BATTLE OF NEIGHBORHOOD

INTRODUCTION

Problem Statement: Prospect of a bakery close to the residential and crowded areas in Toronto city, Canada.

Canada immigration is considered one of the best in the world as it is loaded with better opportunities for employment as well as personal growth. It is indeed a country for those in search of a better quality of life.

My friend is moving to Canada. She is from a business background and business is her passion too. She is also a wonderful baker. She wants to open a bakery. People like to celebrate each happy moment in their life. Cakes are loved by most people and are part of every celebration whether it's your kid's birthday, a salary hike, a job offer, a trophy in school sports day. The bakery should be located in a busy area and preferably close to residential area. Toronto is made of many neighborhoods but she will concentrate on the busiest neighborhoods. Downtown Toronto, West Toronto, Central Toronto and East Toronto are business friendly places. Using Foursquare location data, I can analyze the places. She has to select a busy area with least number of bakeries so that the competition will be less.

Target Audience

1.Business people who wants to invest or open a new bakery. This analysis will be a guide to start a bakery targeting people at all ages.

2.Residents

They will be interested to find an affordable and fresh bakery in the neighborhood.

2.Tourists

Tourists will be interested to find the little warm places to have a quick bite.

DATA

DATA PREPARATION

WIKIPEDIA.

The data of Toronto neighborhoods I use is acquired from Wikipedia pages. This has been worked out in the lab section.

https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M.I will use pandas to scrap the data frame from the wiki page.

GEOPY CLIENT

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To get the coordinates of the neighborhoods I use geopy client. If that is not working properly, I will use this csv file to get the coordinates, https://cocl.us/Geospatial_data.

FOURSQUARE LOCATION DATA

I will be using Foursquare data for segmenting and clustering. Using Foursquare API, we will find the popular spots and bakeries in each place. The popular spots returned depends on the highest foot traffic and thus it depends on the time when the call is made. So, we may get different popular venues depending upon different time of the day.

Approach

- Collect the Toronto city data from https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M.
- Using Foursquare API, we will find all venues for each neighborhood.
- Filter out all venues that are Bakery.
- Find the count of bakery in each neighborhood.
- Count residences and schools in each neighborhood as they are good target customers.
- Find the best place to open the bakery using these data.
- Visualize the neighborhood using folium library.

METHODOLOGY

• For each locality, all residences, schools, universities and bakery venues data have been collected from Foursquare.

• Then for each locality, the sums of the residences, school and bakery were computed.

• For each of these 4 categories, a weight (or penalty) has been defined.

• Bakeries have been weighted with -1, to avoid concurrence.

• Schools have been weighted with 1, since student are good customers.

•College & Universities have been weighted with 2 as they are also good customers

• Residential areas have been weighted with 3, since residents are even better customers.

• Lastly, a score was computed for each locality as the weighted sum of the number of venues in each of the 4 categories.

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Toronto Neighborhoods

	Postcode	Borough	Neighbourhood	Latitude	Longitude
0	M5A	Downtown Toronto	Harbourfront,Regent Park	43.654260	-79.360636
1	M5B	Downtown Toronto	Ryerson,Garden District	43.657162	-79.378937
2	M5C	Downtown Toronto	St. James Town	43.651494	-79.375418
3	M4E	East Toronto	The Beaches	43.676357	-79.293031
4	M5E	Downtown Toronto	Berczy Park	43.644771	-79.373306
5	M5G	Downtown Toronto	Central Bay Street	43.657952	-79.387383
6	M6G	Downtown Toronto	Christie	43.669542	-79.422564
7	M5H	Downtown Toronto	Adelaide,King,Richmond	43.650571	-79.384568
8	M6H	West Toronto	Dovercourt Village,Dufferin	43.669005	-79.442259
9	M5J	Downtown Toronto	Harbourfront East,Toronto Islands,Union Station	43.640816	-79.381752
10	M6J	West Toronto	Little Portugal,Trinity	43.647927	-79.419750
11	M4K	East Toronto	The Danforth West,Riverdale	43.679557	-79.352188
12	M5K	Downtown Toronto	Design Exchange,Toronto Dominion Centre	43.647177	-79.381576
13	M6K	West Toronto	Brockton,Exhibition Place,Parkdale Village	43.636847	-79.428191
14	M4L	East Toronto	The Beaches West,India Bazaar	43.668999	-79.315572
15	M5L	Downtown Toronto	Commerce Court,Victoria Hotel	43.648198	-79.379817
16	M4M	East Toronto	Studio District	43.659526	-79.340923
17	M4N	Central Toronto	Lawrence Park	43.728020	-79.388790
18	M5N	Central Toronto	Roselawn	43.711695	-79.416936
19	M4P	Central Toronto	Davisville North	43.712751	-79.390197
20	M4R	Central Toronto	Forest Hill North,Forest Hill West	43.696948	-79.411307

