

Battle of Neighborhoods : Taste of Morocco

1. Introduction

1.1 Description and Background

Canada is a historical land of immigration, and this cultural mesh created a very wide and rich display of different cultures, colors and tastes. At each corner people can find a variety of ethinic cuisine restaurants and shops, some more widely popular than others.

As many type of cuisines already are famous (italian, american) or many that benefits from a booming interest (asian, japanese) ther are yet continents that are timily trying to make their food get some keen interest by the general public.

African food is still not as popular in the public panel and is yet to show it's full potential, bringing unexplored flavours to the city of Toronto.

Morocco is a historical melting pot that combines influences from plethora of cultures and ethnities : berbers, arabs, sub saharians, phenicians, jews, romans...

And this richness can be felt into its very traditional but exquisite cuisine but unfortunately not as well known.

The goal of this project would be to open a **restaurant chain of moroccan themed food with some african twist**. The simultaneous presence of the stores would have a great impact for advertising moroccan food across the city.

2. Data

2.1 Description of the Data

The data to use would consist in boroughs and neighbourhoods of the city of **Toronto** famous for their restaurant and ethnic food concentration. Spots that are well known by foodies and that already holds a customer basis.

The data should also pinpoint areas with good potential that is free from fierce concurrence.

The source of data would be a combination of **Wikipedia** boroughs list with **Foursquare API** data of Toronto Venues.

The classification should be made regarding the ethnical type of food served and be analyzed regarding similar type of foods.

In [1]:

```
from IPython.display import Image
Image(filename='venues_type.png')
```

Out [1]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
4	Regent Park, Harbourfront	43.654260	-79.360636	Impact Kitchen	43.656369	-79.356980	Restaurant
22	Regent Park, Harbourfront	43.654260	-79.360636	Cluny Bistro & Boulangerie	43.656565	-79.357843	French Restaurant
24	Regent Park, Harbourfront	43.654260	-79.360636	El Catin	43.656801	-79.356920	Mexican Restaurant
42	Regent Park, Harbourfront	43.654260	-79.360636	Flame Shack	43.656844	-79.356917	Restaurant
46	Queen's Park, Ontario Provincial Government	43.662301	-79.389494	Nando's	43.661726	-79.389391	Portuguese Restaurant
—	—	—	—	—	—	—	—
1603	Church and Wellesley	43.665860	-79.383160	Kikoni Takaya	43.664181	-79.380258	Japanese Restaurant
1612	Church and Wellesley	43.665860	-79.383160	Asahi	43.664415	-79.378235	Fast Food Restaurant
1613	Business reply mall Processing Centre, South C.	43.665860	-79.383160	Asahi Sushi	43.668974	-79.382943	Sush Restaurant
1623	Business reply mall Processing Centre, South C.	43.662744	-79.321558	Chick-n-Joy	43.665181	-79.321403	Fast Food Restaurant
1624	Business reply mall Processing Centre, South C.	43.662744	-79.321558	The Green Wood	43.664728	-79.321417	Restaurant

2.2 Data Extraction : Toronto Boroughs from Wikipedia

We are going to extract all the **Toronto Boroughs** name and conform them with their respective coordinate data to generate a Dataframe basis

Scraping the data from Wikipedia

In [2]:

```
import requests

url = 'https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:M'
response = requests.get(url)
response

from bs4 import BeautifulSoup

soup = BeautifulSoup(response.text, 'html.parser')
type(soup)

result = soup.find("table", class_="wikitable sortable")
```

Out [2]:

	Postal Code	Borough	Neighbourhood
0	MSA	North York	Parkwoods
1	M4A	North York	Victoria Village
2	MSA	Downtown Toronto	Regent Park, Harbourfront
3	MSA	North York	Lawrence Manor, Lawrence Heights
4	MTA	Downtown Toronto	Queen's Park, Ontario Provincial Government

2.3 Data Extraction : Combining the Boroughs with their geospatial coordinates

Importing the geospatial coordinates

In [4]:

```
geo = pd.read_csv('Geospatial_Coordinates.csv')
```

Out [4]:

	Postal Code	Latitude	Longitude
0	MTB	43.806866	-79.194353
1	M1C	43.784535	-79.160497
2	M1E	43.783573	-79.188711
3	M1G	43.770992	-79.216917
4	M1H	43.773136	-79.239476

In [5]:

```
geo.head()
```

Out [5]:

	Postal Code	Latitude	Longitude
0	MSA	Downtown Toronto	Regent Park, Harbourfront
1	MSA	North York	Lawrence Manor, Lawrence Heights
2	MSA	North York	Lawrence Manor, Lawrence Heights
3	MTA	Downtown Toronto	Queen's Park, Ontario Provincial Government

2.4 Data Extraction : Coupling the Tronto boroughs with Foursquare API data

In [8]:

```
CLIENT_ID = 'PGS6X80H85W0K1JNP47E1XTPFW431RUV03WB0YKEA02TUUD' # your Foursquare ID
CLIENT_SECRET = 'XKPJ21QHKP83AZ1RP2XRVVL8GSDRG0J1IK04CJXRTGBJEVUS' # your Foursquare Secret
VERSION = '20180605' # Foursquare API version

print('Your credentials:')
print('CLIENT_ID: ' + CLIENT_ID)
print('CLIENT_SECRET: ' + CLIENT_SECRET)
```

Out [8]:

```
Your credentials:
CLIENT_ID: PGS6X80H85W0K1JNP47E1XTPFW431RUV03WB0YKEA02TUUD
CLIENT_SECRET:XKPJ21QHKP83AZ1RP2XRVVL8GSDRG0J1IK04CJXRTGBJEVUS
```

In [9]:

```
# defining radius and limit of venues to get
radius=500
LIMIT=100

def getNearbyVenues(names, latitudes, longitudes, radius=500):

    venues_list=[]
    for name, lat, lng in zip(names, latitudes, longitudes):
        print(name)

        # create the API request URL
        url = 'https://api.foursquare.com/v2/venues/explore?client_id={}&client_secret={}&v={}&ll={},
        ({&radius={}&limit={}&format={
            CLIENT_ID,
            CLIENT_SECRET,
            VERSION,
            lat,
            lng,
            radius,
            LIMIT})

        # make the GET request
        results = requests.get(url).json()[\"response\"][\"groups\"][0][\"items\"]

        # return only relevant information for each nearby venue
        venues_list.append([(
            name,
            lat,
            lng,
            v['venue']['name'],
            v['venue']['location']['lat'],
            v['venue']['location']['lng'],
            v['venue']['categories'][0][\"name\"] for v in results])

        nearby_venues = pd.DataFrame([item for venue_list in venues_list for item in venue_list])
        nearby_venues.columns = ['Neighborhood',
                                'Neighborhood Latitude',
                                'Neighborhood Longitude',
                                'Venue',
                                'Venue Latitude',
                                'Venue Longitude',
                                'Venue Category']

        return (nearby_venues)
```

Out [9]:

	Postal Code	Borough	Neighborhood	Latitude	Longitude
2	MSA	Downtown Toronto	Regent Park, Harbourfront	43.662301	-79.360636
4	MTA	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494
9	MSB	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937
15	M5C	Downtown Toronto	St. James Town	43.651494	-79.375418
19	M4E	East Toronto	The Beaches	43.676357	-79.293031

In [10]:

```
toronto_venues = getNearbyVenues(names=toronto_df['Neighborhood'], latitudes=toronto_df['Latitude'], longitudes=toronto_df['Longitude'])

Regent Park, Harbourfront
Queen's Park, Ontario Provincial Government
Garden District, Ryerson
St. James Town
The Beaches
Bercy Park
Central Bay Street
Christie
Richmond, Adelaide, King
Dufferin, Dovercourt Village
Harbourfront East, Union Station, Toronto Islands
Little Portugal, Trinity
The Danforth West, Riverside
Toronto Dominion Centre, Design Exchange
Brookton, Parkdale Village, Exhibition Place
India Bazaar, The Beaches West
Commerce Court, Victoria Hotel
Studio District
Lawrence Park
Rosedale
Davisville
University of Toronto, Harbord
Runnymede, Swansea
Moore Park, Summichill East
Kensington Market, Chintatcom, Grange Park
Summerhill West, Ratchnelly, South Hill, Forest Hill SE, Deer Park
CN Tower, King and Spadina, Railway Lands, Harbourfront West, Bathurst Quay, South Niagara, Island ai
Rosedale
Stn A B Boxes
St. James Town, Cabbagetown
First Canadian Place, Underground city
Church and Wellesley
Business reply mall Processing Centre, South Central Letter Processing Plant Toronto
```

Out [10]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Regent Park, Harbourfront	43.65426	-79.360636	Roselle Desserts	43.653447	-79.362017	Bakery
1	Regent Park, Harbourfront	43.65426	-79.360636	Tandem Coffee	43.653569	-79.361809	Coffee Shop
2	Regent Park, Harbourfront	43.65426	-79.360636	Cooper Koo Family YMCA	43.653249	-79.356008	Distribution Center
3	Regent Park, Harbourfront	43.65426	-79.360636	Body Blitz Spa East	43.654735	-79.356874	Spa
4	Regent Park, Harbourfront	43.65426	-79.360636	Impact Kitchen	43.656369	-79.356980	Restaurant
5	Regent Park, Harbourfront	43.65426	-79.360636	Corktown Common	43.656618	-79.356211	Park
6	Regent Park, Harbourfront	43.65426	-79.360636	Dominion Pub and Kikoni	43.656919	-79.356967	Pub
7	Regent Park, Harbourfront	43.65426	-79.360636	Morning Glory Cafe	43.653947	-79.361149	Breakfast Spot
8	Regent Park, Harbourfront	43.65426	-79.360636	The Distillery Historic District	43.650244	-79.359323	Historic Site
9	Regent Park, Harbourfront	43.65426	-79.360636	The Extension Room	43.653313	-79.359725	Gym / Fitness Center

!!! Picking data !!!

