

Finding Business opportunity in Toronto neighborhood

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Introduction and Business Problem :

Problem :

Which business will be recommended to run in the Toronto neighborhood, why it will profitable?

, What is the target customer group? and how to do it efficiently?

Which data do you need to solve the problem?

We need data sets that contain the category of venues in Toronto as much as possible.

Where are the data sources?

- Postcode, neighborhood of each borough from Wikipedia to specified which neighborhood is in the Toronto Neighborhood.
- Foursquare API to get venues in each neighborhood.

Which format of data set we need?

-Rows of each neighborhood in Toronto and the columns of the Top 10 most common venues in each neighborhood(rows).

-Rows of each neighborhood in Toronto and the columns of frequent of each venue to use to train a model.

How data will use to solve the problem?

Once we know the cluster of other venues we will find inside of the data that why in that cluster has the most common venues.

when we know the reason we can use that reason to find out which business will be profitable.

Data Preparation:

I scraped https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M

For neighborhoods in Toronto. and I fetch data from Foursquare API to get venues around each neighborhood .

Then cleaned, adjusted , merged to data frame look like this.

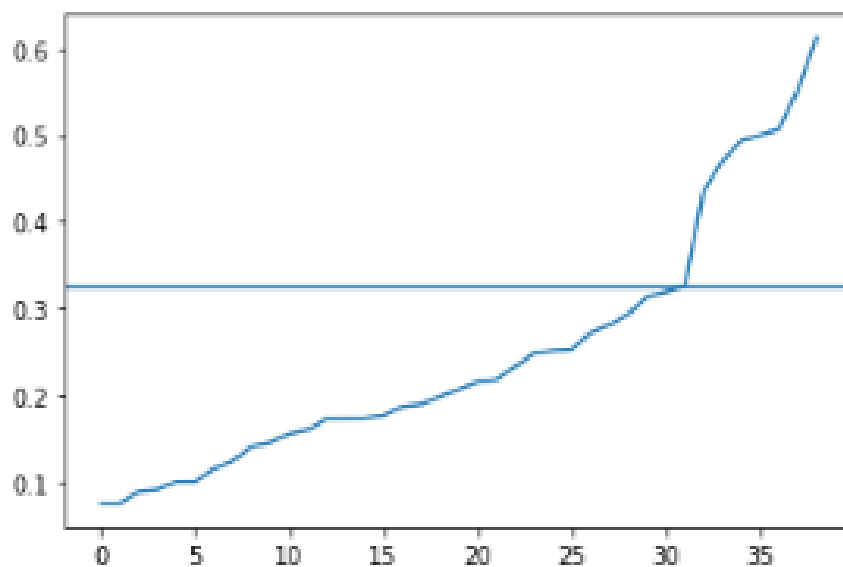
	Neighborhood	Adult Boutique	Airport	Airport Food Court	Airport Gate	Airport Lounge	Airport Service	Airport Terminal	American Restaurant	Antique Shop	Aquarium	Art Gallery	Art Museum	Arts & Crafts Store	Asian Restaurant
0	Berczy Park	0.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.0	0.0	0.017241	0.000000	0.0	0.0
1	Brockton, Parkdale Village, Exhibition Place	0.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.0	0.0	0.000000	0.000000	0.0	0.0
2	CN Tower, King and Spadina, Railway Lands, Har...	0.0	0.055556	0.055556	0.055556	0.111111	0.166667	0.111111	0.0	0.0	0.0	0.000000	0.000000	0.0	0.0
3	Central Bay Street	0.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.0	0.0	0.000000	0.015625	0.0	0.0
4	Christie	0.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0	0.0	0.0	0.000000	0.000000	0.0	0.0

Clustering the data :

I tried clustering the data with K -mean algorithm and find out that it has too many outliers in data , so I decided to use DBSCAN instead.

In order to use DBSCAN we need to tune parameter epsilon with these method

1. Calculate nearest n points for each point (nearest neighbor).
2. Sorting and plotting result.
3. Choose the point where the change is most pronounced as epsilon value



According to graph above we choose epsilon = 0.325

Then fit model to data and see the results.