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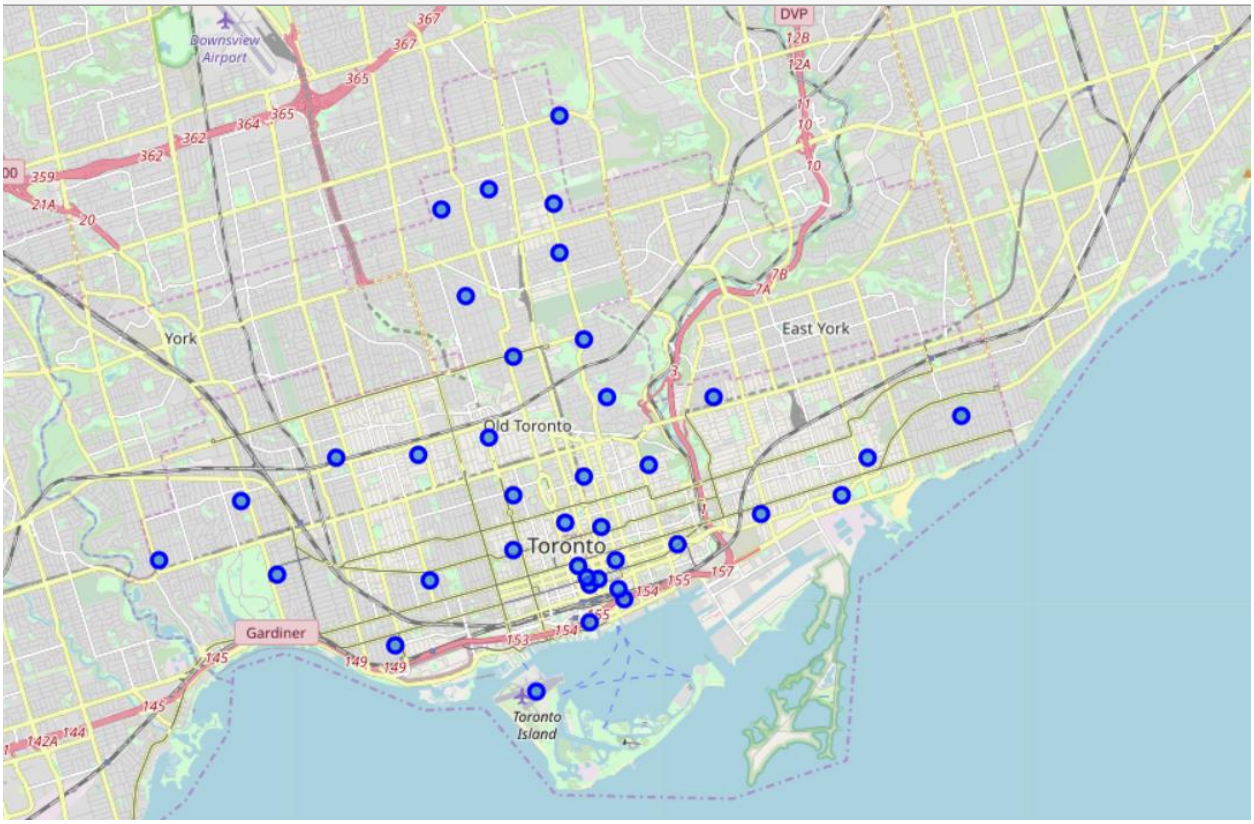
19	M4P	Central Toronto	Davisville North	43.712751	-79.390197
20	M5P	Central Toronto	Forest Hill North,Forest Hill West	43.696948	-79.411307
21	M6P	West Toronto	High Park,The Junction South	43.661608	-79.464763
22	M4R	Central Toronto	North Toronto West	43.715383	-79.405678
23	M5R	Central Toronto	The Annex,North Midtown,Yorkville	43.672710	-79.405678
24	M6R	West Toronto	Parkdale,Roncesvalles	43.648960	-79.456325
25	M4S	Central Toronto	Davisville	43.704324	-79.388790
26	M5S	Downtown Toronto	Harbord,University of Toronto	43.662696	-79.400049
27	M6S	West Toronto	Runnymede,Swansea	43.651571	-79.484450
28	M4T	Central Toronto	Moore Park,Summerhill East	43.689574	-79.383160
29	M5T	Downtown Toronto	Chinatown,Grange Park,Kensington Market	43.653206	-79.400049
30	M4V	Central Toronto	Deer Park,Forest Hill SE,Rathnelly,South Hill,...	43.686412	-79.400049
31	M5V	Downtown Toronto	CN Tower,Bathurst Quay,Island airport,Harbourf...	43.628947	-79.394420
32	M4W	Downtown Toronto	Rosedale	43.679563	-79.377529
33	M5W	Downtown Toronto	Stn A PO Boxes 25 The Esplanade	43.646435	-79.374846
34	M4X	Downtown Toronto	Cabbagetown,St. James Town	43.667967	-79.367675



