

Coursea Capstone Project

Opening a Specialty Bakery in Toronto, Canada

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Introduction

- The objective of the project is to explore the possibility of opening a new organic bakery in Toronto, Canada
- The new bakery will specialise in gluten, wheat and dairy free products



Introduction

Business Problem and Target Audience

- The new bakery aims to offer products targeted to people who suffer from food allergies
- The range of products that will be offered will be spelt bread, muffins and pastries
- A range of yeast-free breads, dairy-free muffins and pastries, as well as egg-free products will be offered
- The bakery will focus on two customer segments: the Allergy segment and the Dieter segment (people who would like to make a change in their diet, perhaps based on a desire to lose weight)

Data acquisition

Sources of data for the project

- Neighborhood data from Toronto: To be acquired from a Wikipedia page containing a list of neighborhoods in Toronto (https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:M)
- Geographical coordinates: Latitude and Longitude corresponding to the neighborhood post codes will be retrieved from http://cocl.us/Geospatial_data
- Foursquare venues data: API call to Foursquare and data acquisition related to the venues located at a given radius from each neighborhood. From this list, the location of existing bakeries in Toronto will be retrieved

Methodology

- A list of neighborhoods was acquired from Wikipedia. The lists contains the name of neighborhood name, Borough and Postal code

	Postcode	Borough	Neighbourhood	Latitude	Longitude
0	M4E	East Toronto	The Beaches	43.676357	-79.293031
1	M4K	East Toronto	The Danforth West, Riverdale	43.679557	-79.352188
2	M4L	East Toronto	The Beaches West, India Bazaar	43.668999	-79.315572
3	M4M	East Toronto	Studio District	43.659526	-79.340923
4	M4N	Central Toronto	Lawrence Park	43.728020	-79.388790

Methodology

Geographical coordinates

- Geographical coordinates (latitude and longitude) were retrieved for each postal code and a data frame was created merging the information from Wikipedia and the geographical coordinates

	Postcode	Borough	Neighbourhood	Latitude	Longitude
0	M1B	Scarborough	Rouge, Malvern	43.806686	-79.194353
1	M1C	Scarborough	Highland Creek, Rouge Hill, Port Union	43.784535	-79.160497
2	M1E	Scarborough	Guildwood, Morningside, West Hill	43.763573	-79.188711
3	M1G	Scarborough	Woburn	43.770992	-79.216917
4	M1H	Scarborough	Cedarbrae	43.773136	-79.239476

Methodology

Foursquare API: Venues near neighborhoods

- A call to Foursquare API was used to get a list of 200 venues located within a radius of 500m to each of the neighborhoods

	Postcode	Borough	Neighborhood	N_Lat	N_Lng	ID	Name	Category	Lat	Lng
0	M1B	Scarborough	Rouge, Malvern	43.806686	-79.194353	4bb6b9446edc76b0d771311c	Wendy's	Fast Food Restaurant	43.807448	-79.199056
1	M1B	Scarborough	Rouge, Malvern	43.806686	-79.194353	5539e7d2498edaf4b02673ca	Interprovincial Group	Print Shop	43.805630	-79.200378
2	M1C	Scarborough	Highland Creek, Rouge Hill, Port Union	43.784535	-79.160497	4c23d3aaf7ced13a5ed7216d	Royal Canadian Legion	Bar	43.782533	-79.163085
3	M1E	Scarborough	Guildwood, Morningside, West Hill	43.763573	-79.188711	4beee041e24d20a1cd857314	RBC Royal Bank	Bank	43.766790	-79.191151
4	M1E	Scarborough	Guildwood, Morningside, West Hill	43.763573	-79.188711	4c62f34bde1b2d7fec89e370	G & G Electronics	Electronics Store	43.765309	-79.191537

