# None Profit Organization Food Collection Centers in Eastern Toronto

## Introduction

A none profit organization is looking to setup its food collection centers in the eastern parts of Toronto city especially in Scarborough. The organization collects excessive food from restaurants to feed the less privileged population of the city. Often restaurant have excesses food that they are not able to sell and they cannot keep it for the next day. Instead of throwing the excessive food it can be donated to our none profit organization.

Our none profit organization, with limited, resources would like to identify areas in the city that have number of restaurants in close proximity. Currently, they are looking to setup 3-4 collection centers. The ideal places of these collection centers are where there are at least 20 or more restaurants within the radius of 1000 meters. Not every restaurant would have excessive food every night. The idea is to setup collection center in areas where there are at least 20 restaurants increases the possibility of collecting excess food every night.

## Data Description

In order to help our non-profit organization setup food collection centers, we will first need to determine the Eastern part of city of Toronto, especially Scarborough area. For this we will tap on to postal codes data for the city of Toronto that is available on Wikipedia. This data will then be used to find the exact coordinates for each postal code. We will utilize a CSV file that contains Toronto neighborhood coordinates information by postal codes. Location information is critical to determine number of restaurants within a 1000-meter radius in a specific neighborhood. The location data will be passed to Foursquare API that will return the desired output.  Our API query to Foursquare will only look for venues with restaurants category. The requirement is to identify possible neighborhoods with 20 or more restaurants.

# Methodology

In terms of data science this is a simple yet a very valuable project that will help our non-profit organization collect food with minimum resources. Python was our preferred software tool that was utilized along with some very handy libraries available. Some of the data that was needed to determine east of Toronto i.e. Scarborough had to be scrapped from Wikipedia. For this we made use of BeautifulSoup library that allowed us extract needed postal codes data. There are just few simple steps to conduct data analysis and draw results that are extremely beneficial.

## Data Analysis

Our business scenario demands factual information i.e. identification of neighborhoods in the eastern part of Toronto based on number of restaurants. One of he first data analysis we need to conduct is to look for all neighborhoods in Scarborough based on the postal codes data. This data is freely available from Wikipedia. Next is the location data that would help us the following:

- Determine the exact location of a Neighborhood
- Calculate number of restaurants within 1000 meters radius

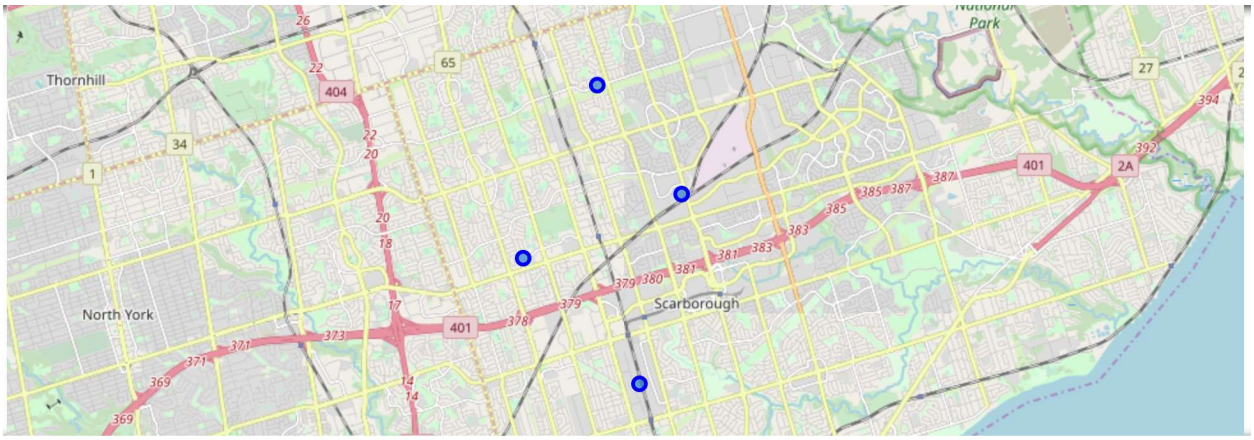
# Results

The needed results were just simple suggestions on 3-4 ideal locations (Neighborhoods) where our non-profit organization can setup its collection centers. Our final process made it easy to not only list the name of the neighborhoods with number of restaurants but also help visualized on the map.

Here are Jupyter Notebook screenshots:

```
23  Resturant found in  Dorset Park, Scarborough Town Centre, Wexford Heights
30  Resturant found in  Agincourt
22  Resturant found in  Clarks Corners, Sullivan, Tam O'Shanter
25  Resturant found in  Agincourt North, L'Amoreaux East, Milliken, Steeles East
        Borough   Latitude  Longitude  \
10  Scarborough  43.757410 -79.273304
12  Scarborough  43.794200 -79.262029
13  Scarborough  43.781638 -79.304302
14  Scarborough  43.815252 -79.284577

                                      Neighbourhood PostalCode
10  Dorset Park, Scarborough Town Centre, Wexford ...        M1P
12                                         Agincourt        M1S
13           Clarks Corners, Sullivan, Tam O'Shanter        M1T
14  Agincourt North, L'Amoreaux East, Milliken, St...        M1V
```



# Discussion

Although a simple business case to implement but this is extremely useful information that would allow the non-profit organization collect needed food supplies. While conducting the data analysis it was discovered that the restaurants can further be categorized into various types such as Fast Food, Chinese, Sushi, Salad Bars and many others. If required by our non-profit organization the data can be further analyzed to dig deeper into types of restaurants. This valuable information can also be utilized of commercial purposes to start a new business.

One recommendation that can be made is to filter out the fast-food restaurants. These restaurants usually cook food on demand and therefore may not have excessive food that they can donate to our non-profit organization. This is also important when there is a cluster of fast-food restaurants in one specific area.

## Conclusion

This is a great example of simple yet very valuable project. Often times small businesses and non-profit organizations are looking for suggestions that are based on facts. With this we can conclude that it is possible to use free data available in public domain that can be further refined to turn into useful decision-making information