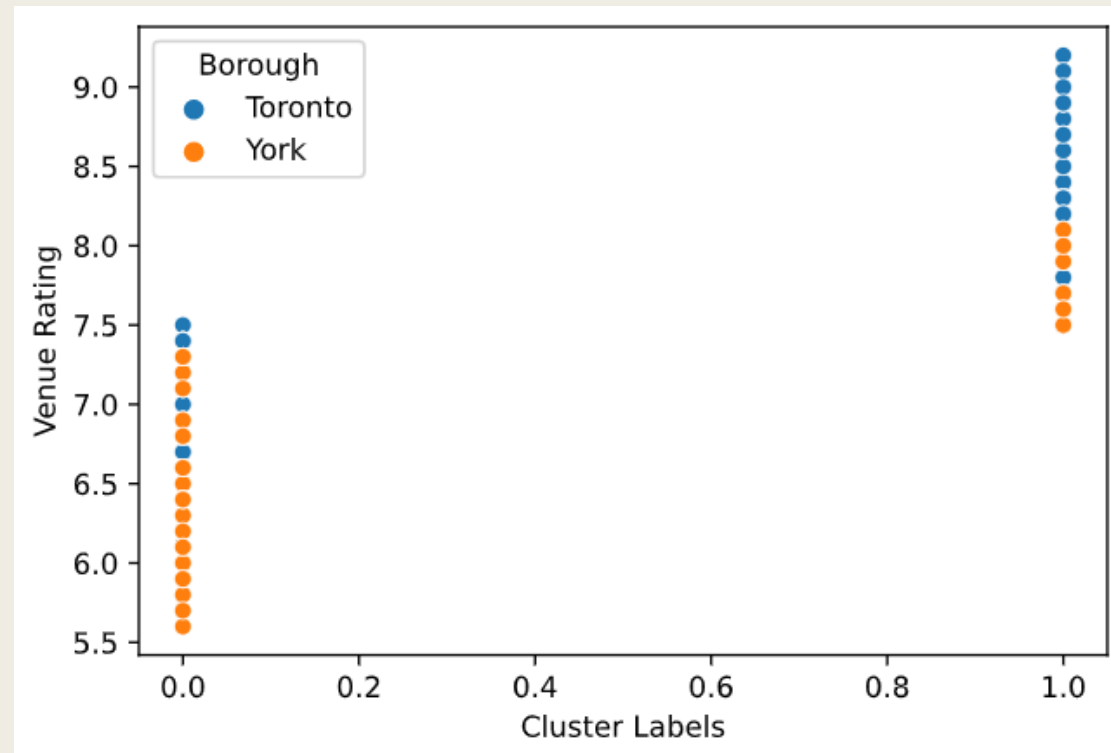
WE WILL SELECT 'VENUE CATEGORY' AND 'VENUE RATING' AS FEATURES TO PUT IN THE KMEANS ALGORITHM TO CREATE TWO CLUSTERS, WHICH WILL INDICATE IF EACH RESTAURANT IS IN THE MOST RATED GROUP OR NOT.

Data frame with the principal features and its labels.

