

Tropical Restaurant in Toronto

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Introduction / Business Understanding

Situation description

Noor is young African chef that is very passionate about cooking and gastronomy. After an holiday trip, 3 years ago, to visit a friend, he fell in love with Toronto and decided to settle over there and open a restaurant.

Noor is interested in gastronomy from all over the world and enforced that interest by many internships in China, Mongolia, Thailand, Cambodia, Brazil, Bolivia, Peru and in many countries in Africa like Ivory Coast, Benin, Togo, Cameroon, Senegal, Bissau, Namibia, Ethiopia and Mozambique. His gastronomy's richness is for him, an element that will open his restaurant a path to success.

After having closed each of the steps of his project, from gathering the funds to the obtention of the necessary permits, now comes the time where he has to decide where his restaurant will be settled.

Problem presentation

In order to find the right place for his restaurant, Noor needs to be familiar with the city and its surroundings and has hints on the affordable trendings places available. As a newcomer, he's obviously unable to have these informations.

However, despite not knowing very well the city, he knows the kinds of neighborhoods he's looking for in order to maximize his chances of making a positive impact of his customer base. Here are his criteria (in disorder) :

- [a venue in a cosmopolite surroundings, where you can see people from several origins,](#)
- [a venue not in a residential neighborhood, but close to business places, to make it possible for customers to come lunch or order and be delivered in competitive durations,](#)
- [a venue in a safe neighborhood,](#)
- [a place where there can have safe night activities, especially in weekends.](#) -

The important question here is : [what would be the adequate place for Noor to settle his restaurant and make an great first impression on his customer base?](#)

Data

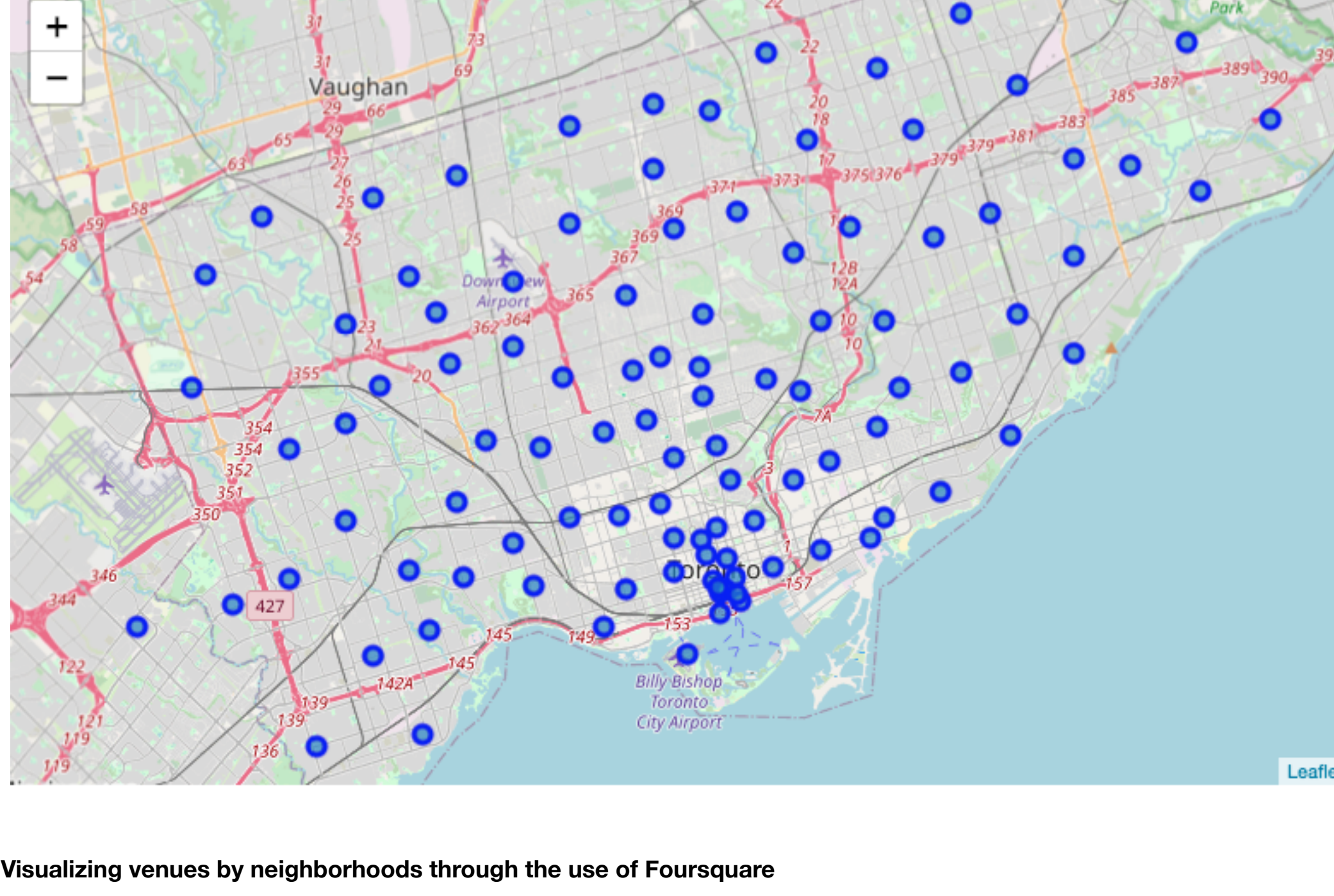
To solve Noor's problem, we will need to gather Toronto location data and put them in competition in order to fit the criteria he exposes in the best way possible.

