

# Most suitable place to open a Bangladeshi restaurant in Toronto

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# Background

- ▶ Toronto is one of the most cosmopolitan cities in the world. It has a very diverse population with over 160 different languages spoken. On the global front, it is a very important business and financial hub. Each year Canada, and in particular Toronto draws an increased number of immigration from across the world due to its open and liberal approach to welcoming immigrants in search for better lives. As of 2016, Canada has 1,963,330 Canadians with South Asian geographical origins, constituting 5.6% of the Canadian population and 32% of Canada's Asian Canadian population. The population of South Asians in Toronto in 2016 stood at 995,125 and continuing to increase every year. In particular, the Bangladeshi community is steadily growing and has a population base of close 40,000. Many of the newly arrived immigrants from Bangladesh are very entrepreneurial and looking at ways to establish a successful business by establishing a South Asian restaurant, serving Bangladeshi cuisine in particular by identifying a particular gap in the market. In this assignment, we use location based data (from Foursquare), to identify the best borough and neighborhood to set up a Bangladeshi restaurant.

# Problem Statement & Interested Parties

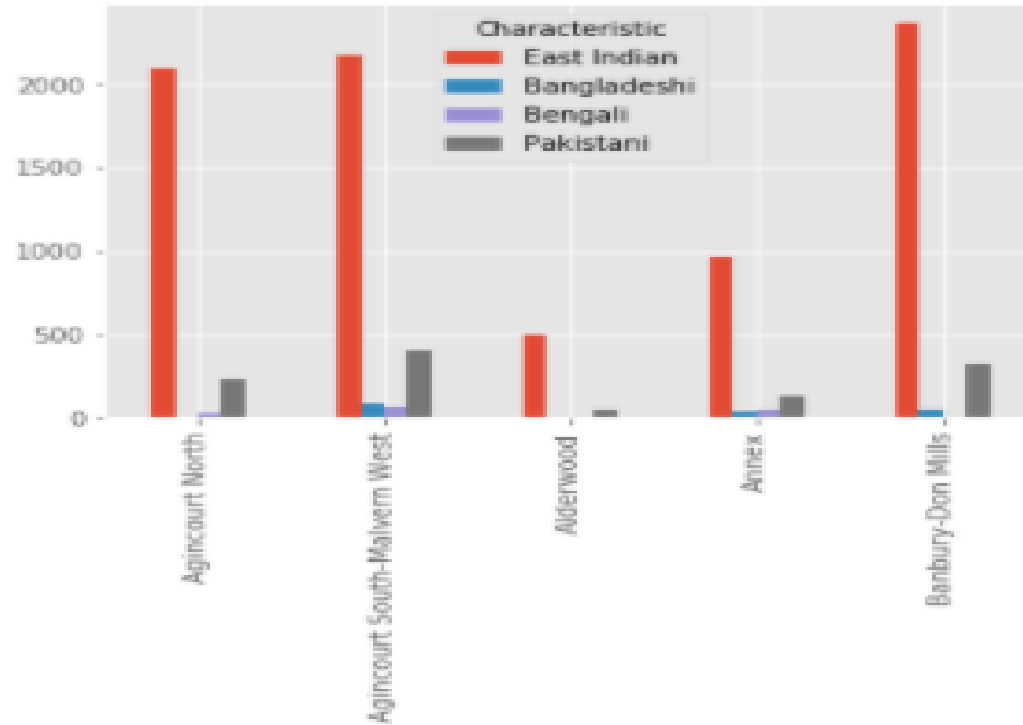
## ► 1.2 Problem

Setting up any new business comes with its own risk. In a bustling city like Toronto, the food scene can be very competitive, and opening a restaurant is a moderately risky venture. It will be prudent for any budding restaurateur, to seek data driven insights to understand the right location to setup the desired type of restaurant by looking at a numbers of parameters like cuisine concentration, trends, reviews and proximity to other revenues like malls, cinemas, etc. The project aims to develop a clustering model for identifying the right borough and neighborhood for setting up a Bangladeshi restaurant.