(Picking data in case of Api limit reach or connection problems)

In [12]:

```
import pickle
```

Out [12]:

```
pickle_out = open('Foursquare_toronto_venues.pickle', 'wb')
pickle.dump(toronto_venues, pickle_out)
pickle_out.close()

print('pickled')
pickled
```

3. Methodology

3.1 Isolating the different restaurant types

In [14]:

```
venue_categories = toronto_venues.groupby('Venue Category').count()
venue_categories
```

Out [14]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude
Venue Category						
Airport	1	1	1	1	1	1
Airport Food Court	1	1	1	1	1	1
Airport Gate	1	1	1	1	1	1
Airport Lounge	2	2	2	2	2	2
Airport Service	3	3	3	3	3	3
—	—	—	—	—	—	—
Vietnamese Restaurant	7	7	7	7	7	7
Wine Bar	10	10	10	10	10	10
Wine Shop	2	2	2	2	2	2
Women's Store	1	1	1	1	1	1
Yoga Studio	13	13	13	13	13	13

234 rows × 6 columns

In [15]:

```
restaurant_type = []
for i in venue_categories.index:
    if 'Restaurant' in i:
        print(i)
        restaurant_type.append(i)
```

Out [15]:

American Restaurant
Asian Restaurant
Belgian Restaurant
Brazilian Restaurant
Cajun / Creole Restaurant
Caribbean Restaurant
Chinese Restaurant
Colombian Restaurant
Comfort Food Restaurant
Cuban Restaurant
Dim Sum Restaurant
Doner Restaurant
Dumpling Restaurant
Eastern European Restaurant
Ethiopian Restaurant
Falafel Restaurant
Fast Food Restaurant
Filipino Restaurant
French Restaurant
German Restaurant
Gluten-free Restaurant
Greek Restaurant
Indian Restaurant
Italian Restaurant
Japanese Restaurant
Korean Restaurant
Latin American Restaurant
Malay Restaurant
Mediterranean Restaurant
Mexican Restaurant
Middle Eastern Restaurant
Modern European Restaurant
Molecular Gastronomy Restaurant
Moroccan Restaurant
New American Restaurant
Persian Restaurant
Portuguese Restaurant
Ramen Restaurant
Restaurant
Seafood Restaurant
Sushi Restaurant
Taiwanese Restaurant
Thai Restaurant
Theme Restaurant
Vegetarian / Vegan Restaurant
Vietnamese Restaurant

In [16]:

```
restaurant_type_list = []
for i, row_i in toronto_venues.iterrows():
    print(row_i['Venue Category'])
    if row_i['Venue Category'] in restaurant_type:
        restaurant_type_list.append(row_i)
```

Out [16]:

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Regent Park, Harbourfront	43.654260	-79.360636	Impact Kitchen	43.656369	-79.356980	Restaurant
Regent Park, Harbourfront	43.654260	-79.360636	Cluny Bistro & Boulangerie	43.656565	-79.357843	French Restaurant
Regent Park, Harbourfront	43.654260	-79.360636	El Catin	43.656801	-79.356920	Mexican Restaurant
Regent Park, Harbourfront	43.654260	-79.360636	Flame Shack	43.656844	-79.356917	Restaurant
Queen's Park, Ontario Provincial Government	43.662301	-79.389494	Nando's	43.661726	-79.389391	Portuguese Restaurant
Church and Wellesley	43.665860	-79.383160	Kikoni Takaya	43.664181	-79.380258	Japanese Restaurant
Church and Wellesley	43.665860	-79.383160	Asahi	43.664415	-79.378235	Fast Food Restaurant
Business reply mall Processing Centre, South C.	43.665860	-79.383160	Asahi Sushi	43.668974	-79.382943	Sush Restaurant
Business reply mall Processing Centre, South C.	43.662744	-79.321558	Chick-n-Joy	43.665181	-79.321403	Fast Food Restaurant
Business reply mall Processing Centre, South C.	43.662744	-79.321558	The Green Wood	43.664728	-79.321417	Restaurant

restaurant_type=1	Regent Park, Harbourfront	43.6543	-79.3877
Neighborhood Latitude		43.6543	
Neighborhood Longitude		-79.3877	
Venue	Impact Kitchen	43.6543	-79.3877
Venue Latitude		43.6543	
Venue Longitude		-79.3877	
Venue Category	Restaurant		
Name: 22, dtype: object,			
Neighborhood	Regent Park, Harbourfront	43.6543	-79.3877
Neighborhood Latitude		43.6543	
Neighborhood Longitude		-79.3877	
Venue	Cluny Bistro & Boulangerie	43.6506	-79.3877
Venue Latitude		43.6506	
Venue Longitude		-79.3877	
Venue Category	French Restaurant		
Name: 23, dtype: object,			
Neighborhood	Regent Park, Harbourfront	43.6543	-79.3877
Neighborhood Latitude		43.6543	
Neighborhood Longitude		-79.3877	
Venue	Flame Shack	43.6506	-79.3877
Venue Latitude		43.6506	
Venue Longitude		-79.3877	
Venue Category	Restaurant		
Name: 43, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	Nando's	43.6617	-79.3895
Venue Latitude		43.6617	
Venue Longitude		-79.3895	
Venue Category	Portuguese Restaurant		
Name: 50, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	Mercato	43.6604	-79.3895
Venue Latitude		43.6604	
Venue Longitude		-79.3895	
Venue Category	Italian Restaurant		
Name: 51, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	Tokyo Grill	43.6592	-79.387
Venue Latitude		43.6592	
Venue Longitude		-79.387	
Venue Category	Sushi Restaurant		
Name: 54, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	Tabriz Persian Cookhouse	43.6653	-79.3895
Venue Latitude		43.6653	
Venue Longitude		-79.3895	
Venue Category	Persian Restaurant		
Name: 55, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	Como En Casa	43.6652	-79.3895
Venue Latitude		43.6652	
Venue Longitude		-79.3895	
Venue Category	Mexican Restaurant		
Name: 61, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	Tokyo Grill	43.6651	-79.3895
Venue Latitude		43.6651	
Venue Longitude		-79.3895	
Venue Category	Japanese Restaurant		
Name: 63, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	Crown Princess Fine Dining 御膳名菜	43.6665	-79.3895
Venue Latitude		43.6665	
Venue Longitude		-79.3895	
Venue Category	Chinese Restaurant		
Name: 67, dtype: object,			
Neighborhood	Queen's Park, Ontario Provincial Government	43.6623	-79.3895
Neighborhood Latitude		43.6623	
Neighborhood Longitude		-79.3895	
Venue	The Green Beet Cafe	43.6621	-79.3895
Venue Latitude		43.6621	
Venue Longitude		-79.3895	
Venue Category	Vegetarian / Vegan Restaurant		
Name: 81, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Salad King	43.6572	-79.3789
Venue Latitude		43.6572	
Venue Longitude		-79.3789	
Venue Category	Thai Restaurant		
Name: 96, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Hokkaido Ramen Santouka 北海道ラーメン山手区	43.6572	-79.3789
Venue Latitude		43.6572	
Venue Longitude		-79.3789	
Venue Category	Ramen Restaurant		
Name: 100, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Spring House	43.6568	-79.3789
Venue Latitude		43.6568	
Venue Longitude		-79.3789	
Venue Category	Sushi Restaurant		
Name: 109, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	JOEY Eaton Centre	43.6561	-79.3789
Venue Latitude		43.6561	
Venue Longitude		-79.3789	
Venue Category	New American Restaurant		
Name: 104, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Kinka Izakaya Original	43.6561	-79.3789
Venue Latitude		43.6561	
Venue Longitude		-79.3789	
Venue Category	Japanese Restaurant		
Name: 106, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Chipotle Mexican Grill	43.6569	-79.3789
Venue Latitude		43.6569	
Venue Longitude		-79.3789	
Venue Category	Mexican Restaurant		
Name: 109, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Crepe Delicious	43.6545	-79.3789
Venue Latitude		43.6545	
Venue Longitude		-79.3789	
Venue Category	Fast Food Restaurant		
Name: 111, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	The Elm Tree Restaurant	43.6572	-79.3789
Venue Latitude		43.6572	
Venue Longitude		-79.3789	
Venue Category	Modern European Restaurant		
Name: 116, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Kabul Express	43.6567	-79.3789
Venue Latitude		43.6567	
Venue Longitude		-79.3789	
Venue Category	Middle Eastern Restaurant		
Name: 118, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Paramount Fine Foods	43.6555	-79.3789
Venue Latitude		43.6555	
Venue Longitude		-79.3789	
Venue Category	Middle Eastern Restaurant		
Name: 121, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Kinton Ramen	43.6566	-79.3789
Venue Latitude		43.6566	
Venue Longitude		-79.3789	
Venue Category	Ramen Restaurant		
Name: 123, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Red Lobster	43.6563	-79.3789
Venue Latitude		43.6563	
Venue Longitude		-79.3789	
Venue Category	Seafood Restaurant		
Name: 127, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Scaddabush Italian Kitchen & Bar	43.6564	-79.3789
Venue Latitude		43.6564	
Venue Longitude		-79.3789	
Venue Category	Italian Restaurant		
Name: 128, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Trattoria 18	43.6545	-79.3789
Venue Latitude		43.6545	
Venue Longitude		-79.3789	
Venue Category	Italian Restaurant		
Name: 136, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Jack Astor's Bar & Grill	43.6566	-79.3789
Venue Latitude		43.6566	
Venue Longitude		-79.3789	
Venue Category	Restaurant		
Name: 138, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	GB Hand-Pulled Noodles	43.6564	-79.3789
Venue Latitude		43.6564	
Venue Longitude		-79.3789	
Venue Category	Chinese Restaurant		
Name: 140, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Japanese Restaurant	43.6575	-79.3842
Venue Latitude		43.6575	
Venue Longitude		-79.3842	
Venue Category	Japanese Restaurant		
Name: 141, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Ethiopian	43.6565	-79.3771
Venue Latitude		43.6565	
Venue Longitude		-79.3771	
Venue Category	Ethiopian Restaurant		
Name: 144, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Bourbon St. Grill	43.6551	-79.3808
Venue Latitude		43.6551	
Venue Longitude		-79.3808	
Venue Category	Fast Food Restaurant		
Name: 146, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Fast Food Restaurant	43.6559	-79.3789
Venue Latitude		43.6559	
Venue Longitude		-79.3789	
Venue Category	Japanese Restaurant		
Name: 166, dtype: object,			
Neighborhood	Garden District, Ryerson	43.6572	-79.3789
Neighborhood Latitude		43.6572	
Neighborhood Longitude		-79.3789	
Venue	Pine Asian Bowl	43.6554	-79.3789
Venue Latitude		43.6554	
Venue Longitude		-79.3789	
Venue Category	Vietnamese Restaurant		
Name: 175, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Gyu-Kaku Japanese BBQ	43.6514	-79.3754
Venue Latitude		43.6514	
Venue Longitude		-79.3754	
Venue Category	Japanese Restaurant		
Name: 182, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Terroni	43.6509	-79.3754
Venue Latitude		43.6509	
Venue Longitude		-79.3754	
Venue Category	Italian Restaurant		
Name: 184, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	GEORGE Restaurant	43.6523	-79.3744
Venue Latitude		43.6523	
Venue Longitude		-79.3744	
Venue Category	Restaurant		
Name: 187, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Myat's Cafe	43.6525	-79.3727
Venue Latitude		43.6525	
Venue Longitude		-79.3727	
Venue Category	Middle Eastern Restaurant		
Name: 190, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Richmond Station	43.6516	-79.3745
Venue Latitude		43.6516	
Venue Longitude		-79.3745	
Venue Category	American Restaurant		
Name: 195, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Sukhothai	43.6485	-79.3745
Venue Latitude		43.6485	
Venue Longitude		-79.3745	
Venue Category	Thai Restaurant		
Name: 202, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	The Chase	43.6514	-79.3745
Venue Latitude		43.6514	
Venue Longitude		-79.3745	
Venue Category	New American Restaurant		
Name: 203, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Fresh On Front	43.6478	-79.3754
Venue Latitude		43.6478	
Venue Longitude		-79.3754	
Venue Category	Vegetarian / Vegan Restaurant		
Name: 210, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Market Street Catch	43.6485	-79.3718
Venue Latitude		43.6485	
Venue Longitude		-79.3718	
Venue Category	Seafood Restaurant		
Name: 213, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Buster's Sea Cove	43.6485	-79.3718
Venue Latitude		43.6485	
Venue Longitude		-79.3718	
Venue Category	Seafood Restaurant		
Name: 226, dtype: object,			
Neighborhood	St. James Town	43.6515	-79.3754
Neighborhood Latitude		43.6515	
Neighborhood Longitude		-79.3754	
Venue	Schnitzel Queen	43.6542	-79.