Methodology

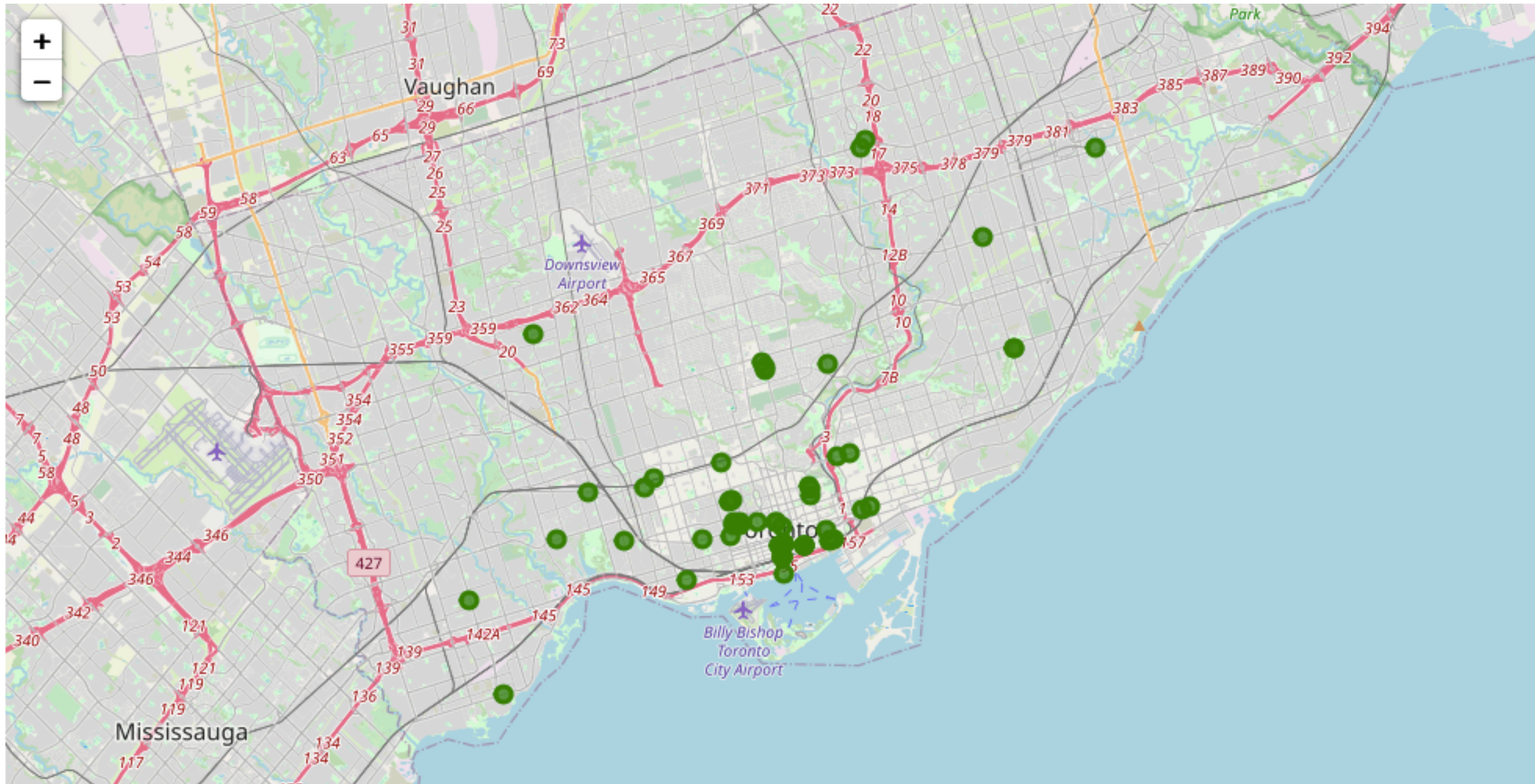
Existing bakeries in Toronto

- From the venue information acquired from API, the list of existing bakeries in Toronto as well as their location were retrieved

	Postcode	Borough	Neighborhood	N_Lat	N_Lng	ID	Name	Category	Lat	Lng
18	M1H	Scarborough	Cedarbrae	43.773136	-79.239476	4e42cfc56284d1faa44a1083	B&A Bakery	Bakery	43.774391	-79.243877
37	M1L	Scarborough	Clairlea, Golden Mile, Oakridge	43.711112	-79.284577	4cb6527eb315a0934c469b76	Bakery On The Go	Bakery	43.711271	-79.279506
38	M1L	Scarborough	Clairlea, Golden Mile, Oakridge	43.711112	-79.284577	4eb2c6918b815ab741f9fcdd	Cafe on the go	Bakery	43.711151	-79.279469
54	M1R	Scarborough	Maryvale, Wexford	43.750072	-79.295849	569d1d81498e73b3eba22d2f	Crown Pastries	Bakery	43.746098	-79.293142
99	M2J	North York	Fairview, Henry Farm, Oriole	43.778517	-79.346556	4bbaa0f17421a5937311c440	Michel's Baguette	Bakery	43.777082	-79.344557

Methodology

Plot of existing bakeries in Toronto



Methodology

Sentiment analysis: Rating, likes and tips from Foursquare users

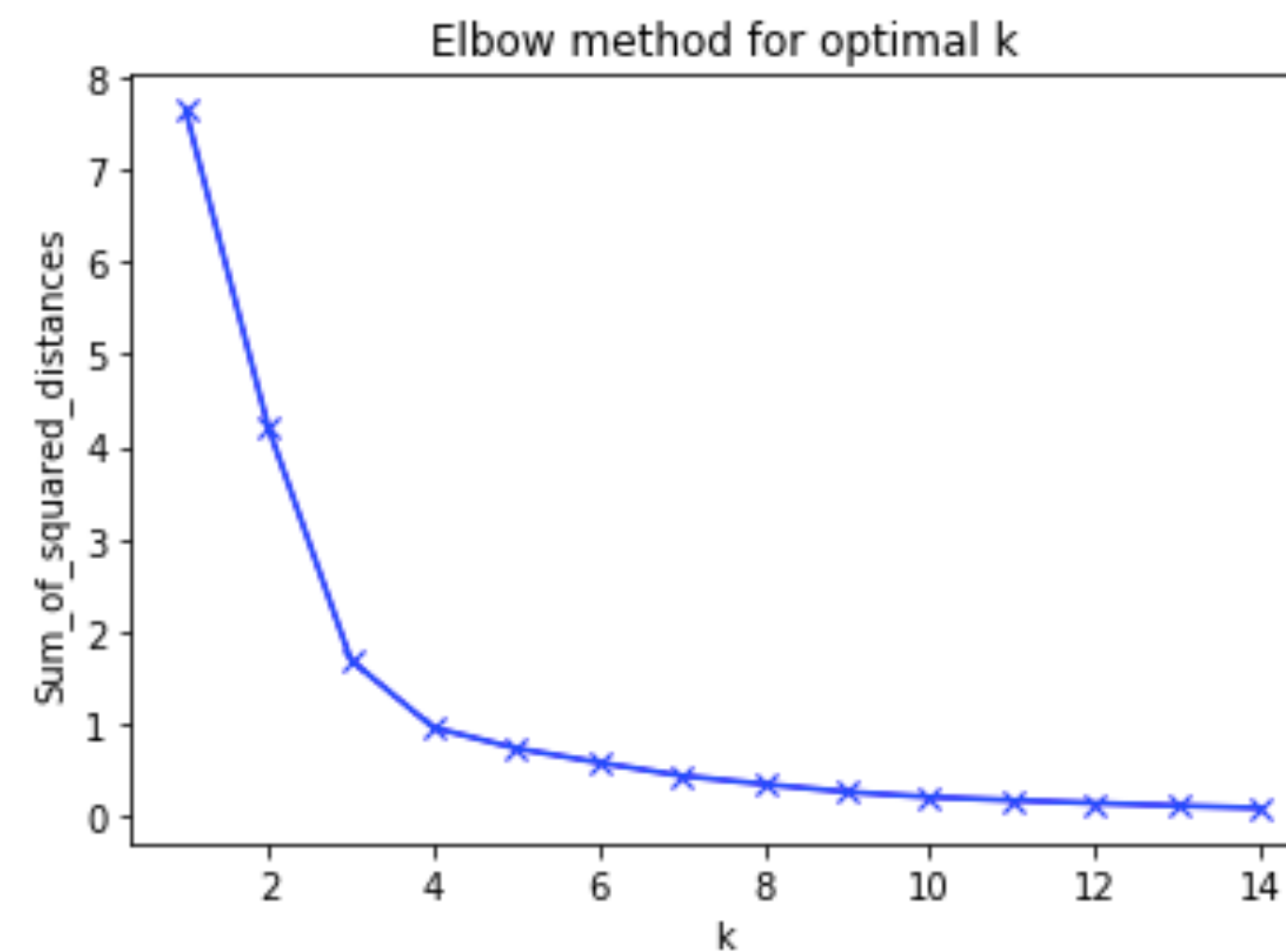
- Detailed information was acquired through the Foursquare API regarding how users have rated the bakeries in the different neighborhoods

	Postcode	Borough	Neighborhood	Lat	Lng	ID	Name	Likes	Rating	Tips
0	M1H	Scarborough	Cedarbrae	43.774391	-79.243877	4e42cfc56284d1faa44a1083	B&A Bakery	7	6.4	3
1	M1L	Scarborough	Clairlea, Golden Mile, Oakridge	43.711271	-79.279506	4cb6527eb315a0934c469b76	Bakery On The Go	0	0.0	0
2	M1L	Scarborough	Clairlea, Golden Mile, Oakridge	43.711151	-79.279469	4eb2c6918b815ab741f9fcdd	Cafe on the go	0	0.0	0
3	M1R	Scarborough	Maryvale, Wexford	43.746098	-79.293142	569d1d81498e73b3eba22d2f	Crown Pastries	7	7.8	1
4	M2J	North York	Fairview, Henry Farm, Oriole	43.777082	-79.344557	4bbaa0f17421a5937311c440	Michel's Baguette	26	7.1	12

Methodology

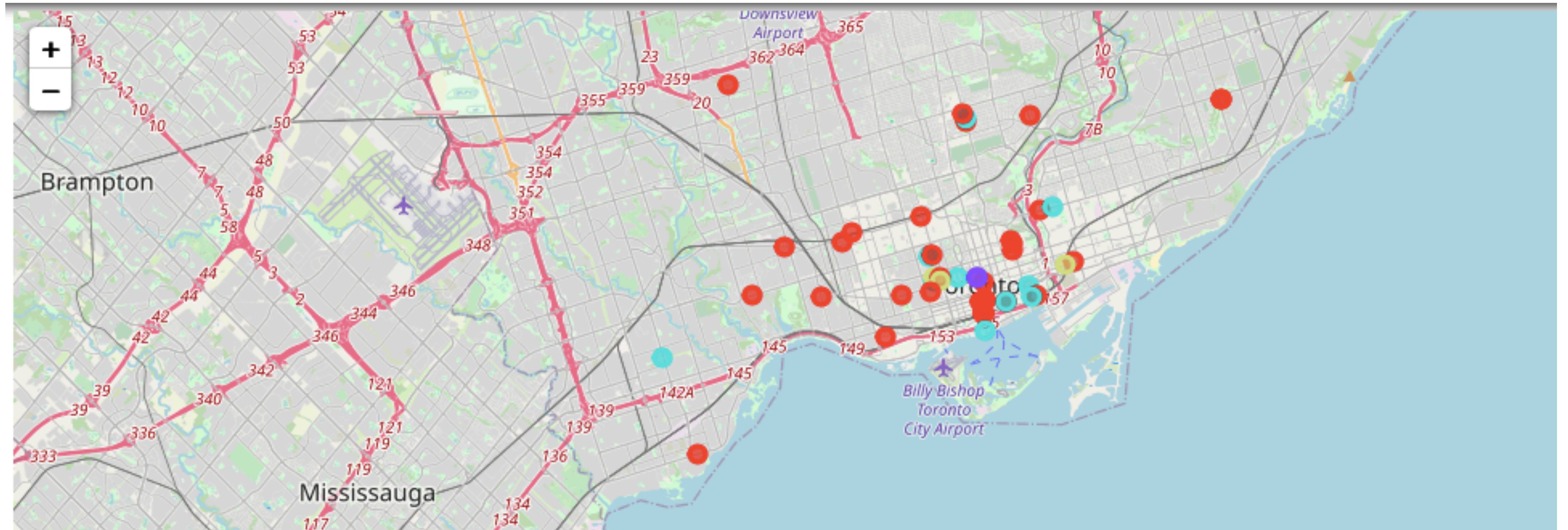
k-means clustering of the neighborhoods

- The neighborhoods were clustered based on the ratings, likes and tips for the different bakeries from Foursquare users. The optimum number of clusters, based on the Elbow method is four:



Results and Discussion

Results from k-means clustering



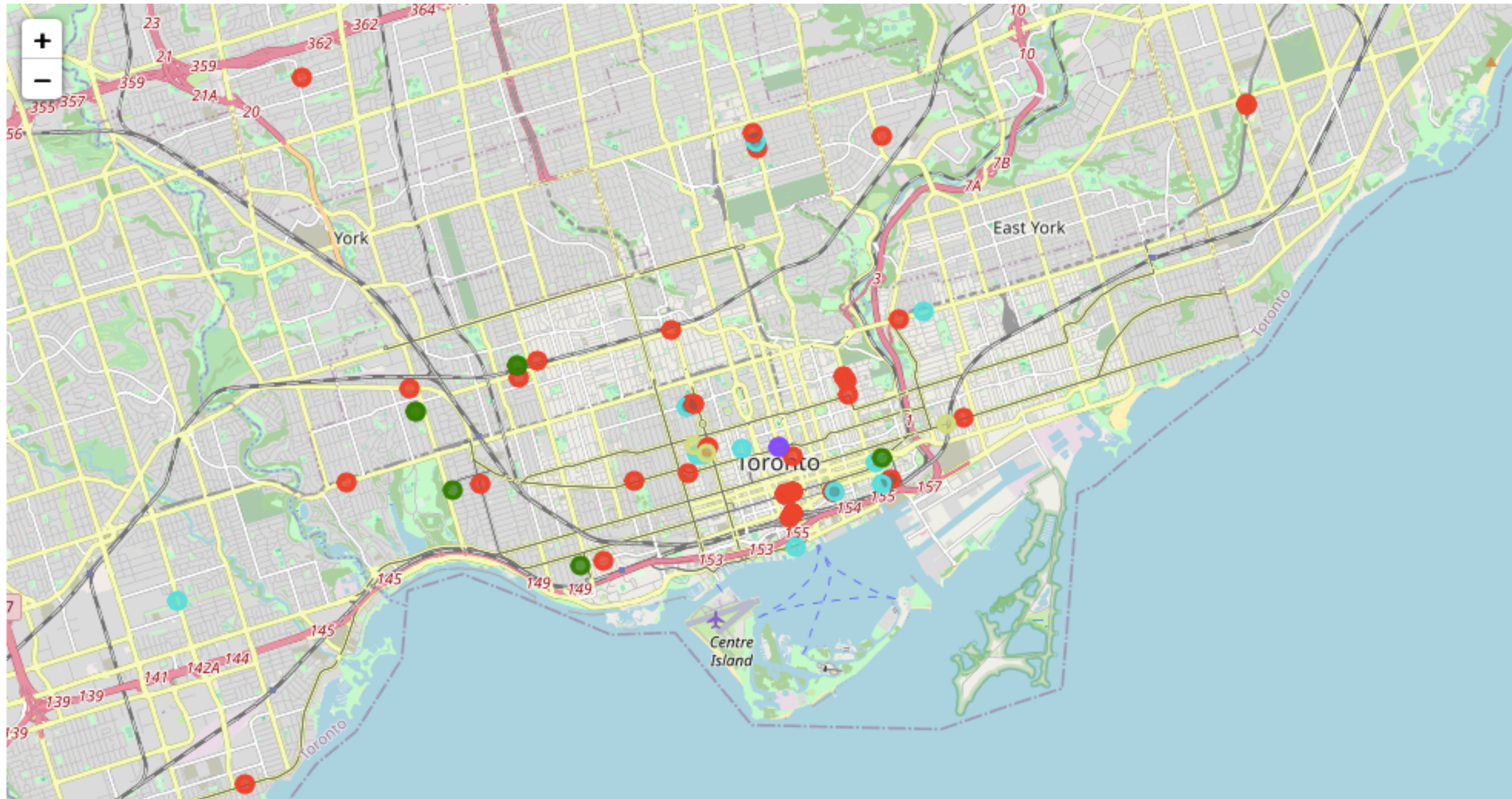
Results and Discussion

Clusters

- **Cluster 1** shows the biggest number of bakeries spread in Downtown Toronto. However for this group 70% of the bakeries received an average to lower than average rating
- **Cluster 2** located in Downtown Toronto, in the area of Little Tokyo shows the bakery with highest number of likes from the data set
- **Cluster 3** shows bakeries located mainly in Downtown Toronto, in the vicinity of the University of Toronto, Chinatown and Regent Park with 46% of them having a higher rating (8-9)
- **Cluster 4** shows bakeries located around Chinatown, which have a number of likes higher than average compared to the other clusters

Results and Discussion

Clusters along with existing specialty bakeries (dark green)



Conclusions

At present few specialty bakeries are established in Toronto

Based on the results of our analyses we can conclude that the number of specialty bakeries in the area of Toronto is very limited, so the prospect of opening a specialty bakery is good.

The results from the clustering of the neighborhoods based on the ratings, likes and tips counts for the different bakeries show that even though Downtown Toronto has a high concentration of bakeries, the bakeries located in the vicinity of the University of Toronto, China Town and Regent Park have the highest ratings (8-9) and the rest have an average rating. The clusters also showed that bakeries in the area of Little Tokyo received the highest number of likes compared to bakeries in other locations.

Conclusions

Prospective location

Areas away from Downtown or West Toronto offer very little competition since there is a very low concentration of bakeries for those locations.

Even if the entrepreneur decided to open a specialty bakery in Downtown Toronto, the higher competition is from traditional type of bakeries, the number of specialty bakeries offering the same type of intended products is very low to non-existing, so this would represent a good opportunity.

Conclusions

Recommended further analyses

- Further analyses to help in narrowing the choice of adequate areas to open the specialty bakery would take into consideration population density, income of the residents and costs of rents