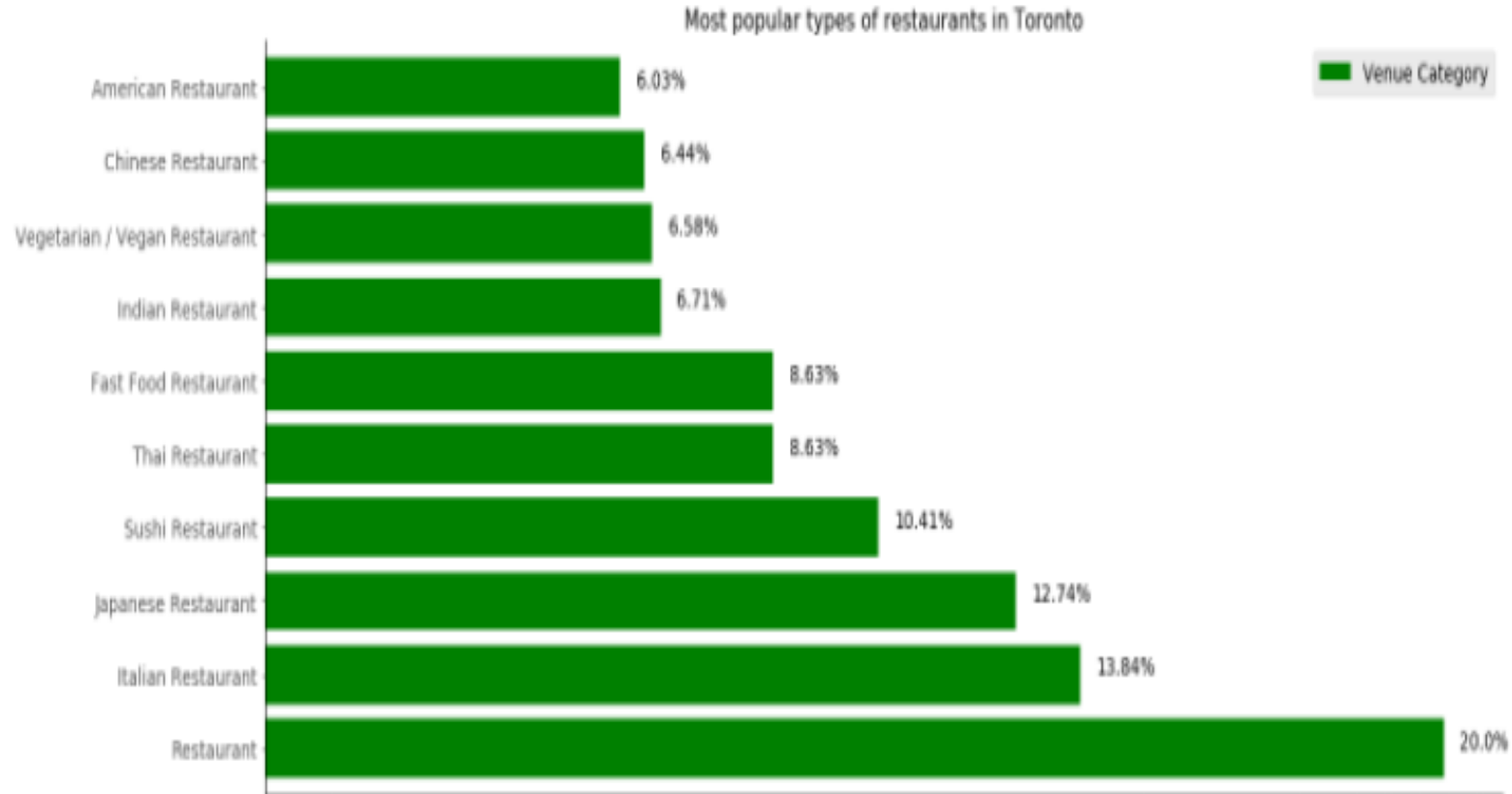
## ► 1.3 Interested Parties

The output of the model can be used by any entrepreneur for identifying the right location for setting up a Bangladeshi restaurant in Toronto. Additionally, in the future, the data collected could lead to insights that could be used by South Asian communities for lifestyle purposes for finding various venue information like restaurants, cafes, spiritual centres, clothing stores etc.