Venue	Latitude	43.6491
Venue	Longitude	-79.3828
Venue	Category	Thai Restaurant
Name: 473, dtype: object,		
Neighborhood	Richmond, Adelaide, King	
Neighborhood Latitude	43.6500	
Neighborhood Longitude	-79.3846	
Venue	Latitude	43.6500
Venue	Longitude	-79.3813
Venue	Category	Restaurant
Name: 477, dtype: object,		
Neighborhood	Richmond, Adelaide, King	
Neighborhood Latitude	43.6506	
Neighborhood Longitude	-79.3846	
Venue	Latitude	43.6517
Venue	Longitude	-79.3792
Venue	Category	Latin American Restaurant
Name: 487, dtype: object,		
Neighborhood	Richmond, Adelaide, King	
Neighborhood Latitude	43.6500	
Neighborhood Longitude	-79.3846	
Venue	Latitude	43.6491
Venue	Longitude	-79.3846
Venue	Category	Thai Restaurant
Name: 491, dtype: object,		
Neighborhood	Richmond, Adelaide, King	
Neighborhood Latitude	43.6506	
Neighborhood Longitude	-79.3846	
Venue	Latitude	43.6492
Venue	Longitude	-79.3893
Venue	Category	Modern European Restaurant
Name: 495, dtype: object,		
Neighborhood	Richmond, Adelaide, King	
Neighborhood Latitude	43.6506	
Neighborhood Longitude	-79.3846	
Venue	Latitude	43.6462
Venue	Longitude	-79.3831
Venue	Category	Restaurant
Name: 500, dtype: object,		
Neighborhood	Dufferin, Dovercourt Village	
Neighborhood Latitude	-79.4423	
Neighborhood Longitude	43.6495	
Venue	Latitude	43.6495
Venue	Longitude	-79.4423
Venue	Category	Middle Eastern Restaurant
Name: 508, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6424
Venue	Longitude	-79.3814
Venue	Category	New American Restaurant
Name: 516, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6414
Venue	Longitude	-79.3818
Venue	Category	Japanese Restaurant
Name: 542, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6439
Venue	Longitude	-79.3807
Venue	Category	Chinese Restaurant
Name: 553, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6426
Venue	Longitude	-79.3833
Venue	Category	Italian Restaurant
Name: 556, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6407
Venue	Longitude	-79.3834
Venue	Category	Restaurant
Name: 560, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6451
Venue	Longitude	-79.3818
Venue	Category	Gonoe Sushi Japanese Restaurant
Name: 566, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6412
Venue	Longitude	-79.3781
Venue	Category	Vegetarian / Vegan Restaurant
Name: 585, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6426
Venue	Longitude	-79.3818
Venue	Category	Seafood Restaurant
Name: 588, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6451
Venue	Longitude	-79.3824
Venue	Category	Italian Restaurant
Name: 592, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6435
Venue	Longitude	-79.3818
Venue	Category	Sushi Shop
Name: 593, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6435
Venue	Longitude	-79.3818
Venue	Category	Restaurant
Name: 602, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6435
Venue	Longitude	-79.3818
Venue	Category	Restaurant
Name: 609, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6435
Venue	Longitude	-79.3818
Venue	Category	Indian Restaurant
Name: 612, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6435
Venue	Longitude	-79.3818
Venue	Category	Indian Restaurant
Name: 619, dtype: object,		
Neighborhood	Harbourfront East, Union Station, Toronto Islands	
Neighborhood Latitude	43.6408	
Neighborhood Longitude	-79.3818	
Venue	Latitude	43.6435
Venue	Longitude	-79.3818
Venue	Category	Indian Restaurant
Name: 623, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6479
Venue	Longitude	-79.4205
Venue	Category	Asian Restaurant
Name: 626, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6462
Venue	Longitude	-79.4196
Venue	Category	Korean Restaurant
Name: 628, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6459
Venue	Longitude	-79.4197
Venue	Category	Greek Restaurant
Name: 629, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6462
Venue	Longitude	-79.4197
Venue	Category	Cuban Restaurant
Name: 631, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6459
Venue	Longitude	-79.4195
Venue	Category	New American Restaurant
Name: 632, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6459
Venue	Longitude	-79.4197
Venue	Category	Pho Rua Vang (Golden Turtle)
Name: 636, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6485
Venue	Longitude	-79.4205
Venue	Category	Japanese Restaurant
Name: 639, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6479
Venue	Longitude	-79.4197
Venue	Category	La Banane
Name: 643, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4205	
Venue	Latitude	43.6462
Venue	Longitude	-79.4205
Venue	Category	French Restaurant
Name: 645, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6479
Venue	Longitude	-79.4197
Venue	Category	Scos
Name: 646, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6494
Venue	Longitude	-79.4216
Venue	Category	Asian Restaurant
Name: 646, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6459
Venue	Longitude	-79.4197
Venue	Category	Pho Tien Thanh
Name: 647, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6479
Venue	Longitude	-79.4228
Venue	Category	Asian Restaurant
Name: 648, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6494
Venue	Longitude	-79.4223
Venue	Category	Italian Restaurant
Name: 650, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6493
Venue	Longitude	-79.424
Venue	Category	Vegetarian / Vegan Restaurant
Name: 652, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6479
Venue	Longitude	-79.4185
Venue	Category	Restaurant
Name: 653, dtype: object,		
Neighborhood	Little Portugal, Trinity	
Neighborhood Latitude	43.6479	
Neighborhood Longitude	-79.4197	
Venue	Latitude	43.6495
Venue	Longitude	-79.4254
Venue	Category	Founder Restaurant & Bar
Name: 662, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3522
Venue	Category	Pantheon
Name: 662, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3514
Venue	Category	Greek Restaurant
Name: 670, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6777
Venue	Longitude	-79.3501
Venue	Category	Italian Restaurant
Name: 671, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3522
Venue	Category	7 Numbers
Name: 672, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.678
Venue	Longitude	-79.3539
Venue	Category	Italian Restaurant
Name: 673, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3522
Venue	Category	Messini Authentic Greek
Name: 674, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3505	
Venue	Latitude	43.6777
Venue	Longitude	-79.3505
Venue	Category	Greek Restaurant
Name: 680, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3517
Venue	Category	Greek Restaurant
Name: 681, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3517
Venue	Category	Greek Restaurant
Name: 687, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3517
Venue	Category	Greek Restaurant
Name: 689, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3517
Venue	Category	Greek Restaurant
Name: 690, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3517
Venue	Category	Greek Restaurant
Name: 694, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3522
Venue	Category	Carrot Commons
Name: 695, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3531
Venue	Category	Restaurant
Name: 699, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3531
Venue	Category	Restaurant
Name: 700, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3522
Venue	Category	Factory 611
Name: 705, dtype: object,		
Neighborhood	The Danforth West, Riverdale	
Neighborhood Latitude	43.6796	
Neighborhood Longitude	-79.3522	
Venue	Latitude	43.6796
Venue	Longitude	-79.3563
Venue	Category	American Restaurant
Name: 707, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3816
Venue	Category	Canoe
Name: 711, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3816
Venue	Category	Ki Modern Japan
Name: 715, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3794
Venue	Category	Japanese Restaurant
Name: 717, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3816
Venue	Category	Cactus Club Cafe
Name: 720, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6496
Venue	Longitude	-79.3817
Venue	Category	American Restaurant
Name: 727, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3816
Venue	Category	Chotto Matte
Name: 729, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3816
Venue	Category	Japanese Restaurant
Name: 735, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3816
Venue	Category	John & Sons Oyster House
Name: 739, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	
Neighborhood Longitude	-79.3816	
Venue	Latitude	43.6472
Venue	Longitude	-79.3816
Venue	Category	Seafood Restaurant
Name: 742, dtype: object,		
Neighborhood	Toronto Dominion Centre, Design Exchange	
Neighborhood Latitude	43.6472	