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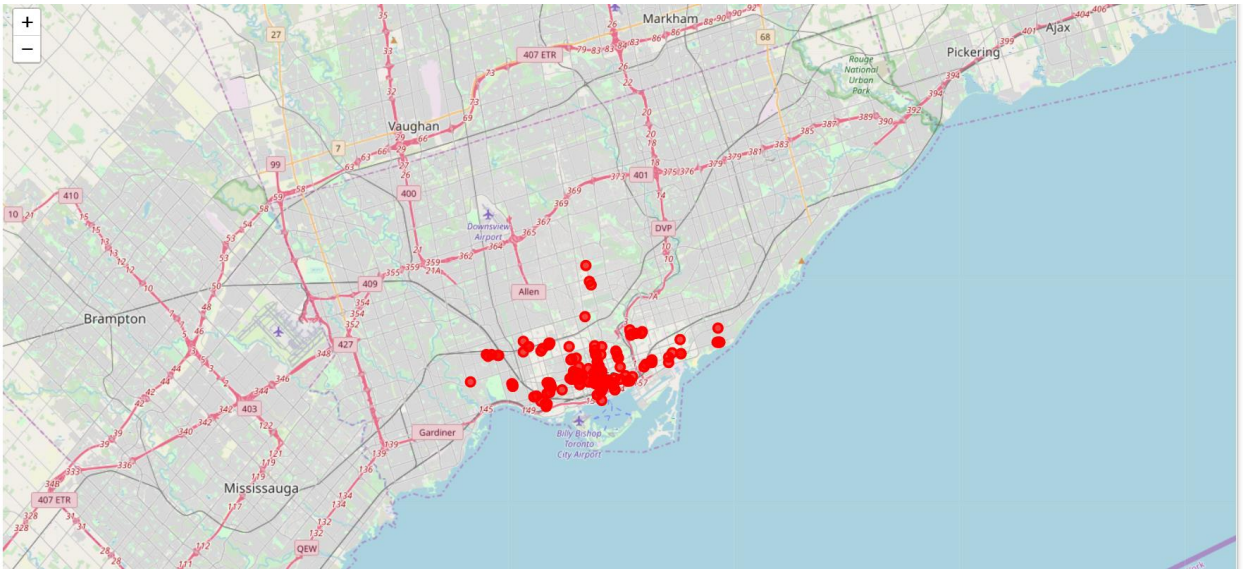
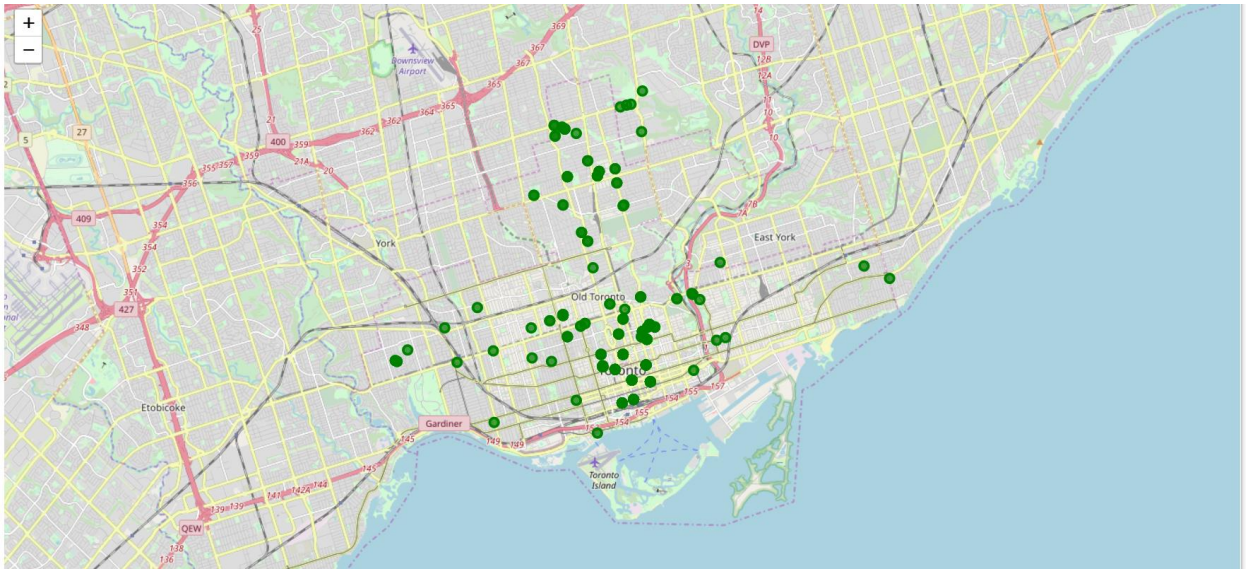
Bakeries in the neighborhoods