The result from DBSCAN model show that data has only one cluster (31 rows) and the rest is outliers (8 outliers) .

The only cluster we got here look like this .

	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	label
0	Berczy Park	Cocktail Bar	Coffee Shop	Bakery	Pharmacy	Beer Bar	Restaurant	Seafood Restaurant	Cheese Shop	Farmers Market	Pub	0
1	Brockton, Parkdale Village, Exhibition Place	Café	Breakfast Spot	Coffee Shop	Bakery	Italian Restaurant	Stadium	Furniture / Home Store	Nightclub	Office	Climbing Gym	0
2	CN Tower, King and Spadina, Railway Lands, Har...	Airport Service	Airport Lounge	Airport Terminal	Harbor / Marina	Airport	Rental Car Location	Coffee Shop	Sculpture Garden	Boat or Ferry	Bar	0
3	Central Bay Street	Coffee Shop	Italian Restaurant	Café	Sandwich Place	Burger Joint	Salad Place	Restaurant	Japanese Restaurant	Bubble Tea Shop	Comic Shop	0
4	Church and Wellesley	Coffee Shop	Japanese Restaurant	Sushi Restaurant	Restaurant	Gay Bar	Bubble Tea Shop	Fast Food Restaurant	Hotel	Mediterranean Restaurant	Men's Store	0
5	Commerce Court, Victoria Hotel	Coffee Shop	Restaurant	Café	Hotel	Gym	Seafood Restaurant	Deli / Bodega	Bakery	Japanese Restaurant	Italian Restaurant	0
6	Davisville	Pizza Place	Dessert Shop	Sandwich Place	Italian Restaurant	Café	Gym	Sushi Restaurant	Coffee Shop	Thai Restaurant	Pharmacy	0
7	Davisville North	Breakfast Spot	Playground	Convenience Store	Sandwich Place	Gym / Fitness Center	Gym	Food & Drink Shop	Hotel	Park	Department Store	0
8	Dufferin, Dovercourt Village	Bakery	Pharmacy	Brewery	Park	Bank	Music Venue	Supermarket	Café	Bar	Grocery Store	0
9	Enclave of M4L	Light Rail Station	Pizza Place	Auto Workshop	Skate Park	Burrito Place	Spa	Fast Food Restaurant	Farmers Market	Garden	Garden Center	0
10	Enclave of MSE	Coffee Shop	Seafood Restaurant	Italian Restaurant	Pub	Bakery	Café	Cocktail Bar	Restaurant	Japanese Restaurant	Park	0
11	First Canadian Place, Underground city	Coffee Shop	Café	Hotel	Gym	Restaurant	Japanese Restaurant	Salad Place	Deli / Bodega	Steakhouse	Seafood Restaurant	0
12	Garden District, Ryerson	Clothing Store	Coffee Shop	Café	Italian Restaurant	Bubble Tea Shop	Middle Eastern Restaurant	Japanese Restaurant	Cosmetics Shop	Fast Food Restaurant	Movie Theater	0
13	Harbourfront East, Union Station, Toronto Islands	Coffee Shop	Aquarium	Hotel	Café	Brewery	Italian Restaurant	Scenic Lookout	Restaurant	Fried Chicken Joint	Sports Bar	0
14	High Park, The Junction South	Thai Restaurant	Mexican Restaurant	Café	Speakeasy	Fried Chicken Joint	Cajun / Creole Restaurant	Flea Market	Bookstore	Furniture / Home Store	Fast Food Restaurant	0