Foursquare database appears to be the adequate tool to help in the resolution of our problem.

Exploratory Analysis

	Postal code	Borough	Neighborhood	Latitude	Longitude
0	M3A	North York	Parkwoods	43.753259	-79.329656
1	M4A	North York	Victoria Village	43.725882	-79.315572
2	M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636
3	M6A	North York	Lawrence Manor, Lawrence Heights	43.718518	-79.464763
4	M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494
5	M9A	Etobicoke	Islington Avenue	43.667856	-79.532242
6	M1B	Scarborough	Malvern, Rouge	43.806686	-79.194353
7	M3B	North York	Don Mills	43.745906	-79.352188
8	M4B	East York	Parkview Hill, Woodbine Gardens	43.706397	-79.309937
9	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937

Visualizing neighborhoods on a map of Toronto



Visualizing venues by neighborhoods through the use of Foursquare

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Parkwoods	43.753259	-79.329656	Brookbanks Park	43.751976	-79.332140	Park
1	Parkwoods	43.753259	-79.329656	Careful & Reliable Painting	43.752622	-79.331957	Construction & Landscaping
2	Parkwoods	43.753259	-79.329656	Variety Store	43.751974	-79.333114	Food & Drink Shop
3	Victoria Village	43.725882	-79.315572	Victoria Village Arena	43.723481	-79.315635	Hockey Arena
4	Victoria Village	43.725882	-79.315572	Tim Hortons	43.725517	-79.313103	Coffee Shop
...
2124	Mimico NW, The Queensway West, South of Bloor,...	43.628841	-79.520999	Jim & Maria's No Frills	43.631152	-79.518617	Grocery Store
2125	Mimico NW, The Queensway West, South of Bloor,...	43.628841	-79.520999	Islington Florist & Nursery	43.630156	-79.518718	Flower Shop
2126	Mimico NW, The Queensway West, South of Bloor,...	43.628841	-79.520999	Koala Tan Tanning Salon & Sunless Spa	43.631370	-79.519006	Tanning Salon
2127	Mimico NW, The Queensway West, South of Bloor,...	43.628841	-79.520999	Kingsway Boxing Club	43.627254	-79.526684	Gym
2128	Mimico NW, The Queensway West, South of Bloor,...	43.628841	-79.520999	Burrito Boyz	43.626657	-79.526349	Burrito Place

