# Capstone Project - The battle of Neighborhood



**Introduction/Business Problem**

## **1. Background**

**Toronto**, city, capital of the province of [Ontario](https://www.britannica.com/place/Ontario-province), southeastern [Canada](https://www.britannica.com/place/Canada). It is the most populous city in Canada, a multicultural city, and the country’s financial and commercial center, with a current population of 6,139,000 in 2019.

Its location on the northwestern shore of [Lake Ontario](https://www.britannica.com/place/Lake-Ontario), which forms part of the border between Canada and the [United States](https://www.britannica.com/place/United-States), and its access to Atlantic shipping via the [St. Lawrence Seaway](https://www.britannica.com/place/Saint-Lawrence-River) and to major U.S. industrial centers via the [Great Lakes](https://www.britannica.com/place/Great-Lakes) have enabled Toronto to become an important international trading center. Moreover, the city is positioned on the edge of some of the best farmland in Canada, with a climate favorable to growing a wide range of crops, thereby making Toronto a [transportation](https://www.britannica.com/technology/transportation-technology), distribution, and manufacturing center.

Since the second half of the 20th century the city has grown phenomenally, from a rather sedate provincial town—“Toronto the Good”—to a lively, thriving, [metropolitan area](https://www.britannica.com/topic/metropolitan-area)

### **1.1** **Brief history about Toronto**

People have travelled through and inhabited the Toronto area, located on a broad sloping plateau interspersed with rivers, deep ravines, and urban forest, for more than 10,000 years. After the broadly disputed Toronto Purchase, when the Mississauga surrendered the area to the British Crown, the British established the town of **York** in 1793 and later designated it as the capital of Upper Canada. During the War of 1812, the town was the site of the Battle of York and suffered heavy damage by United States troops. **York** was renamed and incorporated in 1834, as the city of **Toronto**. It was designated as the capital of the province of Ontario in 1867 during Canadian Confederation.

### **Objective**

The aim of this report is to study and analyze the neighborhoods of Toronto city and group them into similar clusters and, to analyze those clusters to gather meaningful information. That information can be used to find out neighborhoods that are same as your current neighborhood or at least similar.

### **Target Audience**

This information provided by this report would be valuable for people who are interested in relocating to different part of the city and are looking to find new neighborhoods that are very similar to their existing neighborhood.

## **2. Problem Description**

Now let me explain the context of this Capstone project through a scenario. Say you live on the west side of the city of Toronto in Canada. You love your neighborhood, mainly because of all the great amenities and other types of venues that exist in the neighborhood, such as gourmet fast food joints, pharmacies, parks, graduate schools and so on. Now say you receive a job offer from a great company on the other side of the city with great career prospects. However, given the far distance from your current place you unfortunately must move if you decide to accept the offer.

Wouldn't it be great if you are able to determine neighborhoods on the other side of the city that are the same as your current neighborhood, and if not perhaps similar neighborhoods that are at least closer to your new job?

### **2.1 Data Description**

To consider the objective stated above, we can list the below data sources used for the analysis.

#### **a) Toronto Neighborhood Data**

The following Wikipedia page was scraped to pull out the necessary information: <https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M>

The information obtained i.e. the table of postal codes, borough and neighborhood was transformed into a pandas data frame for further analysis.

#### **b) Coordinate data for each Neighborhood in Toronto**

The following csv file was used to get the latitude and longitude for the Neighborhood <http://cocl.us/Geospatial_data>

**c) Foursquare data for locational information**

Use the following venue/user/explore data through foursquare data source.

https://api.foursquare.com/v2/venues/**search**?client\_id=**CLIENT\_ID**&client\_secret=**CLIENT\_SECRET**&ll=**LATITUDE**,**LONGITUDE**&v=**VERSION**&query=**QUERY**&radius=**RADIUS**&limit=**LIMIT**

<https://api.foursquare.com/v2/venues/VENUE_ID?client_id=CLIENT_ID&client_secret=CLIENT_SECRET&v=VERSION>

[https://api.foursquare.com/v2/venues/**VENUE\_ID**/tips?client\_id=**CLIENT\_ID**&client\_secret=**CLIENT\_SECRET**&v=**VERSION**&limit=**LIMIT**](https://api.foursquare.com/v2/venues/VENUE_ID/tips?client_id=CLIENT_ID&client_secret=CLIENT_SECRET&v=VERSION&limit=LIMIT)

[https://api.foursquare.com/v2/users/**USER\_ID**?client\_id=**CLIENT\_ID**&client\_secret=**CLIENT\_SECRET**&v=**VERSION**](https://api.foursquare.com/v2/users/USER_ID?client_id=CLIENT_ID&client_secret=CLIENT_SECRET&v=VERSION)

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