

## 1. Introduction

### a. Scenario and Background

Toronto is an international centre of business, finance, arts, and culture, and is recognized as one of the most multicultural and cosmopolitan cities in the world. The number of immigrants has been increased for last couple of decades. This is very difficult to choose a place of stay and the place of work without visiting Canada. This project will help the immigrants as well as local people to find optimum location with all the facilities available nearby which matches with previous place of stay.

### b. Problem Statement

Finding a rental apartment in a good location in Toronto which has similar venues in Bangalore with reasonable cost. Let's quantify the necessities.

- The venues should be similar to the place I stay in Bangalore
- The rent should be between CAD 1500 and CAD 2200
- The number of bedrooms and bathroom should be 2
- There should be at least one Indian Restaurant nearby

### c. Target Audience

This project will help any person or family moving to any major city in the world. As we use Foursquare data and mapping techniques, this can be replicated for similar cases for which data is available. People reviewing this project can be included in this group. This is a good start for this data science project and great learning experience for me as well.

## 2. Data Collection and Exploration

### a. Data required

- [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M). The postal codes of Canada are available in the above link. The method web-scraping is used to collect the data from the webpage to csv using BeautifulSoup package in Python.
- [http://cocl.us/Geospatial\\_data](http://cocl.us/Geospatial_data) The link to a csv file that has the geographical coordinates of each postal code.
- <https://www.kaggle.com/rmenon1998/bangalore-neighborhoods/data#> This has Bangalore neighborhood data.
- <https://finkode.com/ka/bangalore.html> Pin code data
- <https://www.kaggle.com/rajacsp/toronto-apartment-price> Apartments available in Toronto with coordinates and price

### b. Usage of data

- i. Using Foursquare and geopy data find the current location in Bangalore neighborhood and top 10 venues nearby.
- ii. Plot the data in a map.
- iii. Map top 10 venues for all Toronto neighborhood and cluster in groups.
- iv. Find out the coordinates of the rental apartments using geopy data.
- v. Find out the location of the available apartments using apartment location and price data.
- vi. Find out Indian Restaurants nearby using Foursquare with search query = 'Indian'

- vii. Analyze the cluster groups that matches with the Bangalore location.
- viii. Finalize the place of stay by plotting all the data on a map.

#### c. Visualizations

Multiple maps to be created to visualize the locations accurately. The clusters, nearby venues, Indian Restaurants and rental apartments are marked in Toronto map. The packages like Folium, Matplotlib are used to plot data to understand and analyze data.