15	India Bazaar, The Beaches West	Park	Sandwich Place	Food & Drink Shop	Sushi Restaurant	Pizza Place	Pub	Restaurant	Movie Theater	Fast Food Restaurant	Burrito Place	0
16	Kensington Market, Chinatown, Grange Park	Café	Bar	Vietnamese Restaurant	Vegetarian / Vegan Restaurant	Coffee Shop	Burger Joint	Arts & Crafts Store	Mexican Restaurant	Bakery	Gaming Cafe	0
17	Little Portugal, Trinity	Bar	Asian Restaurant	Vietnamese Restaurant	Vegetarian / Vegan Restaurant	Restaurant	Men's Store	Café	Gift Shop	Korean Restaurant	Beer Store	0
18	North Toronto West	Coffee Shop	Clothing Store	Yoga Studio	Sporting Goods Shop	Park	Diner	Rental Car Location	Chinese Restaurant	Restaurant	Salon / Barbershop	0
19	Parkdale, Roncesvalles	Breakfast Spot	Gift Shop	Coffee Shop	Movie Theater	Bar	Eastern European Restaurant	Italian Restaurant	Dog Run	Bookstore	Restaurant	0
20	Regent Park, Harbourfront	Coffee Shop	Bakery	Park	Pub	Breakfast Spot	Café	Theater	Yoga Studio	Hotel	Spa	0
21	Richmond, Adelaide, King	Coffee Shop	Café	Restaurant	Thai Restaurant	Gym	Deli / Bodega	Clothing Store	Burrito Place	Bookstore	Steakhouse	0
22	Runnymede, Swansea	Café	Coffee Shop	Sushi Restaurant	Pizza Place	Pub	Italian Restaurant	Yoga Studio	Latin American Restaurant	Bookstore	Smoothie Shop	0
23	St. James Town	Coffee Shop	Café	Restaurant	Cosmetics Shop	Cocktail Bar	Clothing Store	Beer Bar	Gym	Moroccan Restaurant	Gastropub	0
24	St. James Town, Cabbagetown	Coffee Shop	Pizza Place	Bakery	Pub	Italian Restaurant	Restaurant	Café	Chinese Restaurant	Gastropub	Liquor Store	0
25	Studio District	Coffee Shop	Brewery	Bakery	Gastropub	American Restaurant	Café	Seafood Restaurant	Stationery Store	Bookstore	Diner	0
26	Summerhill West, Rathnelly, South Hill, Forest...	Coffee Shop	Liquor Store	Bagel Shop	Pub	Restaurant	Light Rail Station	Fried Chicken Joint	Supermarket	Sushi Restaurant	Bank	0
27	The Annex, North Midtown, Yorkville	Sandwich Place	Café	Coffee Shop	Donut Shop	BBQ Joint	Liquor Store	Burger Joint	Martial Arts School	Indian Restaurant	Middle Eastern Restaurant	0
28	The Danforth West, Riverdale	Greek Restaurant	Coffee Shop	Italian Restaurant	Furniture / Home Store	Ice Cream Shop	Yoga Studio	Dessert Shop	Lounge	Bookstore	Spa	0
29	Toronto Dominion Centre, Design Exchange	Coffee Shop	Café	Hotel	Restaurant	Bakery	Seafood Restaurant	Italian Restaurant	Salad Place	Japanese Restaurant	Gastropub	0
30	University of Toronto, Harbord	Café	Bakery	Japanese Restaurant	Bookstore	Sandwich Place	Bar	Yoga Studio	College Arts Building	Beer Bar	Beer Store	0