Schools in the neighborhoods



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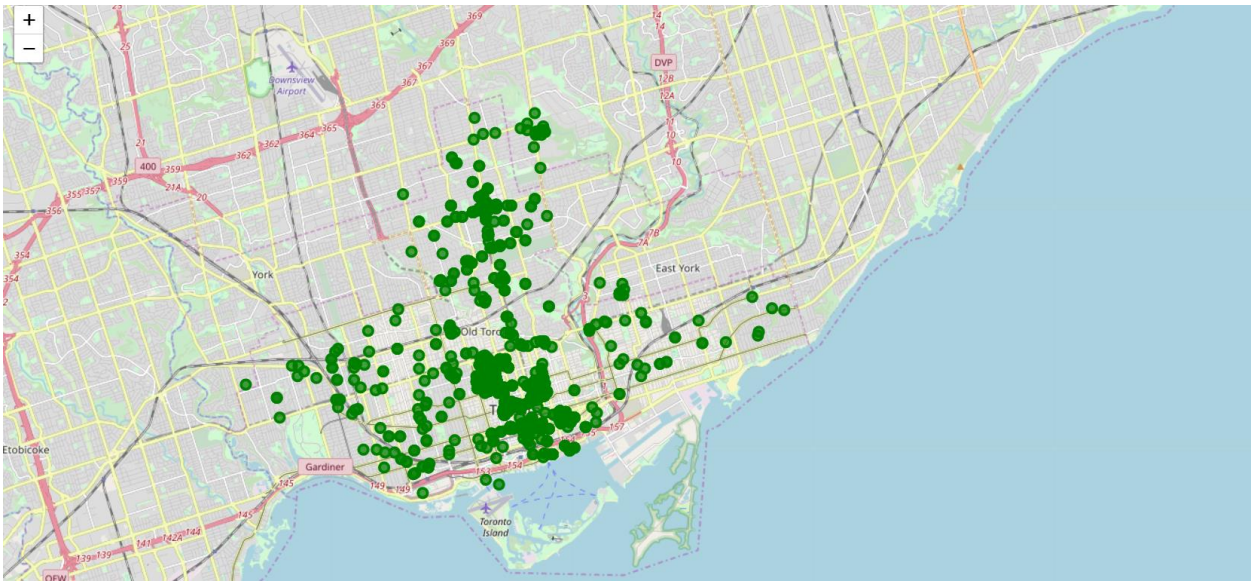
College & Universities in the neighborhood