Neighborhood Latitude	-79.3798
Neighborhood Longitude	-79.3798
Venue Latitude	-79.3812
Venue Longitude	-79.3812
Venue Category	Asian Restaurant
Name: 943, dtype: object,	
Neighborhood	Commerce Court, Victoria Hotel
Neighborhood Latitude	43.6482
Neighborhood Longitude	43.6519
Venue Latitude	43.6482
Venue Longitude	43.6519
Venue Category	Bardi's Steak House
Name: 944, dtype: object,	
Neighborhood	Commerce Court, Victoria Hotel
Neighborhood Latitude	-79.3798
Neighborhood Longitude	-79.3798
Venue Latitude	-79.3798
Venue Longitude	-79.3798
Venue Category	Portico
Name: 951, dtype: object,	
Neighborhood	Commerce Court, Victoria Hotel
Neighborhood Latitude	43.6482
Neighborhood Longitude	-79.3798
Venue Latitude	43.6482
Venue Longitude	-79.3798
Venue Category	NAMI
Name: 952, dtype: object,	
Neighborhood	Commerce Court, Victoria Hotel
Neighborhood Latitude	43.6482
Neighborhood Longitude	-79.3798
Venue Latitude	43.6482
Venue Longitude	-79.3798
Venue Category	Seafood Restaurant
Name: 954, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	Reliable Halibut and Chips
Name: 955, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	Baldini
Name: 956, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	Italian Restaurant
Name: 957, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	braised
Name: 958, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	American Restaurant
Name: 959, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	eastside social
Name: 960, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	Comfort Food Restaurant
Name: 971, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3431
Venue Category	Thai Restaurant
Name: 976, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	Barrio Cerveceria
Name: 981, dtype: object,	
Neighborhood	Studio District
Neighborhood Latitude	43.6595
Neighborhood Longitude	-79.3409
Venue Latitude	43.6595
Venue Longitude	-79.3409
Venue Category	Brooklyn Tavern
Name: 985, dtype: object,	
Neighborhood	Forest Hill North & West, Forest Hill Road Park
Neighborhood Latitude	43.6662
Neighborhood Longitude	-79.4113
Venue Latitude	43.6662
Venue Longitude	-79.4113
Venue Category	Nikko Sushi Japanese Restaurant
Name: 1036, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4653
Venue Category	Italian Restaurant
Name: 1014, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4648
Venue Category	Isaan Der
Name: 1020, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4648
Venue Category	Thai Restaurant
Name: 1021, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4648
Venue Category	Plays Cabana Cantina
Name: 1022, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4655
Venue Category	Mexican Restaurant
Name: 1048, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4653
Venue Category	Silk
Name: 1027, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4654
Venue Category	ROUX
Name: 1029, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4667
Venue Category	Fast Food Restaurant
Name: 1034, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4667
Venue Category	La Revolution
Name: 1035, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4648
Venue Category	Mexican Restaurant
Name: 1037, dtype: object,	
Neighborhood	High Park, The Junction South
Neighborhood Latitude	43.6616
Neighborhood Longitude	-79.4648
Venue Latitude	43.6616
Venue Longitude	-79.4648
Venue Category	See-Scapes
Name: 1037, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	C'79
Name: 1039, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Chinese Restaurant
Name: 1039, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Sushi Shop
Name: 1044, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Tio's Urban Mexican
Name: 1044, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Restaurant
Name: 1044, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Mexican Restaurant
Name: 1048, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Fast Food Restaurant
Name: 1048, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	The Captain's Boil
Name: 1054, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Seafood Restaurant
Name: 1054, dtype: object,	
Neighborhood	North Toronto West, Lawrence Park
Neighborhood Latitude	43.7154
Neighborhood Longitude	-79.4057
Venue Latitude	43.7154
Venue Longitude	-79.4057
Venue Category	Italian Restaurant
Name: 1054, dtype: object,	
Neighborhood	The Annex, North Midtown, Yorkville
Neighborhood Latitude	43.6727
Neighborhood Longitude	43.6621
Venue Latitude	43.6727
Venue Longitude	43.6621
Venue Category	Roti Cuisine of India
Name: 1061, dtype: object,	
Neighborhood	The Annex, North Midtown, Yorkville
Neighborhood Latitude	43.6727
Neighborhood Longitude	43.6621
Venue Latitude	43.6727
Venue Longitude	43.6621
Venue Category	Indian Restaurant
Name: 1061, dtype: object,	
Neighborhood	The Annex, North Midtown, Yorkville
Neighborhood Latitude	43.6727
Neighborhood Longitude	43.6621
Venue Latitude	43.6727
Venue Longitude	43.6621
Venue Category	Live Organic Food Bar
Name: 1062, dtype: object,	
Neighborhood	The Annex, North Midtown, Yorkville
Neighborhood Latitude	43.6727
Neighborhood Longitude	43.6621
Venue Latitude	43.6727
Venue Longitude	43.6621
Venue Category	Vegetarian / Vegan Restaurant
Name: 1082, dtype: object,	
Neighborhood	The Annex, North Midtown, Yorkville
Neighborhood Latitude	43.6727
Neighborhood Longitude	43.6621
Venue Latitude	43.6727
Venue Longitude	43.6621
Venue Category	Middle Eastern Restaurant
Name: 1089, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	La Cubana
Name: 1081, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Cuban Restaurant
Name: 1081, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Inter Steer
Name: 1082, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Eastern European Restaurant
Name: 1082, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Domani Restaurant & Bar
Name: 1085, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Italian Restaurant
Name: 1085, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Cider House
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Restaurant
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Davisville
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Marigold Indian Bistro
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Indian Restaurant
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Davisville
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Positano
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Italian Restaurant
Name: 1106, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Davisville
Name: 1106, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Sakee Sushi
Name: 1106, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Sushi Restaurant
Name: 1103, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Florentia Ristorante
Name: 1104, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Italian Restaurant
Name: 1104, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Davisville
Name: 1148, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Thai Spicy House
Name: 1174, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Harvest Kitchen
Name: 1174, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Thai Restaurant
Name: 1188, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Davisville
Name: 1188, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Italian Restaurant
Name: 1188, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Inter Steer
Name: 1188, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Eastern European Restaurant
Name: 1188, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Domani Restaurant & Bar
Name: 1085, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Italian Restaurant
Name: 1085, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Cider House
