



Project Proposal

Prepared for: Coursera, The battle of Neighbourhood.

Prepared by: Sandip Chajjed, Data Scientist.

June 3, 2019

EXECUTIVE SUMMARY

Objective

ABC Limited is a chain of vegan restaurant and want to expand the foot print in Toronto. Find best location for setting up a vegan restaurant Toronto.

Goals

Find best location for setting up a vegan restaurant Toronto backed by the data.

Solution

Using four square api gather data on neighbourhood in Toronto. Perform analysis and inference. Provide recommended location and risk matrix to business.

INTRODUCTION

In north America the popularity of vegan food is growing at large and people are showing more interest in vegan food. A recent study shows nearly 10 percent of Canadians consider themselves vegetarian or vegan while United States is at 2 percent, a significant shift in lifestyle is being observed. People are looking for more healthy food options.

ABC Limited share the ideology and focused on providing healthy food options through its chain of vegan restaurant. This project is to propose ideal location and neighbourhood to establish vegan restaurant in NewYork and Toronto.

AUDIENCE

The audience are the stake holders of ABC Limited. This project is for the population interested in vegan food and looking for options in Toronto.

DATA

Description of the Data:

The following data is required to answer the issues of the problem:

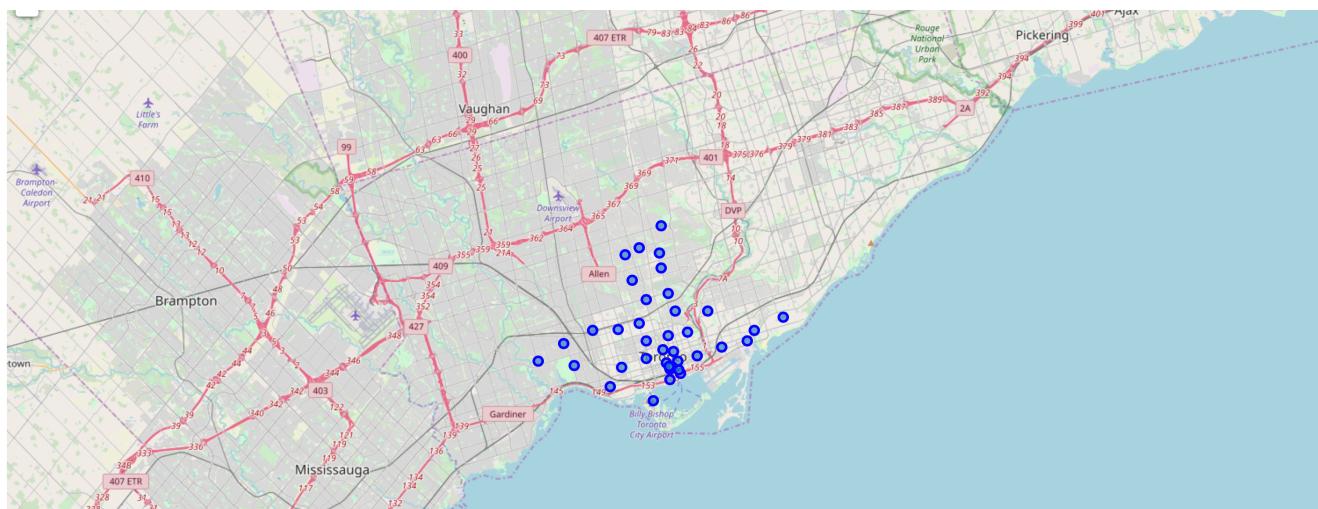
List of Boroughs and neighbourhood of Toronto with their geo-data (latitude and longitude)

Venues for each Toronto neighbourhood (than can be clustered)

Venues for restaurant

RESULT

We started with the analysis of Toronto where borough name contains Toronto.



Get the Venues for Vegetarian/Vegan restaurant using Foursquare API

The Category ID for vegetarian/Vegan restaurant is mentioned on <https://developer.foursquare.com/docs/resources/categories>

Category ID Vegetarian / Vegan Restaurant **4bf58dd8d48988d1d3941735**

We are now ready to get the 15 recommendation within 500 meters of location using four square API

Following is the sample Json output we get using foursquare API

```
{'meta': {'code': 200, 'requestId': '5d0fa3ed9ba3e5002cff9b1c'},  
'response': {'confident': True,  
'venues': [{"categories": [{"icon": {"prefix": "https://ss3.4sqi.net/img/categories_v2/food/vegetarian_",
"suffix": '.png'},
'id': '4bf58dd8d48988d1d3941735',
'name': 'Vegetarian / Vegan Restaurant',
'pluralName': 'Vegetarian / Vegan Restaurants',
'primary': True,
'shortName': 'Vegetarian / Vegan'}]},  
'hasPerk': False,  
'id': '4f5a855be4b0a4baa1ae0063',
'location': {'address': '2188 Queen Street E',
'cc': 'CA',
'city': 'Toronto',
'country': 'Canada',
'crossStreet': 'Balsam Ave',
'distance': 519,
'formattedAddress': ['2188 Queen Street E (Balsam Ave)', 'Toronto ON M431E6', 'Canada'],
'labeledLatLngs': [{"label": "display",  
'lat': 43.672113947269565,  
'lng': -79.29033140068843}],  
'lat': 43.672113947269565,  
'lng': -79.29033140068843,  
'postalCode': 'M431E6',  
'state': 'ON'},  
'name': "Tori's Bakeshop",  
'referralId': 'v-1561306093',  
'venuePage': {'id': '43778861'}}]}}}
```

