

The Battle of the Neighborhoods

(Finding Similar Neighborhoods between Different Cities)

1. Business Problem:

This notebook will try to find similar neighborhoods in two different cities based on the type of and relative number of venues and popular spots contained in the neighborhoods. Specifically, we will look at neighborhoods in two major cities; (Manhattan) New York, New York USA and Toronto, Ontario Canada.

This project would be of interest to people moving between the two cities who are looking to settle in similar areas. This project would also be of interest to companies looking to move headquarters or open up branch offices in areas that are similar in terms of the type of venues there to the ones they currently operate in.

2. Data:

In order to complete our project we will need the following data:

- Coordinate Data for the city centers of Manhattan and Toronto, available from **GeoPy Nominatim**
- Coordinate Data for the neighborhoods in Manhattan, available at this URL: https://cocl.us/new_york_dataset
- Neighborhoods in Toronto by postal code, available on **Wikipedia**: https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
- Coordinate Data for postal codes in Toronto, available at this URL: http://cocl.us/Geospatial_data
- Coordinate Data and Venue/spot type from **Foursquare API**

Using the Foursquare API data, we will classify the various neighborhoods of Manhattan based on the most common types of venues in that neighborhood. Then, we will do the same with the various neighborhoods of Toronto proper. Finally, we will compare the neighborhoods to determine which are 'closest' to one another by examining a matrix of the relative frequencies of each type of venue.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Marble Hill	40.876551	-73.91066	Arturo's	40.874412	-73.910271	Pizza Place
1	Marble Hill	40.876551	-73.91066	Bikram Yoga	40.876844	-73.906204	Yoga Studio
2	Marble Hill	40.876551	-73.91066	Tibbett Diner	40.880404	-73.908937	Diner
3	Marble Hill	40.876551	-73.91066	Starbucks	40.877531	-73.905582	Coffee Shop
4	Marble Hill	40.876551	-73.91066	Dunkin'	40.877136	-73.906666	Donut Shop

Fig 2.1: Sample Foursquare Data