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RESULTS

	Neighbourhood	Score
36	Church and Wellesley	255.0
26	Harbord,University of Toronto	251.0
5	Central Bay Street	250.0
1	Ryerson,Garden District	249.0
9	Harbourfront East,Toronto Islands,Union Station	244.0
23	The Annex,North Midtown,Yorkville	241.0
7	Adelaide,King,Richmond	240.0
25	Davisville	239.0
35	First Canadian Place,Underground city	238.0
19	Davisville North	237.0
2	St. James Town	237.0
12	Design Exchange,Toronto Dominion Centre	236.0
34	Cabbagetown,St. James Town	235.0
4	Berczy Park	234.0
15	Commerce Court,Victoria Hotel	234.0
29	Chinatown,Grange Park,Kensington Market	233.0
33	Stn A PO Boxes 25 The Esplanade	231.0
0	Harbourfront,Regent Park	229.0
22	North Toronto West	206.0
30	Deer Park,Forest Hill SE,Rathnelly,South Hill,...	202.0
32	Rosedale	189.0

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20	Forest Hill North,Forest Hill West	183.0
10	Little Portugal,Trinity	181.0
13	Brockton,Exhibition Place,Parkdale Village	174.0
28	Moore Park,Summerhill East	154.0
6	Christie	147.0
31	CN Tower,Bathurst Quay,Island airport,Harbourf...	146.0
24	Parkdale,Roncesvalles	136.0
11	The Danforth West,Riverdale	135.0
21	High Park,The Junction South	116.0
17	Lawrence Park	115.0
8	Dovercourt Village,Dufferin	109.0
18	Roselawn	103.0
16	Studio District	85.0
27	Runnymede,Swansea	67.0

• The Locality with the best score is “Church and Wellesley” with 255.0, being the best option.

•Second option is “Harbord University of Toronto” with 251.0.

These options maximize the number of potential customers from residential areas and schools and at the same time have not too large competence.

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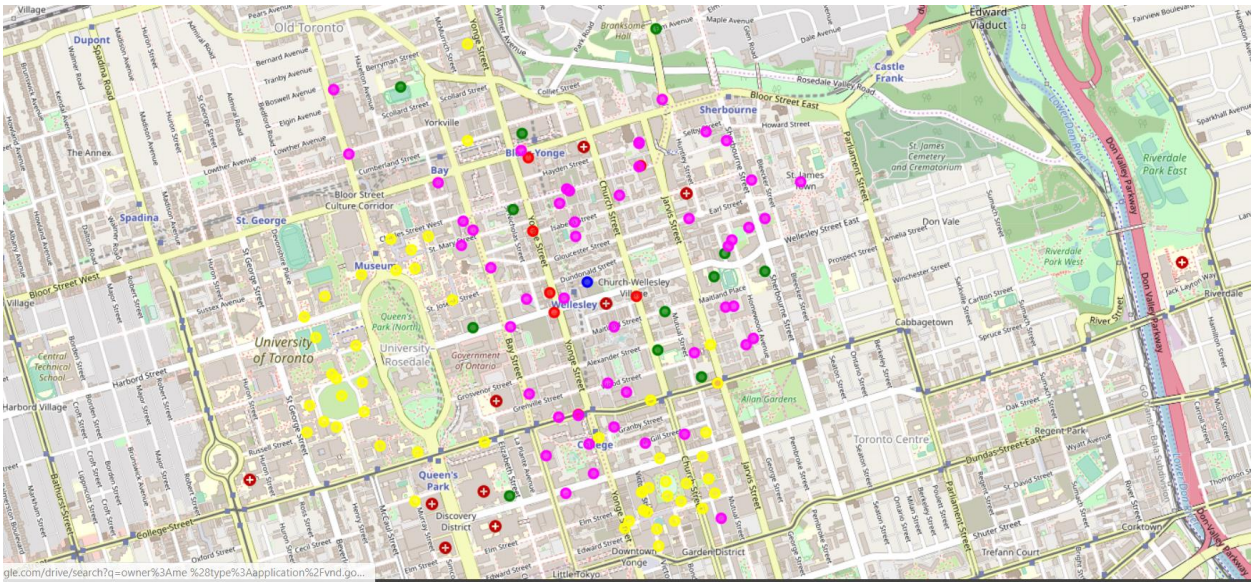
Best location for bakery in Toronto is Church and Wellesley



DISCUSSION

The following analysis can be improved with following extensions:

• We can consider more categories. For example, “train stations" are busy areas and a good source of customers. But closeness to restaurants is not preferable.

• In the Locality itself, it can also be computed the distance between all the venues in order to find a place with the greatest number of potential customers.

• Using smaller geographical areas like Neighborhoods could improve the accuracy for the scores.

CONCLUSION

Using data analysis, I found out that Church and Wellesley is the best neighborhood to open a bakery in Toronto. I will advise my friend to explore that area and find a good spot.