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Restaurant
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Davisville
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Marigold Indian Bistro
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Indian Restaurant
Name: 1087, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Positano
Name: 1106, dtype: object,	
Neighborhood	Parkdale, Roncesvalles
Neighborhood Latitude	43.649
Neighborhood Longitude	43.646
Venue Latitude	43.649
Venue Longitude	43.646
Venue Category	Italian Restaurant
Name: 1106, dtype: object,	
Neighborhood</	


```
[28]: num_top_venues =
for hood in toronto_grouped['Neighborhood']:
    print("Neighborhood: ", hood)
    temp = toronto_grouped[toronto_grouped['Neighborhood'] == hood].T.reset_index()
    temp.columns = ['venue', 'freq']
    temp = temp.iloc[:,1:]
    temp['freq'] = temp['freq'].astype(float)
    temp = temp.round({'freq': 2})
    print(temp.sort_values('freq', ascending=False).reset_index(drop=True).head(num_top_venues))
    print("\n")

----Bercy Park----
venue freq
0 Seafood Restaurant 0.15
1 Restaurant 0.15
2 Italian Restaurant 0.08
3 Greek Restaurant 0.08
4 French Restaurant 0.08

----Brookton, Parkdale Village, Exhibition Place----
venue freq
0 Italian Restaurant 0.5
1 Restaurant 0.5
2 New American Restaurant 0.0
3 Korean Restaurant 0.0
4 Latin American Restaurant 0.0

----Business reply Mail Processing Centre, South Central Letter Processing Plant Toronto----
venue freq
0 Fast Food Restaurant 0.5
1 Restaurant 0.5
2 American Restaurant 0.0
3 New American Restaurant 0.0
4 Latin American Restaurant 0.0

----Central Bay Street----
venue freq
0 Italian Restaurant 0.17
1 Japanese Restaurant 0.11
2 Vegetarian / Vegan Restaurant 0.06
3 Portuguese Restaurant 0.06
4 Indian Restaurant 0.06

----Christie----
venue freq
0 Italian Restaurant 0.5
1 Restaurant 0.5
2 New American Restaurant 0.0
3 Korean Restaurant 0.0
4 Latin American Restaurant 0.0

----Church and Wellesley----
venue freq
0 Japanese Restaurant 0.21
1 Sushi Restaurant 0.17
2 Restaurant 0.12
3 Mediterranean Restaurant 0.08
4 Indian Restaurant 0.04

----Commerce Court, Victoria Hotel----
venue freq
0 Restaurant 0.23
1 American Restaurant 0.14
2 Seafood Restaurant 0.15
3 Japanese Restaurant 0.11
4 Asian Restaurant 0.07

----Davisville----
venue freq
0 Italian Restaurant 0.5
1 Sushi Restaurant 0.22
2 Indian Restaurant 0.11
3 Greek Restaurant 0.06
4 Thai Restaurant 0.11

----Dufferin, Dovercourt Village----
venue freq
0 Middle Eastern Restaurant 1.0
1 American Restaurant 0.14
2 New American Restaurant 0.0
3 Korean Restaurant 0.0
4 Latin American Restaurant 0.0

----First Canadian Place, Underground city----
venue freq
0 Restaurant 0.14
1 Japanese Restaurant 0.14
2 Seafood Restaurant 0.08
3 Japanese Restaurant 0.10
4 Asian Restaurant 0.10

----Forest Hill North & West, Forest Hill Road Park----
venue freq
0 Sushi Restaurant 0.5
1 American Restaurant 0.0
2 New American Restaurant 0.0
3 Korean Restaurant 0.0
4 Latin American Restaurant 0.0

----Garden District, Byerson----
venue freq
0 Japanese Restaurant 0.14
1 Italian Restaurant 0.10
2 Ramen Restaurant 0.10
3 Middle Eastern Restaurant 0.10
4 Fast Food Restaurant 0.10

----Harbourfront East, Union Station, Toronto Islands----
venue freq
0 Restaurant 0.31
1 Italian Restaurant 0.15
2 Vegetarian / Vegan Restaurant 0.08
3 Indian Restaurant 0.08
4 Chinese Restaurant 0.08

----High Park, The Junction South----
venue freq
0 Thai Restaurant 0.25
1 Mexican Restaurant 0.25
2 Italian Restaurant 0.12
3 Cajun / Creole Restaurant 0.12
4 Restaurant 0.12

----India Bazaar, The Beaches West----
venue freq
0 Italian Restaurant 0.25
1 Mexican Restaurant 0.25
2 Restaurant 0.25
3 Fast Food Restaurant 0.25
4 Moroccan Restaurant 0.00

----Kensington Market, Chinatown, Grange Park----
venue freq
0 Vietnamese Restaurant 0.16
1 Vegetarian / Vegan Restaurant 0.16
2 Mexican Restaurant 0.16
3 Dumpling Restaurant 0.11
4 Caribbean Restaurant 0.11

----Little Portugal, Trinity----
venue freq
0 Asian Restaurant 0.19
1 Vietnamese Restaurant 0.12
2 Restaurant 0.12
3 French Restaurant 0.06
4 Vegetarian / Vegan Restaurant 0.06

----North Toronto West, Lawrence Park----
venue freq
0 Italian Restaurant 0.17
1 Mexican Restaurant 0.12
2 Chinese Restaurant 0.17
3 Seafood Restaurant 0.17
4 Restaurant 0.17

----Parkdale, Roncesvalles----
venue freq
0 Italian Restaurant 0.25
1 Eastern European Restaurant 0.25
2 Restaurant 0.25
3 Cuban Restaurant 0.25
4 Latin American Restaurant 0.00

----Queen's Park, Ontario Provincial Government----
venue freq
0 Italian Restaurant 0.12
1 Chinese Restaurant 0.12
2 Mexican Restaurant 0.12
3 Persian Restaurant 0.12
4 Japanese Restaurant 0.12

----Regent Park, Harbourfront----
venue freq
0 Restaurant 0.50
1 French Restaurant 0.25
2 Mexican Restaurant 0.25
3 American Restaurant 0.00
4 New American Restaurant 0.00

----Richmond, Adelaide, King----
venue freq
0 Restaurant 0.17
1 Thai Restaurant 0.13
2 American Restaurant 0.09
3 Sushi Restaurant 0.09
4 Fast Food Restaurant 0.04

----Runnymede, Swansea----
venue freq
0 Italian Restaurant 0.22
1 Sushi Restaurant 0.22
2 Vegetarian / Vegan Restaurant 0.11
3 Moroccan Restaurant 0.11
4 Latin American Restaurant 0.11

----St. James Town----
venue freq
0 American Restaurant 0.14
1 Moroccan Restaurant 0.10
2 Seafood Restaurant 0.10
3 Restaurant 0.10
4 Italian Restaurant 0.10

----St. James Town, Cabbagetown----
venue freq
0 Italian Restaurant 0.18
1 Chinese Restaurant 0.18
2 Restaurant 0.09
3 Indian Restaurant 0.09
4 Taiwanese Restaurant 0.09

----Stn A PO Boxes----
venue freq
0 Italian Restaurant 0.14
1 Seafood Restaurant 0.14
2 Restaurant 0.14
3 Japanese Restaurant 0.14
4 Eastern European Restaurant 0.05

----Studio District----
venue freq
0 American Restaurant 0.25
1 Comfort Food Restaurant 0.12
2 Thai Restaurant 0.12
3 Seafood Restaurant 0.12
4 Middle Eastern Restaurant 0.12

----Summerhill West, Rathnelly, South Hill, Forest Hill SE, Deer Park----
venue freq
0 Greek Restaurant 0.44
1 American Restaurant 0.25
2 Restaurant 0.25
3 Sushi Restaurant 0.25
4 Vietnamese Restaurant 0.00
5 Cajun / Creole Restaurant 0.00

----The Annex, North Midtown, Yorkville----
venue freq
0 Indian Restaurant 0.33
1 Vegetarian / Vegan Restaurant 0.33
2 Middle Eastern Restaurant 0.33
3 New American Restaurant 0.00
4 Korean Restaurant 0.00

----The Beaches----
venue freq
0 Asian Restaurant 1.0
1 American Restaurant 1.0
2 New American Restaurant 0.0
3 Korean Restaurant 0.0
4 Latin American Restaurant 0.0

----The Danforth West, Riverdale----
venue freq
0 Greek Restaurant 0.44
1 Italian Restaurant 0.19
2 Restaurant 0.12
3 Sushi Restaurant 0.06
4 Indian Restaurant 0.06

----Toronto Dominion Centre, Design Exchange----
venue freq
0 Restaurant 0.16
1 American Restaurant 0.12
2 Japanese Restaurant 0.12
3 Seafood Restaurant 0.12
4 Italian Restaurant 0.12

----University of Toronto, Harbour----
venue freq
0 Japanese Restaurant 0.22
1 American Restaurant 0.22
2 Chinese Restaurant 0.11
3 French Restaurant 0.11
4 Comfort Food Restaurant 0.11
```

```
Regroup data into pandas Dataframe
In [29]: def return_most_common_venues(row, num_top_venues):
row_categories = row.iloc[1:]
row_categories.sort_values(ascending=False)
return row_categories.sort_index.values[0:num_top_venues]
```

```
In [30]: num_top_venues = 10

indicators = ['e', 'nd', 'rd']

# create columns according to number of top venues
columns = ['Neighborhood']
for ind in np.arange(num_top_venues):
    try:
        columns.append("{} Most Common Restaurant Type".format(ind+1, indicators[ind]))
    except:
        columns.append("{} Most Common Restaurant Type".format(ind+1))