From the cluster above we found that there a lot of food and drink venues.

Seeking For opportunity:

What we got from the data above ?

- There are a lot of food venues in the neighborhood which maybe there are a lot of people (or tourism) in the area.
- The area crowded with food and beverage venues so it is the red ocean area for restaurant business.

Check if data we get is reliable ?

Sometimes only source can't confirm that data is reliable so I have to find some reference to check it.

I found the article form <https://www.toronto.ca/business-economy/invest-in-toronto/strong-economy/>

There is paragraph in this article said that

“

*Toronto is **competitive** in almost every other major business sector from technology and life sciences to green energy; from fashion and design to **food and beverage**; from film and television production to music and digital media. Toronto's rich industrial diversity drives growth, innovation and cross-sectoral synergies and knowledge spillovers have spawned new leading-edge hybrid sectors including med-tech, green-tech and food-tech.*

“

From the paragraph it has confirmed that data set we used is reasonable.

How we can take advantage from this information ?

The answer is doing business to business (B2B) wholesale such as ingredient wholesale ,but which ingredient we suppose to make profit from ?

Let's look at the data .

	Frequency
Coffee Shop	2.326052
Café	1.523282
Restaurant	0.977786
Italian Restaurant	0.862107
Park	0.829142
Bakery	0.741535
Bar	0.703809
Sandwich Place	0.664338
Pizza Place	0.610235
Pub	0.518914
Breakfast Spot	0.478631
Gym	0.477323
Sushi Restaurant	0.476854
Japanese Restaurant	0.435633
Hotel	0.427662

Analyzing information and seeking opportunity :

The food in these venues have some ingredient in common which is **“Flour”** because of there a lot of

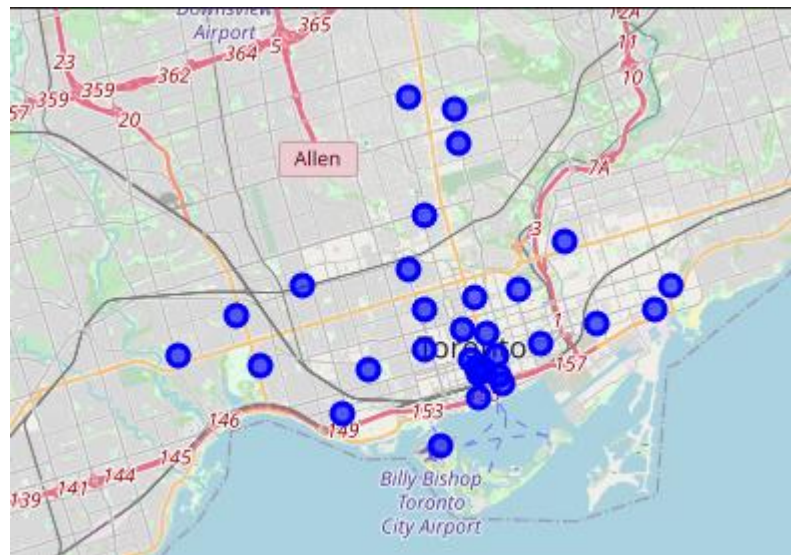
bakery , pizza place, sandwich place and even coffee shop (coffee shop need some bakery which mean they are our prospect's customer)

Other benefits if you doing flour wholesale business are :

1. Repeatable profit because of food's shelf - life.
2. Lot of demand so we don't need depend to much in on either one category of venues.

This is our prospect's neighborhood list and map :

0	Berczy Park
1	Brockton, Parkdale Village, Exhibition Place
2	CN Tower, King and Spadina, Railway Lands, Har...
3	Central Bay Street
4	Church and Wellesley
5	Commerce Court, Victoria Hotel
6	Davisville
7	Davisville North
8	Dufferin, Dovercourt Village
9	Enclave of M4L
10	Enclave of M5E
11	First Canadian Place, Underground city
12	Garden District, Ryerson
13	Harbourfront East, Union Station, Toronto Islands
14	High Park, The Junction South
15	India Bazaar, The Beaches West
16	Kensington Market, Chinatown, Grange Park
17	Little Portugal, Trinity
18	North Toronto West
19	Parkdale, Roncesvalles
20	Regent Park, Harbourfront
21	Richmond, Adelaide, King
22	Runnymede, Swansea
23	St. James Town
24	St. James Town, Cabbagetown
25	Studio District
26	Summerhill West, Rathnelly, South Hill, Forest...
27	The Annex, North Midtown, Yorkville
28	The Danforth West, Riverdale
29	Toronto Dominion Centre, Design Exchange
30	University of Toronto, Harbord



Conclusion and recommendation :

According to data set we used , If you want to do business in Toronto (in prospect list above) I recommend your business should be flour wholesale business which is can make repeatable profit and high demand . but if you don't want to do flour business , I still recommend you to do other ingredient wholesale or other B2B business but I don't recommend you to do restaurant business in the area because it has been already red ocean right now.