**Capstone Project - The Battle of Neighborhoods**

**Project Title: Capstone Project – Explore Indian restaurants in Toronto**

**Introduction:**

Toronto has an estimated population of just over 2.8 million in 2016, which makes it the 4th most populous city in North America and the most populous Great Lakes city. Toronto, which is located on Lake Ontario, is the most populous city in Canada and the provincial capital of Ontario.

**City Size and Population Density**

It is the most populous city in Canada and the largest urban and metro area, with a population density of 4,149.5 people per square kilometer (10,750/sq mi). The metro area of the city sprawls outward to a total surface area of 5,905.71 km2 (2,280.21 sq mi).

**Toronto Demographics**

According to the 2016 Census, the racial composition of Toronto was: White: 50.2% East Asian: 12.7% (10.8% Chinese, 1.4% Korean, 0.5% Japanese) South Asian: 12.3% Black: 8.5% Southeast Asian: 7.0% (5.1% Filipino) Latin American: 2.8% West Asian: 2.0% Arab: 1.1% Aborginal: 0.7% (0.5% First Nations, 0.2% Metis) Two or more races: 1.5% Other race: 1.3%

Given its diverse population, Toronto is home to many ethnic neighborhoods such as Little India, Greektown, Corso Italia, Chinatown and Little Jamaica.

Foreign-born people account for nearly half of the population of Toronto. This gives Toronto the second-highest percentage of foreign-born residents of all world cities after Miami. Unlike Miami, Toronto has no dominant culture or nationality, which also makes it one of the world's most diverse cities.

As of 2011 Toronto is the destination of over half of the immigrants coming from India to Canada, and India is the single largest source of immigrants in the Greater Toronto Area. As of 2016, there were 995,125 South Asian Canadians in the GTA.

With this various people in this city, people do have various cultural diversity and also the different type of food habit. People can fulfil their wishes of having their homely food as it has many restaurants over the city with different cuisines, such as Indian, Chinese etc.

In this capstone project we will explore the major part of the Toronto city with great Indian restaurants.

**Business Problem:**

This will be applicable for the entrepreneurs who would like to set up an Indian restaurant in the Toronto city. They need to consider many aspects before they go for their set up, such as getting the suitable location based on the other restaurants exist with the neighbourhoods and their ratings/likes. And also, they need to see the distribution of the Indian restaurants across the locality. Mainly the below questions from an entrepreneur point of view should be considered.

**Questions to answer from datasets:**

* What is best location in Toronto City for Indian Cuisine?
* Which areas have potential Indian Restaurant Market?
* Which all areas lack Indian Restaurants?
* Which is the best place to stay if I prefer Indian Cuisine?

**Technical Dependencies for Analysis:**

* We will import the required libraries for Python.
* Pandas and NumPy for handling data.
* Request module for using FourSquare API for getting the details about restaurants.
* geopy to get co-ordinates of City of Tornoto.
* folium to visualize the results on a map which will be easy for the entrepreneurs to see insights.

**Data:**

To accomplish our task of exploring Indian restaurants in Toronto city, we need the datasets which covers the below:

1. Toronto City data that contains list Boroughs, Neighborhoods along with their latitude and longitude.
   * Data Source: https://en.wikipedia.org/wiki/ List\_of\_postal\_codes\_of\_Canada:\_M
   * Get the Latitude and Longitude Data from: http://cocl.us/Geospatial\_data
   * This data set contains the required information of Canada. And we will use subset of this data set to explore various neighborhoods of Tornoto.
2. Indian restaurants in each neighborhood of Toronto city.
   * Data source: Foursquare API
   * Description: By using this API we will get all the venues in each neighborhood. We can filter these venues to get only Indian restaurants.

**Approach of the Study:**

* Collect the Toronto city data from [https://en.wikipedia.org/wiki/ List\_of\_postal\_codes\_of\_Canada:\_M](https://en.wikipedia.org/wiki/%20List_of_postal_codes_of_Canada:_M)
* Get the Latitude and Longitude Data from: <http://cocl.us/Geospatial_data>
* Filter the Data to populate only Toronto for which the analysis will be done
* Using FourSquare API we will find all venues for each neighborhood
* Filter out all venues that are Indian Restaurants
* Find ratings, tips and like count for each Indian Restaurants using FourSquare API.
* Using rating for each restaurant, we will sort that data.
* Visualize the Ranking of neighborhoods using folium library using python.