# create a new dataframe
neighborhoods_venues_sorted = pd.DataFrame(columns=columns)
neighborhoods_venues_sorted['Neighborhood'] = toronto_grouped['Neighborhood']

for ind in np.arange(toronto_grouped.shape[0]):
    neighborhoods_venues_sorted.loc[ind, 1:] = return_most_common_venues(toronto_grouped.iloc[ind, :],
num_top_venues)
neighborhoods_venues_sorted
```

```
Out[30]:
```

```
Neighborhood 1st Most Common Restaurant Type 2nd Most Common Restaurant Type 3rd Most Common Restaurant Type 4th Most Common Restaurant Type 5th Most Common Restaurant Type 6th Most Common Restaurant Type 7th Most Common Restaurant Type 8th Most Common Restaurant Type 9th Most Common Restaurant Type
```

```
0 Bercy Park Seafood Restaurant Comfort Food Restaurant Thai Restaurant Greek Restaurant Sushi Restaurant Vegetarian / Vegan Restaurant Italian Restaurant Japanese Restaurant
```

```
1 Brookdale Village, Exhibition Place Italian Restaurant Vietnamese Restaurant Doner Restaurant German Restaurant French Restaurant Filipino Restaurant Fast Food Restaurant Falafel Restaurant
```

```
2 Business reply Mail Processing Centre, South C. Italian Restaurant Japanese Restaurant Indian Restaurant New American Restaurant French Restaurant Vegetarian / Vegan Restaurant Korean Restaurant Middle Eastern Restaurant Falafel Restaurant Ethiopian Restaurant
```

```
3 Central Bay Street Italian Restaurant Japanese Restaurant Vietnamese Restaurant Doner Restaurant German Restaurant French Restaurant Filipino Restaurant Fast Food Restaurant Falafel Restaurant
```

```
4 Christie Italian Restaurant Restaurant Vietnamese Restaurant Doner Restaurant German Restaurant French Restaurant Filipino Restaurant Fast Food Restaurant Falafel Restaurant
```

```
5 Church and Wellesley Japanese Restaurant Sushi Restaurant Mediterranean Restaurant Indian Restaurant Persian Restaurant Caribbean Restaurant Chinese Restaurant Fast Food Restaurant
```

```
6 Commerce Court, Victoria Hotel Restaurant American Restaurant Seafood Restaurant Japanese Restaurant Asian Restaurant Vegetarian / Vegan Restaurant Italian Restaurant New American Restaurant Gluten-free Restaurant
```

```
7 Davisville Sushi Restaurant Italian Restaurant Indian Restaurant Greek Restaurant Thai Restaurant Seafood Restaurant Restaurant Dim Sum Restaurant Filipino Restaurant
```

```
8 Dufferin, Dovercourt Village Middle Eastern Restaurant Vietnamese Restaurant Doner Restaurant German Restaurant French Restaurant Filipino Restaurant Fast Food Restaurant Falafel Restaurant Ethiopian Restaurant
```

```
9 First Canadian Place, Underground city Japanese Restaurant Restaurant American Restaurant Asian Restaurant Seafood Restaurant Sushi Restaurant Vegetarian / Vegan Restaurant Mediterranean Restaurant Italian Restaurant
```

```
10 Forest Hill North & West, Forest Hill Road Park Sushi Restaurant Vietnamese Restaurant Dim Sum Restaurant German Restaurant French Restaurant Filipino Restaurant Fast Food Restaurant Falafel Restaurant Ethiopian Restaurant
```

```
11 Garden District, Byerson Japanese Restaurant Italian Restaurant Middle Eastern Restaurant Fast Food Restaurant Ramen Restaurant Vietnamese Restaurant New American Restaurant Ethiopian Restaurant Mexican Restaurant
```

```
12 Harbourfront East, Union Station, Toronto Islands Restaurant Italian Restaurant Indian Restaurant Vegetarian / Vegan Restaurant Sushi Restaurant Seafood Restaurant Japanese Restaurant Chinese Restaurant New American Restaurant
```

```
13 High Park, The Junction South Thai Restaurant Mexican Restaurant Italian Restaurant Cajun / Creole Restaurant Fast Food Restaurant Vietnamese Restaurant Doner Restaurant French Restaurant
```

```
14 India Bazaar, The Beaches West Italian Restaurant Sushi Restaurant Fast Food Restaurant Restaurant Vietnamese Restaurant Dim Sum Restaurant French Restaurant Filipino Restaurant Falafel Restaurant
```

```
15 Kensington Market, Chinatown, Grange Park Vietnamese Restaurant Mexican Restaurant Vegetarian / Vegan Restaurant Dumpling Restaurant Caribbean Restaurant Comfort Food Restaurant Japanese Restaurant Filipino Restaurant Dim Sum Restaurant
```

```
16 Little Portugal, Trinity Asian Restaurant Vietnamese Restaurant Restaurant Greek Restaurant Vegetarian / Vegan Restaurant Italian Restaurant Japanese Restaurant Korean Restaurant New American Restaurant
```

```
17 North Toronto West, Lawrence Park Italian Restaurant Fast Food Restaurant Seafood Restaurant Restaurant Chinese Restaurant Mexican Restaurant Vietnamese Restaurant Doner Restaurant French Restaurant
```

```
18 Parkdale, Roncesvalles Italian Restaurant Restaurant Eastern European Restaurant Cuban Restaurant Vietnamese Restaurant Doner Restaurant German Restaurant French Restaurant Filipino Restaurant
```

```
19 Queen's Park, Ontario Provincial Government Vegetarian / Vegan Restaurant Italian Restaurant Sushi Restaurant Japanese Restaurant Chinese Restaurant Portuguese Restaurant Persian Restaurant Mexican Restaurant Vietnamese Restaurant
```

```
20 Regent Park, Harbourfront Restaurant French Restaurant Vietnamese Restaurant Doner Restaurant German Restaurant Filipino Restaurant Fast Food Restaurant Falafel Restaurant
```

```
21 Richmond, Adelaide, King Restaurant Thai Restaurant American Restaurant Sushi Restaurant Colombian Restaurant Gluten-free Restaurant Vegetarian / Vegan Restaurant Japanese Restaurant Latin American Restaurant Mexican Restaurant
```

```
22 Runnymede, Swansea Italian Restaurant Sushi Restaurant French Restaurant Vegetarian / Vegan Restaurant Restaurant American Restaurant Falafel Restaurant Restaurant Doner Restaurant Filipino Restaurant
```

```
23 St. James Town American Restaurant Italian Restaurant Seafood Restaurant Restaurant Moroccan Restaurant New American Restaurant German Restaurant Vegetarian / Vegan Restaurant Japanese Restaurant
```

```
24 St. James Town, Cabbagetown Italian Restaurant Restaurant Chinese Restaurant Indian Restaurant Thai Restaurant Taiwanese Restaurant Japanese Restaurant Caribbean Restaurant Doner Restaurant
```

```
25 Stn A PO Boxes Italian Restaurant Japanese Restaurant Seafood Restaurant Restaurant American Restaurant French Restaurant Fast Food Restaurant Vegetarian / Vegan Restaurant Eastern European Restaurant
```

```
26 Studio District American Restaurant Thai Restaurant Italian Restaurant Seafood Restaurant Latin American Restaurant Comfort Food Restaurant Middle Eastern Restaurant Doner Restaurant Filipino Restaurant
```

```
27 Summerhill West, Rathnelly, Forest Hill, Restaurant Vietnamese Restaurant Sushi Restaurant American Restaurant Taiwanese Restaurant Dim Sum Restaurant French Restaurant Filipino Restaurant Fast Food Restaurant
```

```
28 The Annex, North Midtown, Yorkville Indian Restaurant Middle Eastern Restaurant Vegetarian / Vegan Restaurant Belgian Restaurant Eastern European Restaurant Gluten-free Restaurant German Restaurant French Restaurant Filipino Restaurant
```

```
29 The Beaches Asian Restaurant Vietnamese Restaurant Doner Restaurant Gluten-free Restaurant German Restaurant French Restaurant Filipino Restaurant Fast Food Restaurant Falafel Restaurant
```

```
30 The Danforth West, Riverdale Greek Restaurant Italian Restaurant Restaurant Indian Restaurant Caribbean Restaurant American Restaurant Sushi Restaurant Seafood Restaurant Filipino Restaurant
```

```
31 Toronto Dominion Centre, Design Exchange Restaurant American Restaurant Italian Restaurant Japanese Restaurant Seafood Restaurant Asian Restaurant French Restaurant New American Restaurant Chinese Restaurant
```

```
32 University of Toronto, Harbour Restaurant French Restaurant Italian Restaurant Sushi Restaurant Chinese Restaurant Comfort Food Restaurant Vietnamese Restaurant Dumpling Restaurant
```

