



---

# CAPSTONE PROJECT – THE BATTLE OF NEIGHBORHOODS

---

Applied Data Science Capstone



NOVEMBER 11, 2019

## **Introduction:**

After much anticipation from Canadians, Trader Joe's, an American-based chain of grocery stores, has finally decided to expand its operations into Canada. They would like to start by opening one store in Canada and are divided between opening a store in either one of Canada's top two populated cities – Toronto and Montreal.

In order to enable them to decide on what city to open a store in, Trader Joe's senior management has decided to analyze the characteristics of both cities and determine which city would be a great fit for their new store. Using the Foursquare location data, we will be assisting them to gather deep insights about both cities.

## **Data:**

The data that we will be using to gather information on both cities will mainly be Foursquare location data on Toronto and Montreal. More specifically, we will focus on the following data elements: buying habits, average income, population demographics (age group and gender), tax system, size of the city's trading area, population and population trends, total purchasing power and who has it, number and size of competition, quality and aggressiveness of competition. Using Foursquare location data, we will gather information on the buying trends in other grocery stores in both cities, so that we have a better idea of the purchasing power of each city.

In conjunction with Foursquare location data, we will also be using Google Trends data to enable us to make a more informed decision about what city Trader Joe's should choose.

Using data from both Google Trends and Foursquare location, we will analyze the trends spanning a five-year period, from July 2014 – July 2019.

## **Methodology:**

### **1. Locations**

For my exploratory data analysis, I started by picking a location in popular parts of Montreal and Toronto. For Montreal, I picked an apartment in one of the most populous areas in Montreal – Downtown Montreal. I thought this area would be great to focus my analysis for Montreal, because Trader Joe's would want to open a store in the part of the city that attracts a lot of

people, and thus a lot of potential customers for the grocery store. I do not think it would be logical to open the store in an area that does not attract a lot of traffic, hence the choice of city area. The location that I picked was a popular apartment in this part of town – Le Mille Neuf apartments.

For Toronto, I chose Downtown Toronto, which is considered to be one of the most popular residential neighborhoods for young professionals. Since young professionals make up the bulk of the Toronto population, I thought this would be a great factor when choosing an area in the city. For the location, I chose 1101 Bay apartments.

## **2. Approach of the Analysis**

Using Foursquare API with Python, I searched for grocery stores within 1000 meters of the specified locations for both cities above. I chose 1000 meters because this is a reasonable walking distance, in case some people wanted to walk to the grocery store, instead of driving there. This is particularly important because parking is an issue downtown, so it is likely that people living in this area would sometimes prefer to walk to the grocery store than drive there.

I believe it would be more beneficial to Trader's Joe to open their store in an area where they would not have a lot of competition, but not necessarily an area in the middle of nowhere. The perfect area would be one where a lot of young professionals live, and where there aren't so many similar grocery stores. For this reason, it is important that we know about how many similar stores are currently operating within the given radius. This was a major factor in our analysis, when considering whether to open the new grocery store in Montreal or Toronto.

## **Results:**

After implementing the analysis approach described above, I got the following results:

1. As shown in the screenshot below, there is only one grocery store that is within 1000 meters of Le Mille Neuf apartments, which is located in Downtown Montreal. This shows that there would not be so much competition for Trader's Joe if they open their store in Montreal, and they will still have access to the large population in the vicinity.

	name	categories	address	crossStreet	lat	lng	labeledLatLngs	distance	postalCode	cc	city	state	country	formattedAddress
0	Metro Avenue du Parc	Food Service	3575 Avenue Du Parc,Suite 5100	Les Galeries du Parc	45.510337	-73.575242	[[{"label": "display", "lat": 45.51033652253201...	677	H2X 3P9	CA	Montréal	QC	Canada	[3575 Avenue Du Parc,Suite 5100 (Les Galeries ...

2. We can infer from the screenshot below that there are three grocery stores within 1000 meters of 1101 Bay Apartments, which is the central location in Toronto that was identified in my approach described above. This shows that there will be a little more competition for Trader's Joe if they choose to open their store in Toronto.

	name	categories	address	lat	lng	labeledLatLngs	distance	cc	city	state	country	formattedAddress
0	Imported British Chocolate Confectionery & Gr...	Candy Store	653 Yonge St.	43.669049	-79.386572	[[{"label": "display", "lat": 43.66904922687384...	200	CA	Toronto	ON	Canada	[653 Yonge St., Toronto ON, Canada]
1	Milk and Grocery Mart	Convenience Store	2 Dundonald St	43.664816	-79.384449	[[{"label": "display", "lat": 43.6648159623078...	451	CA	Toronto	ON	Canada	[2 Dundonald St (Yonge), Toronto ON, Canada]
2	Paris Grocery	Convenience Store	Yonge St	43.676848	-79.389552	[[{"label": "display", "lat": 43.67684770418871...	1016	CA	Toronto	ON	Canada	[Yonge St (Crescent Rd), Toronto ON, Canada]

### Discussion:

The results above show that the Downtown part of Montreal, although highly populated, does not have many grocery stores that are within a short distance of the specified central location. This implies that there would be high chances of Trader's Joe attracting a lot of traffic to its store if it opens the store in Montreal, since there wouldn't be much competition to hinder traffic to the store.

Toronto, on the other hand, is seen to have at least three grocery stores that are within a short distance of the specified central location in Downtown Toronto. This implies that there would be more stores for Trader's Joe to compete with, thereby potentially reducing the amount of traffic to the store.

**Conclusion:**

Based on the results of the analysis, I would recommend that Trader's Joe opens its store in Montreal, specifically in Downtown Montreal. I believe there is a higher potential for Trader's Joe to get a lot more traffic in Montreal than in Toronto, because Downtown Toronto already has many grocery stores compared to Downtown Montreal. Furthermore, Downtown Montreal is a very accessible part of Montreal, where a lot of people go to. Thus, having the store there would attract a lot of traffic.