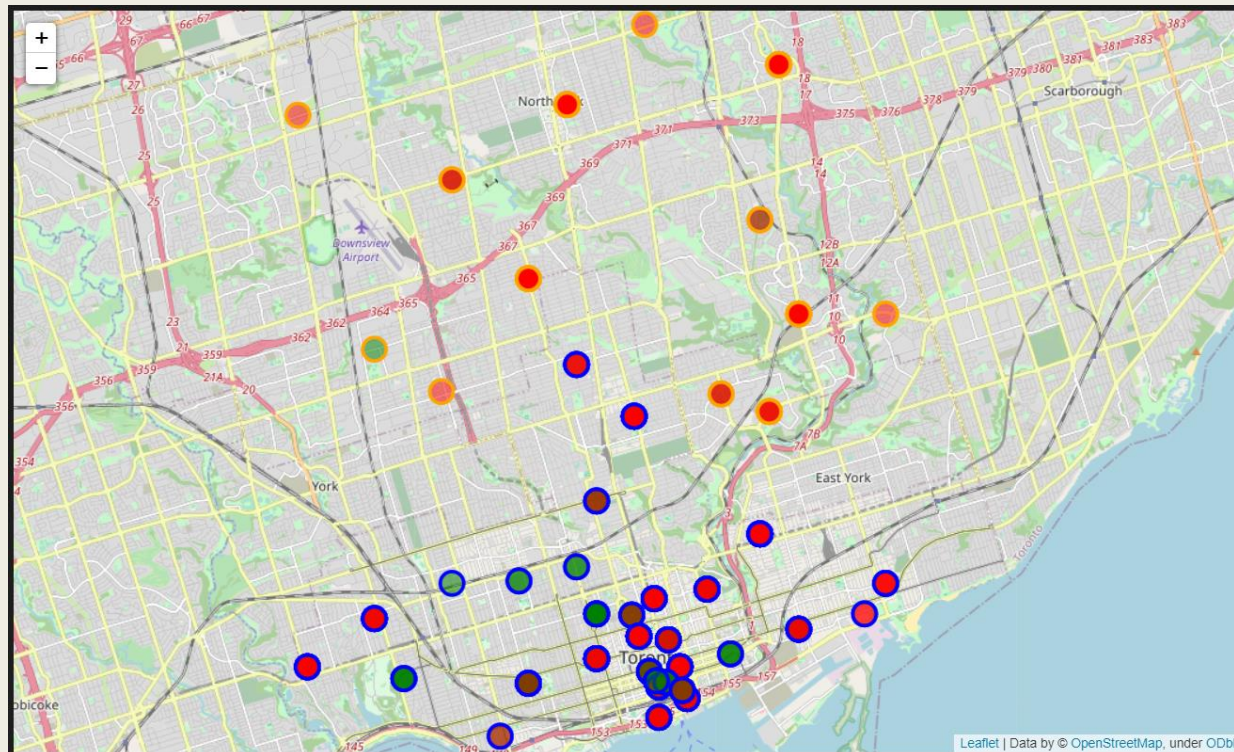
	Borough	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Name	Venue Rating	Cluster Labels
0	Toronto	Regent Park, Harbourfront	43.654260	-79.360636	Impact Kitchen	8.8	1
1	Toronto	Regent Park, Harbourfront	43.654260	-79.360636	Cluny Bistro & Boulangerie	8.3	1
2	Toronto	Regent Park, Harbourfront	43.654260	-79.360636	El Catrin	7.9	1
3	Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494	Mercatto	8.3	1
4	Toronto	Central Bay Street	43.657952	-79.387383	Mercatto	8.3	1
...
425	York	Willowdale, Willowdale East	43.770120	-79.408493	Wendy's	6.2	0
426	York	Willowdale, Willowdale East	43.770120	-79.408493	Shawarma Max	6.4	0
427	York	Willowdale, Willowdale East	43.770120	-79.408493	Kinton Ramen	6.1	0
428	York	Willowdale, Willowdale East	43.770120	-79.408493	Pho 88 Vietnamese Cuisine	6.1	0
429	York	Willowdale, Willowdale East	43.770120	-79.408493	Ichiban Fish House	5.7	0

430 rows x 7 columns

The clusters were divided about the 7.5 rating value.



In next map, restaurants of Toronto (blue perimeter) and York (perimeter) are marked with green and red fills. Green corresponds to group with rating greater than 7.5 and red fill to restaurants with rating less than 7.5. We can see that most approved restaurants are in Toronto.



Conclusion

- If you need to choose a Borough to live, Toronto o York, maybe Toronto is the best option for you because you can find the best and most varied restaurants in the region. People say through their ratings that in Toronto are the best restaurants that you can find in that region.