

# Introduction

Toronto is the provincial capital of Ontario and the most populous city in Canada, with a population of about 3 million. The city is the anchor of the Golden Horseshoe, an urban agglomeration of 9,245,438 people surrounding the western end of Lake Ontario. Toronto is an international center of business, finance, arts, and culture, and is recognized as one of the most multicultural and cosmopolitan cities in the world.

The goal of this project will be to find the places for Food in the nearby surroundings of Toronto locating these places on the map and using the data by accessing the Foursquare.com and passing the city name and food to find all the places and plotting it on the map using python.

## Process

### A program For Photographers Event

#### Introduction

ABC is a company based in Toronto for organizing events, currently it works on a project to organize an event for 5 days for a group of photographers from all over the world. The company has to put a good program, including a hotel of residence, a hall for meetings, places of landscape to visit, stores for shopping, restaurants and cafes. So the company's purpose is to make a list of places of landscape in Toronto, including the nearest restaurants, cafes, and shopping stores for each place.

#### Data Description

The data used in this project is provided by Foursquare location data. The data are grouped by landscape area, and each area included the information about this area and all information about restaurants, cafes, and stores which in this area.

#### Table of contents

01- Import Libraries

02- Define Foursquare Credentials

03- Define the city and get its latitude & longitude

04- Search for Hotels & clean dataframe

05- Search for Parks & clean dataframe

06- Search for Restaurants & clean dataframe

07- Search for Cafeteria & clean dataframe

08- Search for Shopping Stores & clean dataframe

09- Generate map to visualize hotels, shopping stores and Cafeteria and how they cluster together

10- Generate map to visualize Park, Restaurant and Cafeteria and how they cluster together

After a brief introduction. Starting with the code.

Firstly, importing the libraries that would help us achieve different operations for different tasks.

Using the client id and secret that we get after opening an account on foursquare

## Import Libraries

```
In [1]: import requests # to handle requests
import pandas as pd # for data analysis
import numpy as np # to handle data in a vectorized manner

!conda install -c conda-forge geopy --yes
from geopy.geocoders import Nominatim # module to convert an address into latitude and longitude values

# Libraries for displaying images
from IPython.display import Image
from IPython.core.display import HTML

#transforming json file into a pandas dataframe Library
from pandas.io.json import json_normalize

!conda install -c conda-forge folium=0.5.0 --yes
import folium # plotting library

Fetching package metadata .....
Solving package specifications: .

# All requested packages already installed.
# packages in environment at /opt/conda/envs/DSX-Python35:
#
geopy                1.18.1                py_0    conda-forge
Fetching package metadata .....
Solving package specifications: .

# All requested packages already installed.
# packages in environment at /opt/conda/envs/DSX-Python35:
#
folium               0.5.0                py_0    conda-forge
```

## Define Foursquare Credentials

```
In [2]: CLIENT_ID = '4FQQJE2LMGVLERRRE2BOFR1LQQR5ZEHFLTD1WRAFKOFT4TI0' # your Foursquare ID
CLIENT_SECRET = 'RCSNR5TH31NQRG2QYCHK101HRMTUZHBB2TSJ1CJU5UOGRXRQ' # your Foursquare Secret
VERSION = '20180604'
LIMIT =30
print('Your credentials:')
print('Foursquare_ID: ' + CLIENT_ID)
print('Foursquare_Secret:' + CLIENT_SECRET)

Your credentials:
Foursquare_ID: 4FQQJE2LMGVLERRRE2BOFR1LQQR5ZEHFLTD1WRAFKOFT4TI0
Foursquare_Secret:RCSNR5TH31NQRG2QYCHK101HRMTUZHBB2TSJ1CJU5UOGRXRQ
```

Taking the geo locations for the city of Toronto and performing the basic cleaning of data operations.

### Define the city and get its latitude & longitude

```
In [3]: # define the city and get its Latitude & Longitude
city = 'Toronto'
geolocator = Nominatim(user_agent="foursquare_agent")
location = geolocator.geocode(city)
latitude = location.latitude
longitude = location.longitude
print(latitude, longitude)
```

43.653963 -79.387207

### Search for Hotels

```
In [4]: # search for hotels
search_query = 'Hotel'
radius = 500

# Define the corresponding URL
url = 'https://api.foursquare.com/v2/venues/search?client_id={}&client_secret={}&ll={},{&v={}&query={}&radius={}&limit={}'\
.format(CLIENT_ID, CLIENT_SECRET, latitude, longitude, VERSION, search_query, radius, LIMIT)
url
```

```
Out[4]: 'https://api.foursquare.com/v2/venues/search?client_id=4FQQJE2LMGVLERRRE2BOFR1LQQR5ZEHLTD1WRAFKOFT4TI0&client_secret=RCSNR5TH31NQRG2QYCHK101HRMTUZHBB2TSJ1CJU5UOGRXRQ&ll=43.653963,-79.387207&v=20180604&query=Hotel&radius=500&limit=30'
```

```
In [5]: # Send the GET Request and examine the results
results = requests.get(url).json()
#results
```

```
In [6]: # assign relevant part of JSON to venues
venues = results['response']['venues']

# transform venues into a dataframe
dataframe = json_normalize(venues)
dataframe.head()
```

```
Out[6]:
```

	categories	hasPerk	id	location.address	location.cc	location.city	location.country	location
0	{'name': 'Hotel', 'primary': True, 'icon': {'...}}	False	4ab2d511f964a5209b6c20e3	123 Queen Street West	CA	Toronto	Canada	at York S
1	{'name': 'Jazz Club', 'primary': True, 'icon': {'...}}	False	4b68aed1f964a520de862be3	194 Queen St W	CA	Toronto	Canada	Queen &

After repeating the same for different categories it can be clustered into a map.

```

14 popup=label,
15 color='green',
16 fill = True,
17 fill_color='green',
18 fill_opacity=0.7,
19 parse_html=False).add_to(food_map)
20
21 food_map

```

ut[60]:

