

Finding Location for Indian Restaurant in Toronto

1.Introduction

1.1 Background

Starting a business can be challenging sometimes. It becomes more so when you don't know where to start. Similarly in restaurant business you must start where you can find customers. Finding a location to start a new venture can be very difficult. In Toronto there are many restaurants but if a person wants to start a new Indian restaurant. He must find a suitable location for it. It is very necessary for business to grow.

1.2 Interested audience

Any businessman who want to start an Indian restaurant in Toronto. This project will provide the suitable locations for starting a new Indian restaurant in Toronto City. This project may provide insight where to start.

2. Data

2.1 Data Sources

Data for this project can be acquired by using foursquare API. The list of restaurants can be acquired by making call to the API. It will provide us with almost everything we need for this project. Name of the restaurants and where they are situated location etc.

Foursquare API: By making calls to API we can get data related to longitudes and latitudes of the Indian restaurants in the area the latitudes and longitudes will be enough to make clusters of the restaurants

From Foursquare API the following information was retrieved:

- Name: The name of the restaurant.
- Address: The address of the restaurant
- Latitude: The latitude value of the venue.

- Longitude: The longitude value of the venue.

	Name	Address	Latitude	Longitude
0	Pukka Restaurant	778 St Clair Ave West	43.681055	-79.429187
1	Banjara Indian Cuisine	796 Bloor St W	43.662916	-79.421911
2	Udupi Palace	1460 Gerrard St E	43.672480	-79.321275
3	Curry Twist	3034 Dundas St. West	43.665581	-79.470541
4	Marigold Indian Bistro	552 Mount Pleasant Rd.	43.702881	-79.388008

Geolocator: Geolocator is used to get the co-ordinates of a location in this project geolocator was used to get co-ordinates of Toronto city

2.2 Data Preprocessing:

For data to be used for further analysis it should be preprocessed and cleaned. The values which are not to be used in further analysis were dropped for example Columns were dropped which provided no insight for the analysis.

Columns dropped were:

- Name
- Address

New dataframe X created with only latitude and longitude values

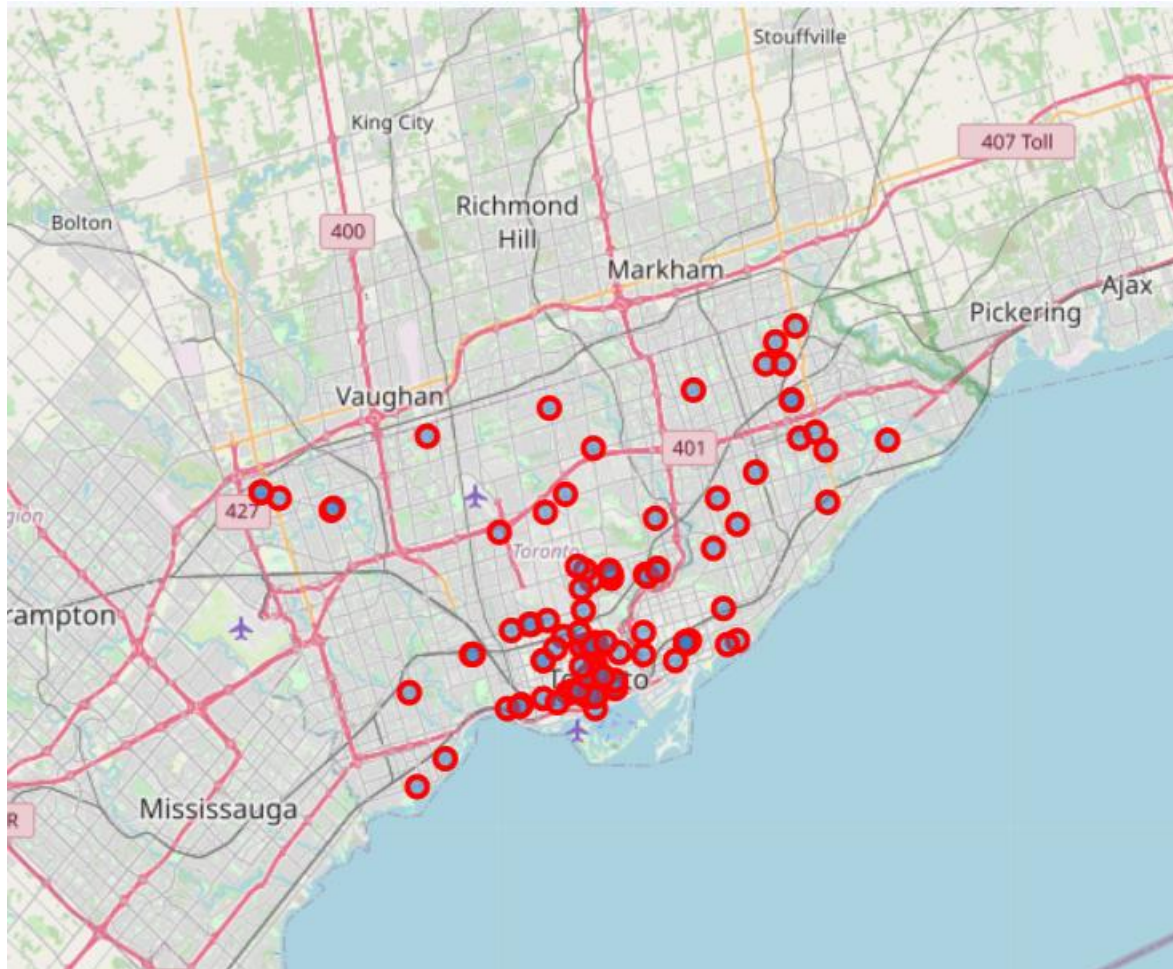
Data was now preprocessed and cleaned for the next stage of clustering

3. Methodology and Exploratory Data Analysis

3.1 Data Visualization

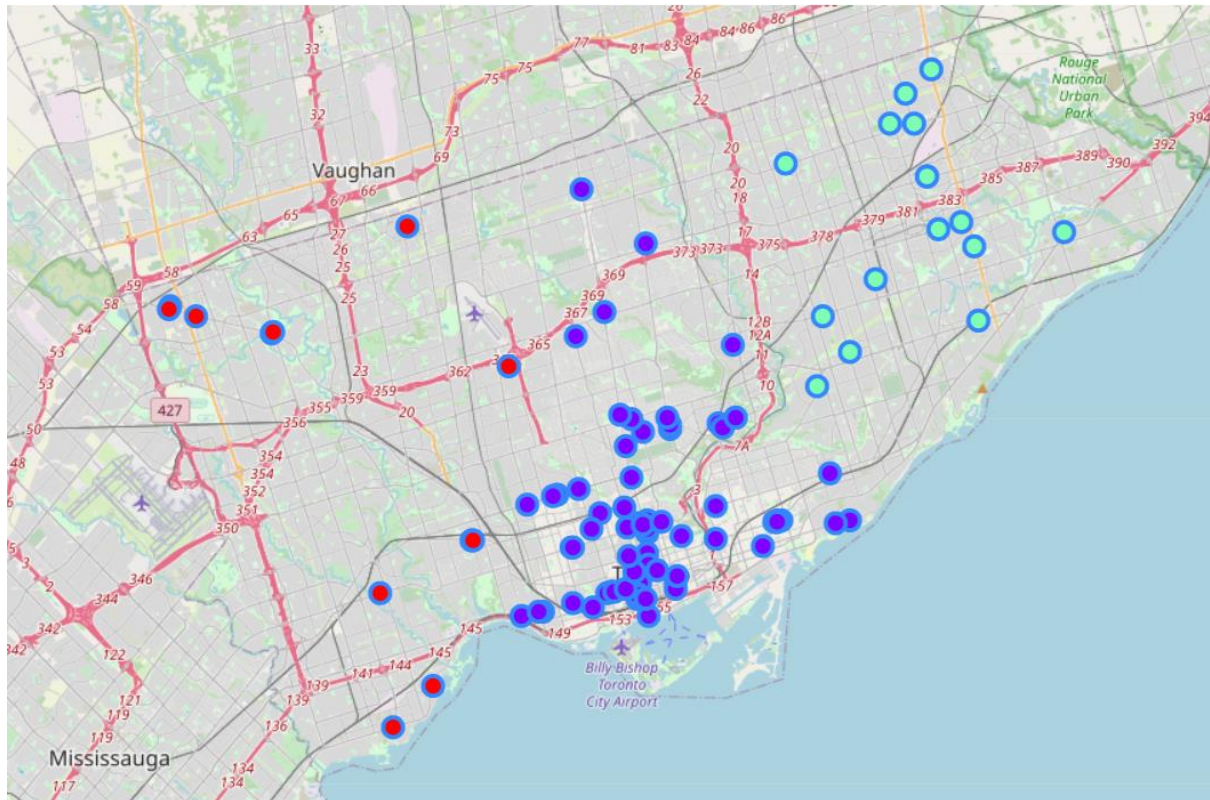
Plotting the all Indian restaurants we got on the map provided us with the idea what to do next

Having a look on the map we can observe that there are some dense clusters and some sparse points on the map. This give enough incentive to perform k means clustering to find out which clusters have more restaurants



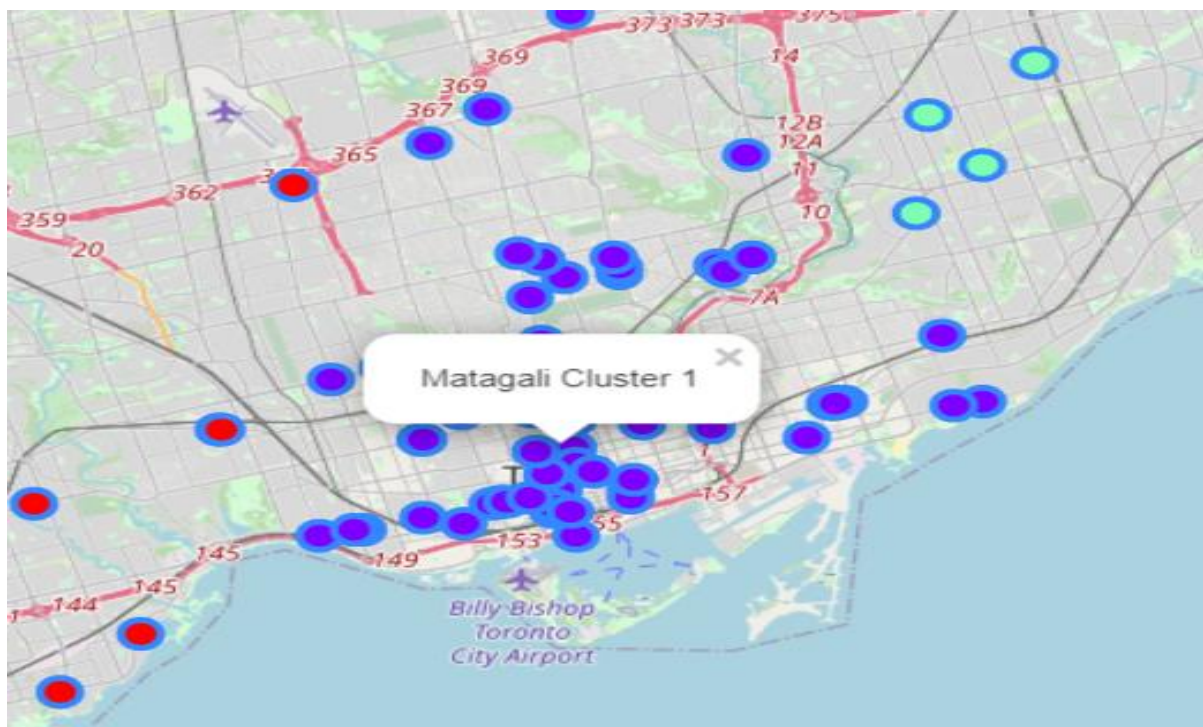
3.2 Clustering

K-means clustering is performed on the data for $n=3$ and we get the following 3 clusters. The locations for restaurants were divided into three groups and gives us idea which location can we recommend to our client for opening new restaurant



4. Results and Discussion

About 100 top Indian restaurants were plotted and the results suggested that most of the Indian restaurants falls in the cluster 1



Our client can use this information for starting his new venture. This project provided our client with the insights about the suitable location for his new restaurant

5. Conclusion

The purpose of this project was to find suitable location for opening a new Indian restaurant ,which it fulfils and provide us with the idea that the suitable location for opening a new restaurant will be anywhere in cluster 1.