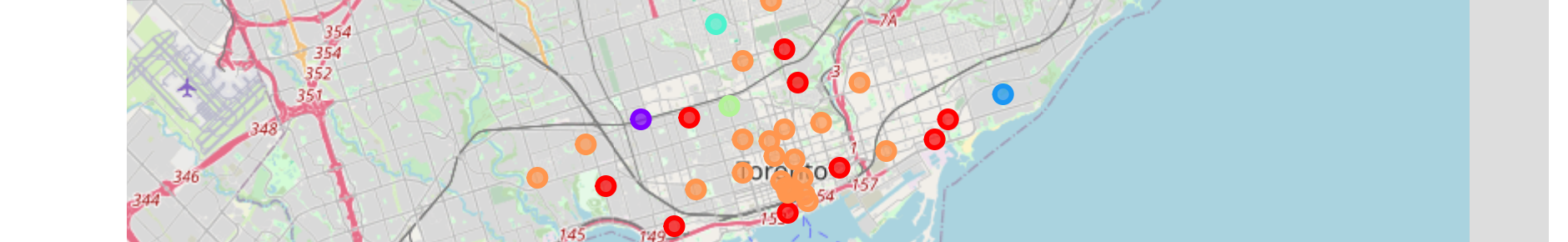
3.4 Clustering the Neighborhood

Using a K-Elbow Test to define the optimal number of clusters

```
In [31]: from sklearn.datasets import make_blobs
from yellowbrick.cluster import KElbowVisualizer
KMeans = sklearn.metrics.cluster.KMeans
warnings.warn(message, FutureWarning)
```

```
In [32]: toronto_grouped_clustering = toronto_grouped.drop('Neighborhood', 1)
```

```
In [33]: X, y = make_blobs(n_samples=1000, n_features=12, centers=8, random_state=42)
model = KMeans().fit(toronto_grouped_clustering)
visualizer = KElbowVisualizer(model, k=(3,12))
visualizer.fit(toronto_grouped_clustering) # Fit the data to the visualizer
visualizer.show() # Finalize and render the plot
```



```
Out[33]: Matplotlib.axes._subplots.AxesSubplot at 0x1346e238
```

Using Plotlib Score, we can figure that the optimal number of clusters is : K = 6

```
In [34]: # set number of clusters
clusters = 6
toronto_grouped_clustering = toronto_grouped.drop('Neighborhood', 1)
# run k-means clustering
kmeans = KMeans(n_clusters=clusters, random_state=0).fit(toronto_grouped_clustering)
# check cluster labels generated for each row in the dataframe
kmeans.labels_[0:10]
```

```
Out[34]: array([5, 0, 5, 0, 5, 5, 1, 5])
```

```
In [35]: # add clustering labels to toronto_grouped
neighborhoods_venues_sorted.insert(0, 'Cluster Labels', kmeans.labels_)
toronto_merged = toronto_df
```

```
# merge toronto_grouped with toronto_data to add latitude/longitude for each neighborhood
toronto_merged = toronto_merged.join(neighborhoods_venues_sorted.set_index('Neighborhood'), on='Neighborhood')
toronto_merged.head()
```

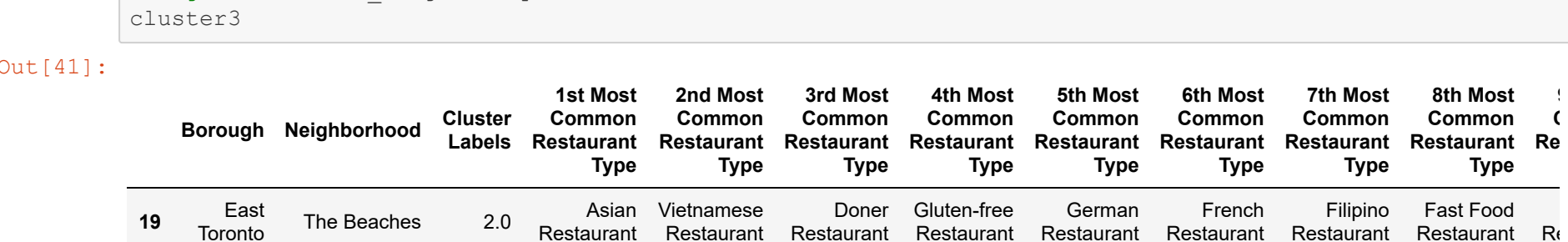
```
Out[35]:
```

Postal Code	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Restaurant Type	2nd Most Common Restaurant Type	3rd Most Common Restaurant Type	4th Most Common Restaurant Type	5th Most Common Restaurant Type	6th Most Common Restaurant Type	7th Most Common Restaurant Type	8th Most Common Restaurant Type	9th Most Common Restaurant Type
2	MSA	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636	0.0	Restaurant	French Restaurant	Mexican Restaurant	Vietnamese Restaurant	Doner Restaurant	German Restaurant	Filipino Restaurant	Fast Food Restaurant
4	MTA	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.652301	-79.389494	5.0	Vegetarian / Vegan Restaurant	Italian Restaurant	Sushi Restaurant	Japanese Restaurant	Chinese Restaurant	Portuguese Restaurant	Restara	
9	MSB	Downtown Toronto	Garden District, Forest Hill	43.657162	-79.378937	5.0	Japanese Restaurant	Italian Restaurant	Middle Eastern Restaurant	Fast Food Restaurant	Ramen Restaurant	Vietnam Restaurant		
16	MSC	Downtown Toronto	St. James Town	43.651494	-79.375418	5.0	American Restaurant	Italian Restaurant	Seafood Restaurant	Restaurant	Moroccan Restaurant	Amer Resta		
19	MAE	East Toronto	The Beaches	43.616357	-79.280331	2.0	Asian Restaurant	Vietnamese Restaurant	Doner Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant		

Mapping the clusters

```
In [36]: # create map
map_clusters = folium.Map(location=[latitude, longitude], zoom_start=11)
# set color scheme for the clusters
c = np.arange(clusters)
ys = [i + s * (i+1)**2 for i in range(clusters)]
color_array = cm.rainbow(np.linspace(0, 1, len(ys)))
rainbow = [colors.rgb2hex(i) for i in color_array]
c = 0
# add markers to the map
for lat, lon, pol, cluster in zip(toronto_merged['Latitude'], toronto_merged['Longitude'], toronto_merged['Neighborhood'], toronto_merged['Cluster Labels']):
    label = folium.Popup(str(pol) + ' Cluster ' + str(cluster), parse_html=True)
    c = c+1
    # print("Cluster : ", type(cluster))
    # print("Cluster : ", cluster)
    if np.isnan(cluster) == True:
        cluster = 0.0
    cluster = int(cluster)
    folium.CircleMarker(
        [lat, lon],
        radius=5,
        popup=label,
        color=rainbow[cluster-1],
        fill=True,
        fill_color=rainbow[cluster-1],
        fill_opacity=0.7).add_to(map_clusters)
```

```
print(c)
map_clusters
```



3.5 Examine the Clusters

Cluster 1

```
In [37]: cluster1 = toronto_merged.loc[toronto_merged['Cluster Labels'] == 0, toronto_merged.columns[[1,2] + list(range(5, toronto_merged.shape[1]))]]
cluster1
```

```
Out[37]:
```

Borough	Neighborhood	Cluster Labels	1st Most Common Restaurant Type	2nd Most Common Restaurant Type	3rd Most Common Restaurant Type	4th Most Common Restaurant Type	5th Most Common Restaurant Type	6th Most Common Restaurant Type	7th Most Common Restaurant Type	8th Most Common Restaurant Type
2	Downtown Toronto	Regent Park, Harbourfront	0.0	Restaurant	French Restaurant	Mexican Restaurant	Vietnamese Restaurant	Doner Restaurant	German Restaurant	Filipino Restaurant
25	Downtown Toronto	Christie	0.0	Italian Restaurant	Vietnamese Restaurant	Doner Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant
36	Downtown Toronto	Harbourfront East, Union Station, Toronto Islands	0.0	Restaurant	Italian Restaurant	Indian Restaurant	Vegetarian / Vegan Restaurant	Sushi Restaurant	Seafood Restaurant	Japanese Restaurant

43	West Toronto	Brookton, Parkdale Village, Exhibition Place	0.0	Italian Restaurant	Restaurant	Vietnamese Restaurant	Doner Restaurant	German Restaurant	French Restaurant	Filipino Restaurant
47	East Toronto	India Bazaar, The Beaches West	0.0	Italian Restaurant	Sushi Restaurant	Fast Food Restaurant	Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	French Restaurant
73	Central Toronto	North Toronto West, Lawrence Park	0.0	Italian Restaurant	Fast Food Restaurant	Seafood Restaurant	Restaurant	Chinese Restaurant	Mexican Restaurant	Vietnamese Restaurant
75	West Toronto	Parkdale, Roncesvalles	0.0	Italian Restaurant	Restaurant	Eastern European Restaurant	Cuban Restaurant	Vietnamese Restaurant	Doner Restaurant	German Restaurant
100	East Toronto	Business reply Mail Processing Centre, South C.	0.0	Fast Food Restaurant	Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	German Restaurant	French Restaurant	Filipino Restaurant

```
In [38]: cluster1['1st Most Common Restaurant Type'].unique()
Out[38]: array(['Italian Restaurant', 'Fast Food Restaurant'], dtype=object)
```