Converting the json to Dataframe following is the sample Dataframe

```
Toronto_venues
```

```
Toronto_venues.groupby('Neighbourhood').count()
```

:>

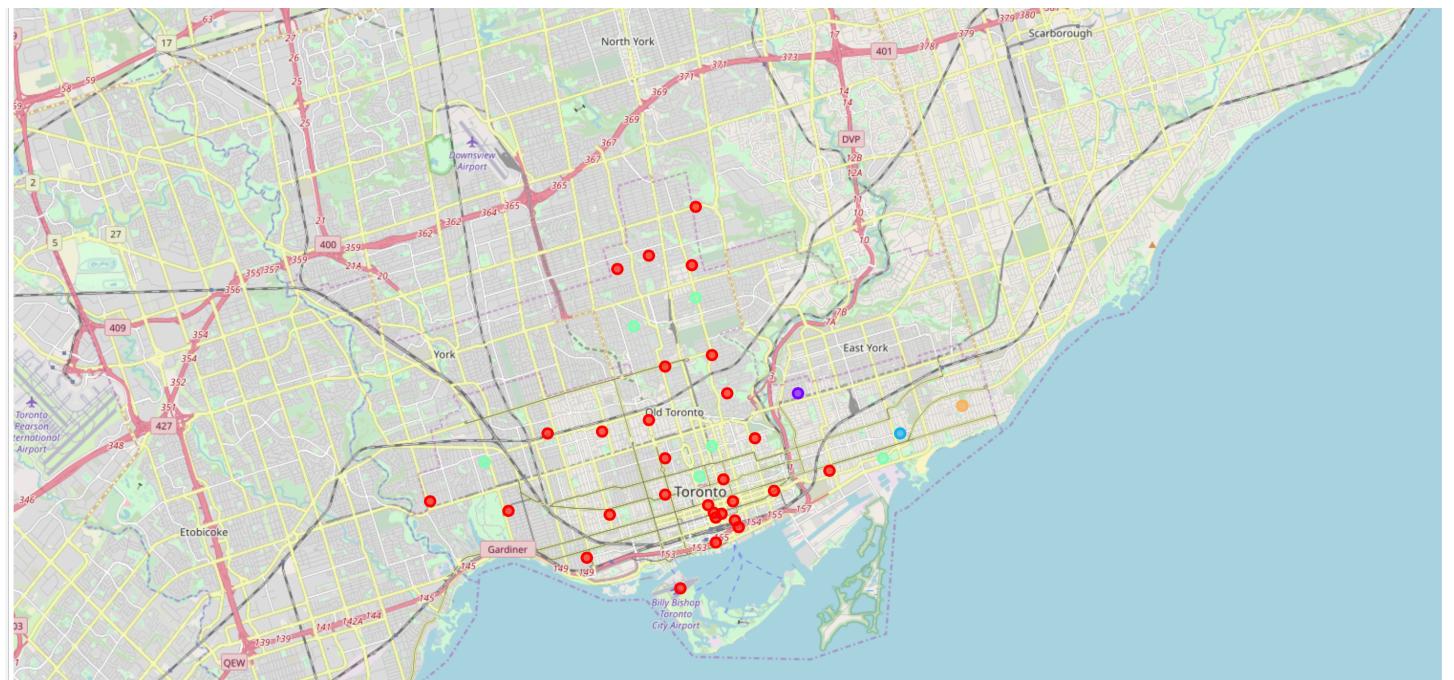
Neighbourhood	id	category	categoryID	name	address	postalcode	city	latitude	longitude
Business Reply Mail Processing Centre 969 Eastern	3	3	3	3	3	3	3	3	3
Cabbagetown, St. James Town	1	1	1	1	1	1	1	1	1
Central Bay Street	34	34	34	34	34	34	34	34	34
Church and Wellesley	9	9	9	9	9	9	9	9	9
Davisville	6	6	6	6	6	6	6	6	6
Davisville North	5	5	5	5	5	5	5	5	5
Deer Park, Forest Hill SE, Rathnelly, South Hill, Summerhill West	3	3	3	3	3	3	3	3	3
Dovercourt Village, Dufferin	1	1	1	1	1	1	1	1	1
Forest Hill North, Forest Hill West	3	3	3	3	3	3	3	3	3
Harbourfront, Regent Park	2	2	2	2	2	2	2	2	2
High Park, The Junction South	3	3	3	3	3	3	3	3	3
Moore Park, Summerhill East	1	1	1	1	1	1	1	1	1
North Toronto West	3	3	3	3	3	3	3	3	3
Rosedale	1	1	1	1	1	1	1	1	1
Roselawn	1	1	1	1	1	1	1	1	1
Runnymede, Swansea	1	1	1	1	1	1	1	1	1
The Beaches	2	2	2	2	2	2	2	2	2
The Beaches West, India Bazaar	3	3	3	3	3	3	3	3	3
The Danforth West, Riverdale	4	4	4	4	4	4	4	4	4

```
print('There are {} uniques categories.'.format(len(Toronto_venues['category'].unique())))
```

There are 13 uniques categories.

Getting the counts for each neighbourhood.

The following figure shows the cluster analysis



Conclusion

After analyzing the cluster the best recommendation for starting another vegan restaurant in Toronto will be in Toronto East as there are few restaurant and has scope of potential growth.