The Battle of Neighborhoods (Week 1): Business Proposal

Introduction and Background:

The objective of this project is to explore the best neighborhood in Toronto to open a Thai restaurant. This is based on Foursquare location data as well as available geospatial and Wikipedia data on various neighborhoods in Toronto. Although a lot of restaurants have permanently closed across Canada due to COVID-19 pandemic since last year [1], there could be opportunity to open new restaurants as soon as the pandemic subsides. Thai cuisine is the 3rd most popular ethnic cuisines in Canada behind Italian and Chinese ones, as indicated by Google Trends data [2]. Similarly, the choice of location as Toronto is partly based on the fact that the majority of Thai populations reside in the province of Ontario, and Toronto being the capital city of that province.

Toronto is one of the most densely populated and multicultural cities in North America. This creates a great opportunity for entrepreneurs to start or grow their business ventures, such as opening a new Thai restaurant. However, it will be competitive to open a restaurant in Toronto because there are already many Thai restaurants in the city. The main issues to consider are the frequency of other existing restaurants as well as safety and density of neighborhoods to determine the most suitable spot.

Business Problem:

Given the increasing popularity of Thai cuisine in Canada, entrepreneurs and stakeholders may be interested in opening a Thai restaurant in Toronto that would generate profit. The aim of this project is to find a "good" location for opening a Thai restaurant in Toronto. The primary task is to figure out and narrow down an area where Thai restaurant is not amongst the most common venues so as to weed out any potential competition. To accomplish this task, I'll analyze restaurant data in Toronto. Therefore, I'll attempt to solve the following business problems:

- Finding out areas where there are limited or lack of Thai restaurants
- Figuring out the most common venues in the area
- Deciding on the appropriate neighborhood to open that restaurant

Target Audience:

The key target audience of this project includes entrepreneurs, business owners or stakeholders who are interested in opening a new Thai Restaurant or develop their existing business further. The stakeholders or investors will benefit from the analysis in making better decisions and drawing insights from this project in finding the most suitable neighborhood. In addition, people interested in enjoying Thai cuisine in Toronto will find this convenient. Finally, data scientists who want to explore Toronto neighborhoods using machine learning techniques will find this project useful.

Data Description:

There are three main sources of data to be used in this project. They are:

a) Toronto Postal Codes, Borough, and Neighborhoods data collected from Wikipedia page [3], together with their corresponding latitudes and longitudes from Geospatial Coordinates data file [4].
b) Gathering the number of restaurants within the certain radius of each neighborhood and then filtering out Thai restaurants using Foursquare API.
c) Toronto crime data by each neighborhood [5].

How data will be used to solve the problem:

First, I'll scrape the neighborhood data from Wikipedia page to obtain the Postal Codes, Borough, and Neighborhoods of Toronto, clean and wrangle the data, and put it in a pandas data frame. This is followed by merging the latitudes and longitudes information with that data. Then using a Machine Learning technique called "K-means clustering", I'll segment the neighborhoods with similar clusters on the basis of each neighborhood data. In conjunction with that, I'll utilize Foursquare API to gather additional information about nearby venues and narrowing down the location of Thai restaurants in each neighborhood of Toronto. Furthermore, I'll create maps of Toronto based upon restaurant data using Folium that will provide the stakeholders with insights as to which neighborhoods have the best potential to open their restaurant.

References:

1. "10,000 restaurants have closed across Canada since the start of the pandemic". Accessed at: https://dailyhive.com/vancouver/restaurants-canada-jobs-loss-10000
2. "Top 10 Most Popular Ethnic Cuisines in Canada According to Google". Accessed at: https://www.chefspencil.com/top-10-most-popular-ethnic-cuisines-in-canada/
3. "List of postal codes of Canada: M". Accessed at: https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
4. https://cocl.us/Geospatial_data
5. "Neighbourhood Crime Rates 2020". Accessed at: https://data.torontopolice.on.ca/datasets/TorontoPS::neighbourhood-crime-rates-2020-1/about