Cluster 2

```
In [39]: cluster2 = toronto_merged.loc[toronto_merged['Cluster Labels'] == 1, toronto_merged.columns[[1,2] + list(range(5, toronto_merged.shape[1]))]]
cluster2
```

```
Out[39]:
```

Borough	Neighborhood	Cluster Labels	1st Most Common Restaurant Type	2nd Most Common Restaurant Type	3rd Most Common Restaurant Type	4th Most Common Restaurant Type	5th Most Common Restaurant Type	6th Most Common Restaurant Type	7th Most Common Restaurant Type	8th Most Common Restaurant Type
31	West Toronto	Dufferin, Dovercourt Village	1.0	Middle Eastern Restaurant	Vietnamese Restaurant	Doner Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant

```
In [40]: cluster2['1st Most Common Restaurant Type'].unique()
Out[40]: array(['Middle Eastern Restaurant'], dtype=object)
```

Cluster 3

```
In [41]: cluster3 = toronto_merged.loc[toronto_merged['Cluster Labels'] == 2, toronto_merged.columns[[1,2] + list(range(5, toronto_merged.shape[1]))]]
cluster3
```

```
Out[41]:
```

Borough	Neighborhood	Cluster Labels	1st Most Common Restaurant Type	2nd Most Common Restaurant Type	3rd Most Common Restaurant Type	4th Most Common Restaurant Type	5th Most Common Restaurant Type	6th Most Common Restaurant Type	7th Most Common Restaurant Type	8th Most Common Restaurant Type
19	East Toronto	The Beaches	2.0	Asian Restaurant	Vietnamese Restaurant	Doner Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant

Cluster 4

```
In [42]: toronto_merged.loc[toronto_merged['Cluster Labels'] == 3, toronto_merged.columns[[1,2] + list(range(5, toronto_merged.shape[1]))]]
cluster4
```

```
Out[42]:
```

Borough	Neighborhood	Cluster Labels	1st Most Common Restaurant Type	2nd Most Common Restaurant Type	3rd Most Common Restaurant Type	4th Most Common Restaurant Type	5th Most Common Restaurant Type	6th Most Common Restaurant Type	7th Most Common Restaurant Type	8th Most Common Restaurant Type
68	Central Toronto	Forest Hill North & West, Forest Hill Road Park	3.0	Sushi Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant

Cluster 5

```
In [43]: toronto_merged.loc[toronto_merged['Cluster Labels'] == 4, toronto_merged.columns[[1,2] + list(range(5, toronto_merged.shape[1]))]]
cluster5
```

```
Out[43]:
```

Borough	Neighborhood	Cluster Labels	1st Most Common Restaurant Type	2nd Most Common Restaurant Type	3rd Most Common Restaurant Type	4th Most Common Restaurant Type	5th Most Common Restaurant Type	6th Most Common Restaurant Type	7th Most Common Restaurant Type	8th Most Common Restaurant Type
4	Downtown Toronto	Queen's Park, Ontario Provincial Government	5.0	Vegetarian / Vegan Restaurant	Italian Restaurant	Sushi Restaurant	Japanese Restaurant	Chinese Restaurant	Portuguese Restaurant	Persian Restaurant
9	Downtown Toronto	Garden District, Byerson	5.0	Japanese Restaurant	Italian Restaurant	Middle Eastern Restaurant	Fast Food Restaurant	Ramen Restaurant	Vietnamese Restaurant	New American Restaurant
15	Downtown Toronto	St. James Town	5.0	American Restaurant	Italian Restaurant	Seafood Restaurant	Restaurant	Moroccan Restaurant	American Restaurant	German Restaurant
20	Downtown Toronto	Bercy Park	5.0	Seafood Restaurant	Restaurant	Comfort Food Restaurant	Thai Restaurant	Greek Restaurant	Sushi Restaurant	Vegetarian / Vegan Restaurant

24	Downtown Toronto	Central Bay Street	5.0	Italian Restaurant	Japanese Restaurant	Indian Restaurant	New American Restaurant	French Restaurant	Vegetarian / Vegan Restaurant	Korean Restaurant
30	Downtown Toronto	Forest Hill North & West, Adelaide, King	5.0	Restaurant	Restaurant	Thai Restaurant	American Restaurant	Sushi Restaurant	Colombian Restaurant	Gluten-free Restaurant
37	West Toronto	Little Portugal, Trinity	5.0	Asian Restaurant	Vietnamese Restaurant	Restaurant	Greek Restaurant	Vegetarian / Vegan Restaurant	Italian Restaurant	Japanese Restaurant
41	East Toronto	The Danforth West, Riverdale	5.0	Greek Restaurant	Italian Restaurant	Restaurant	Indian Restaurant	Caribbean Restaurant	American Restaurant	Sushi Restaurant
42	Downtown Toronto	Toronto Dominion Centre, Design Exchange	5.0	Restaurant	American Restaurant	Italian Restaurant	Japanese Restaurant	Seafood Restaurant	Asian Restaurant	French Restaurant

48	Downtown Toronto	Commerce Court, Victoria Hotel	5.0	Restaurant	American Restaurant	Seafood Restaurant	Japanese Restaurant	Asian Restaurant	Vegetarian / Vegan Restaurant	Italian Restaurant
54	East Toronto	St. James Town, Cabbagetown	5.0	American Restaurant	Thai Restaurant	Italian Restaurant	Seafood Restaurant	Latin American Restaurant	Comfort Food Restaurant	Middle Eastern Restaurant
59	West Toronto	The Junction South	5.0	Thai Restaurant	Mexican Restaurant	Italian Restaurant	Cajun / Creole Restaurant	Restaurant	Fast Food Restaurant	Vietnamese Restaurant
79	Central Toronto	Davisville	5.0	Sushi Restaurant	Italian Restaurant	Indian Restaurant	Greek Restaurant	Thai Restaurant	Seafood Restaurant	Restaurant
80	Downtown Toronto	University of Toronto, Harbour	5.0	Japanese Restaurant	Restaurant	French Restaurant	Italian Restaurant	Sushi Restaurant	Chinese Restaurant	Comfort Food Restaurant

81	West Toronto	Runnymede, Swansea	5.0	Italian Restaurant	Sushi Restaurant	French Restaurant	Vegetarian / Vegan Restaurant	Restaurant	Latin American Restaurant	Falafel Restaurant
84	Downtown Toronto	Kensington Market, Chinatown, Grange Park	5.0	Vietnamese Restaurant	Mexican Restaurant	Vegetarian / Vegan Restaurant	Dumpling Restaurant	Caribbean Restaurant	Comfort Food Restaurant	Japanese Restaurant
86	Central Toronto	Summerhill West, Rathnelly, Forest Hill, Restaurant	5.0	Vietnamese Restaurant	Sushi Restaurant	Restaurant	American Restaurant	Taiwanese Restaurant	Dim Sum Restaurant	French Restaurant
92	Downtown Toronto	Stn A PO Boxes	5.0	Italian Restaurant	Japanese Restaurant	Seafood Restaurant	Restaurant	American Restaurant	French Restaurant	Fast Food Restaurant
96	Downtown Toronto	St. James Town, Cabbagetown	5.0	Italian Restaurant	Restaurant	Chinese Restaurant	Indian Restaurant	Thai Restaurant	Taiwanese Restaurant	Japanese Restaurant

97	Downtown Toronto	First Canadian Place, Underground city	5.0	Japanese Restaurant	Restaurant	American Restaurant	Asian Restaurant	Seafood Restaurant	Sushi Restaurant	Vegetarian / Vegan Restaurant
99	Downtown Toronto	Church and Wellesley	5.0	Japanese Restaurant	Sushi Restaurant	Restaurant	Mediterranean Restaurant	Indian Restaurant	Persian Restaurant	Caribbean Restaurant

4. Results

We can see that the clusters 1,2,3 and 6 concentrate their restaurants into specific areas of Toronto (West, East, Central) areas.

While the highest variety of restaurants considered is located within the Downtown area (Cluster 5), which can seem logical at first glance regarding the historical aspect of the site.

As we did see previously, the sole moroccan venues are located in the same area St. James Town in Downtown Toronto :

In [45]: toronto_resto[toronto_resto['Venue Category'] == 'Moroccan Restaurant']

Out[45]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
50	St. James Town	43.651494	-79.375418	Berter SOCIAL	43.648114	-79.374046	Moroccan Restaurant
51	St. James Town	43.651494	-79.375418	The Sultan's Tent and Cafe Maroc	43.647928	-79.374341	Moroccan Restaurant

5. Discussion

Ultimately, and due to very few competition, the best option to open our Moroccan themed restaurant Brand would be in various areas in Downtown excepting **St. James Town**.

Even though opening in spots surrounding this area would be an interesting fit as it already has a customer basis looking for north african flavors.

6. Conclusion

In conclusion, we can clearly notice how powerful a tool machine learning and Data Science are. In a few lines of codes, and some logic we were able to make an efficient Data analysis from online available sources that mixed together can offer the premisses of a solid Business plan or Marketing campaign.

As simple of an application it can be made, this information processing can offer an invaluable amount of hints for business opportunities.

In []:

In []: