# **Introduction**

Currently, you live in West Toronto and you really enjoy living there. Due to recent circumstances pertaining to the Coronavirus, you lost your previous job and have had to find another one. Fortunately, you received an offer this past week. However, you must accept or reject it by the end of this week. Unfortunately, you were offered a job in East Toronto. Due to distance, traffic, Subway System routes, and other variables impacting duration of travel to work, you cannot conveniently live in West Toronto while working in East Toronto.

Pre-accepting or rejecting the written job offer, you want to compare life in East Toronto – commerce, housing, and much more – to life in West Toronto. To compare the venues and commerce in both areas, I will construct a K-Means algorithm used to cluster similar neighborhoods throughout the city of Toronto. If East Toronto and West Toronto fall into the same clusters – with respect to the venues and commerce – then you will continue to look into other aforementioned variables (Example: Housing). Otherwise, you will decline the job offer.

# **Data**

A few sources were utilized when developing this algorithm. The first source was the following link -- <https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M>. A table with Toronto postal codes (starting with the letter “M”), as well as respective boroughs neighborhoods, was retrieved from this page. The second source was the following link – <https://cocl.us/Geospatial_data>. This link contains a data frame with coordinates (latitudes and longitudes) corresponding to each of the Toronto zip codes. The rest of the data was collected using the Foursquare API. Data collected using this API includes venue names, their respective coordinates, and their respective “categories” (Examples: Pizza Shop, Coffee Shop, Grocery Store).