2129 rows × 7 columns

Listing the number of venues by neighborhoods

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
	Agincourt	4	4	4	4	4	4
	Alderwood, Long Branch	10	10	10	10	10	10
	Bathurst Manor, Wilson Heights, Downsview North	22	22	22	22	22	22
	Bayview Village	4	4	4	4	4	4
	Bedford Park, Lawrence Manor East	22	22	22	22	22	22

	Wexford, Maryvale	4	4	4	4	4	4
	Willowdale	40	40	40	40	40	40
	Woburn	3	3	3	3	3	3
	Woodbine Heights	8	8	8	8	8	8
	York Mills West	3	3	3	3	3	3

93 rows × 6 columns

Finally displaying the most common venue by neighborhoods

Neighborhood	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
Agincourt	Lounge	Skating Rink	Latin American Restaurant	Breakfast Spot	Eastern European Restaurant	Distribution Center	Dog Run	Doner Restaurant	Donut Shop	Drugstore
Alderwood, Long Branch	Pizza Place	Pharmacy	Pub	Skating Rink	Gym	Dance Studio	Coffee Shop	Athletics & Sports	Sandwich Place	Dim Sum Restaurant
Bathurst Manor, Wilson Heights, Downsview North	Coffee Shop	Bank	Pet Store	Frozen Yogurt Shop	Bridal Shop	Sandwich Place	Diner	Restaurant	Middle Eastern Restaurant	Deli / Bodega
Bayview Village	Café	Bank	Chinese Restaurant	Japanese Restaurant	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant	Yoga Studio
Bedford Park, Lawrence Manor East	Coffee Shop	Italian Restaurant	Sandwich Place	Pizza Place	Sushi Restaurant	Restaurant	Café	Butcher	Japanese Restaurant	Thai Restaurant

Methodology

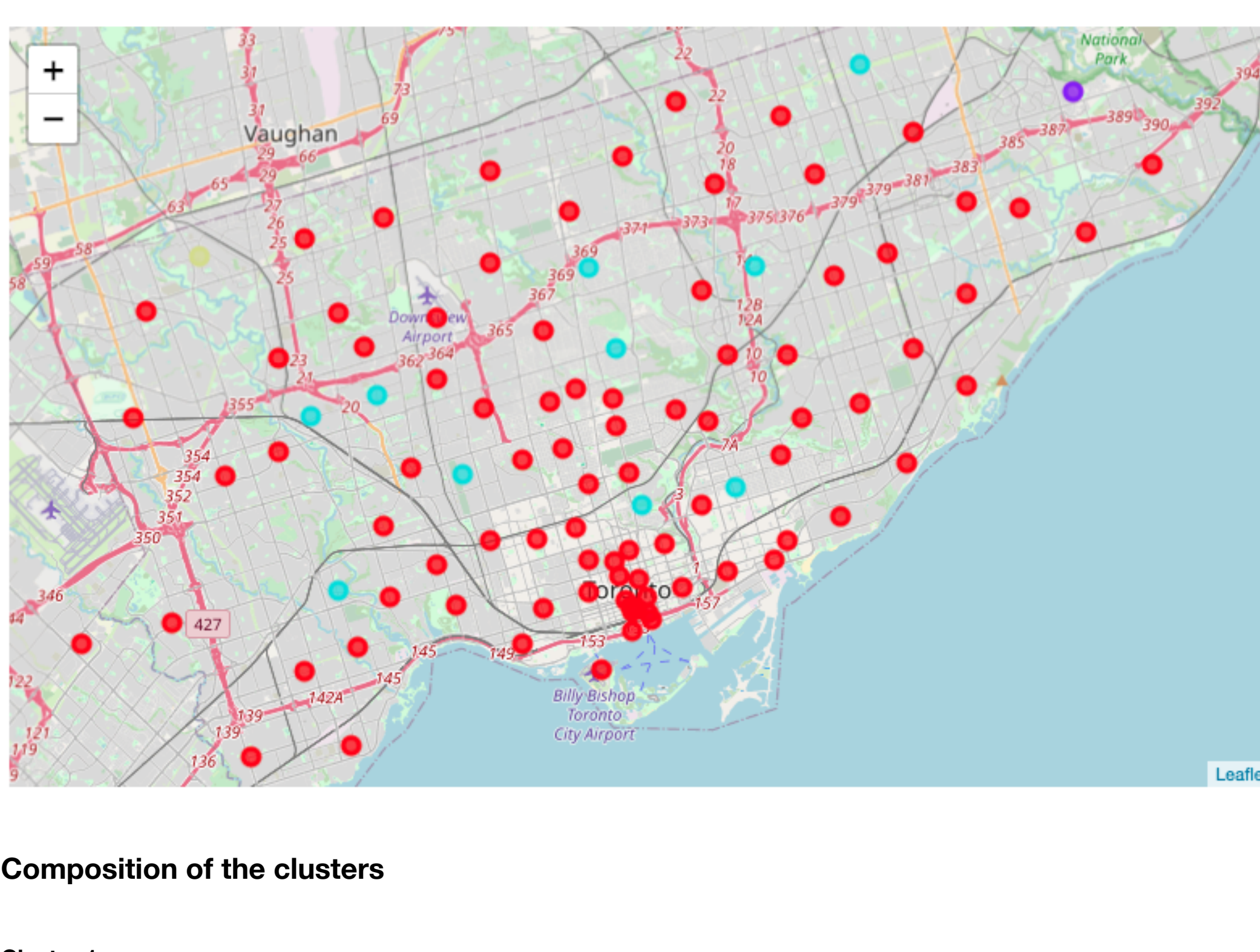
The purpose of this project is to help Noor find the best place for his restaurant. To achieve this goal, we tend to search areas where restaurants are not very present in the landscape. On the other end, those neighborhoods should be good neighborhoods in a sense of affluence and attraction.

On the step above, we've collected coordinates of different Toronto neighborhoods, and from this points, with the help of Foursquare database, we were able to gather the top 10 venues from each of these neighborhoods.

Now, in order to narrow the choice for Noor, we are going to use a clustering technique, called K-Means, to display neighborhoods that attracts a lot of people through their different commerces available, but also a low density of restaurants.

This is the methodology that will be used to provide the best recommendation to Noor.

Visualization of the clusters obtained



Composition of the clusters

Cluster 1

Borough	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
York	Park	Women's Store	Pool	Donut Shop	Dim Sum Restaurant	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant
York	Park	Yoga Studio	Drugstore	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant	Donut Shop	Eastern European Restaurant
Scarborough	Playground	Park	Yoga Studio	Donut Shop	Dim Sum Restaurant	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant
Downtown Toronto	Park	Trail	Playground	Yoga Studio	Dim Sum Restaurant	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant
Etobicoke	Park	River	Pool	Yoga Studio	Doner Restaurant	Dim Sum Restaurant	Diner	Discount Store	Distribution Center	Dog Run

Cluster 2

Borough	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
North York	Food & Drink Shop	Park	Construction & Landscaping	Drugstore	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant	
Downtown Toronto	Coffee Shop	Bakery	Pub	Park	Breakfast Spot	Café	Theater	Yoga Studio	Beer Store	
North York	Clothing Store	Accessories Store	Arts & Crafts Store	Gift Shop	Furniture / Home Store	Event Space	Miscellaneous Shop	Coffee Shop	Boutique	
Downtown Toronto	Coffee Shop	Sushi Restaurant	Yoga Studio	Bar	Beer Bar	Smoothie Shop	Sandwich Place	Burger Joint	Burrito Place	
North York	Gym	Coffee Shop	Asian Restaurant	Japanese Restaurant	Beer Store	Restaurant	Sandwich Place	Italian Restaurant	Sporting Goods Shop	
...
Downtown Toronto	Coffee Shop	Café	Japanese Restaurant	Gym	Restaurant	Hotel	Steakhouse	Deli / Bodega	American Restaurant	
Downtown Toronto	Sushi Restaurant	Japanese Restaurant	Coffee Shop	Gay Bar	Restaurant	Yoga Studio	Hotel	Mediterranean Restaurant	Men's Store	
East Toronto	Light Rail Station	Yoga Studio	Garden	Skate Park	Smoke Shop	Farmers Market	Fast Food Restaurant	Spa	Burrito Place	
Etobicoke	Construction & Landscaping	Deli / Bodega	Baseball Field	Yoga Studio	Drugstore	Distribution Center	Dog Run	Doner Restaurant	Donut Shop	
Etobicoke	Grocery Store	Bakery	Discount Store	Tanning Salon	Burrito Place	Sandwich Place	Burger Joint	Flower Shop	Supplement Shop	

Cluster 3

Borough	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
North York	Pizza Place	Intersection	Coffee Shop	Portuguese Restaurant	Hockey Arena	Yoga Studio	Donut Shop	Diner	Discount Store	Distribution Center
North York	Pizza Place	Donut Shop	Dim Sum Restaurant	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant	Drugstore	Hakka Restaurant
Etobicoke	Pizza Place	Intersection	Sandwich Place	Chinese Restaurant	Discount Store	Coffee Shop	Dog Run	Diner	Distribution Center	Doner Restaurant
Etobicoke	Pizza Place	Sandwich Place	Mobile Phone Shop	Bus Line	Dog Run	Diner	Discount Store	Distribution Center	Doner Restaurant	Farmers Market

Cluster 4

Borough	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
Scarborough	Fast Food Restaurant	Yoga Studio	Drugstore	Diner	Discount Store	Distribution Center	Dog Run	Doner Restaurant	Donut Shop	Eastern European Restaurant
York	Fast Food Restaurant	Sandwich Place	Turkish Restaurant	Falafel Restaurant	Event Space	Ethiopian Restaurant	Electronics Store	Eastern European Restaurant	Drugstore	Dessert Shop

Results and Discussion

Our analysis create the following five clusters of neighborhoods:

- **Cluster 1.** This cluster is characterized by its high relative absence of restaurants, that could be a advantage. But the people around this cluster are interested in Yoga, Park, Playground, River, etc. They are not the right customers for a tropical and gastronomical restaurant as the one Noor want to open.
- **Cluster 2.** This cluster is the larger one of all our clusters. It's characterized by many different categories of venues, within which restaurants are of them. A very cosmopolitan and heterogeneous area that addresses different communities. The area is not a residential one and although, the cluster may appear crowded by restaurants, its very large size makes it really possible for a new restaurant to settle. Moreover, the cluster provides many activities that can be opened at nights, once more fitting Noor's desire. This cluster shows many of the characteristics of what we are searching for. Neighborhoods like North York, Etobicoke or Downtown Toronto could be a good fit for Noor's restaurant.
- **Cluster 3.** This cluster is characterized by the high density of restaurants of different kinds. There are a lot of choice for anyone searching for a table. Plus, the high number of fast-food restaurants inside this area could be a disadvantage for Noor's gastronomical restaurant because of the prices.
- **Cluster 4.** This cluster is definitely not a good choice for Noor to bring, as it contains already restaurants from different parts of the world, which is in fact the plus-value Noor intends to bring. Plus, Fast Food restaurants are registred as the 1st most common venue in this cluster, not a good point. Installing a tropical restaurant here could lead to a serious setback for Noor.

The result is the selection neighborhoods of Scarborough Village (Scarborough), Moore Park and Summerhill East (Central Toronto) as our recommendation for our stakeholders due to their relative low presence of restaurants and a good combination of other main venues (also, not related to restaurants).

Conclusion

The aim of this project was to help Noor find a suitable place to settle his restaurant, a place that respect the conditions he wanted. By retrieving the geospatial data of Toronto neighborhoods, collecting the most common venues of those neighborhoods and finally clustering the neighborhoods through their venues relative composition, we were able to give a very accurate response to Noor's demands.

These are the neighborhoods have advised to Noor : **Downtown Toronto, Etobicoke** and **North York**.

Now, it's Noor's call to to launch the next move based on our analysis, but also on some other factors like the level of the rental costs on these areas, for example, which was not part of our study.