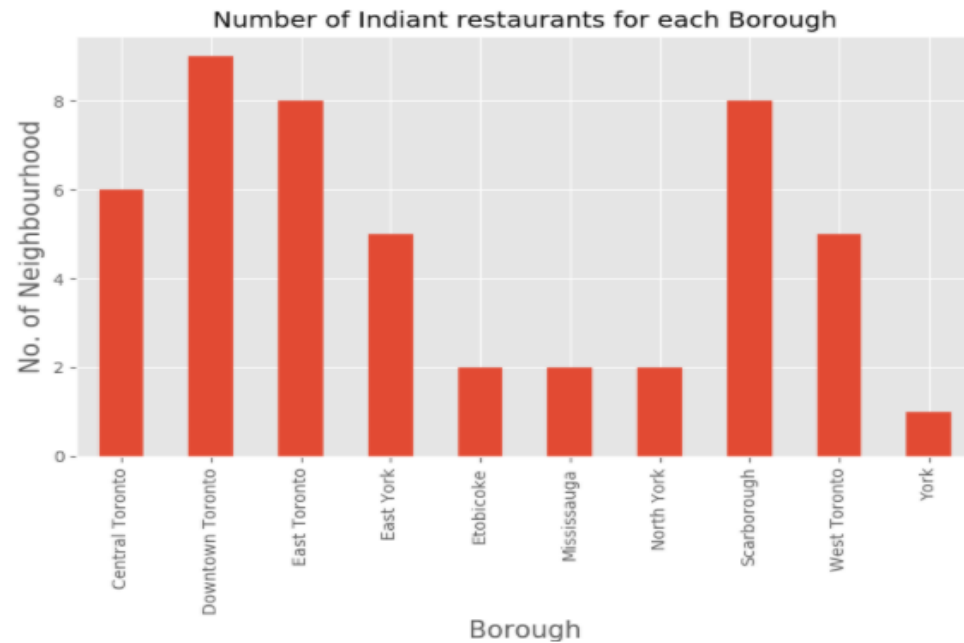
# South Asian population diversity



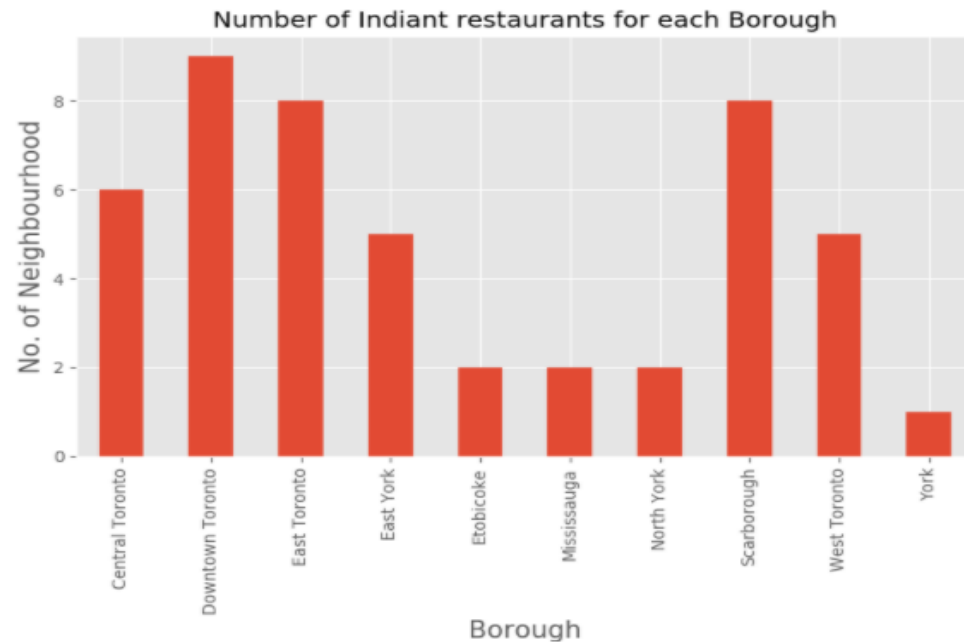
# Most popular cuisines in Toronto



# Total South Asian restaurants across the boroughs and neighbourhoods



# Total South Asian restaurants across the boroughs and neighbourhoods



# Modeling - K-means clustering

```
# set number of clusters
kclusters = 5

toronto_grouped_clustering = toronto_grouped.drop('Neighbourhood', 1)

# run k-means clustering
kmeans = KMeans(n_clusters=kclusters, random_state=0).fit(toronto_grouped_clustering)

# check cluster labels generated for each row in the dataframe
kmeans.labels_[0:10]

array([3, 3, 3, 3, 1, 1, 1, 1, 1, 1])
```

```
# add clustering labels
neighbourhoods_venues_sorted.insert(0, 'Cluster Labels', kmeans.labels_)
```

```
neighbourhoods_venues_sorted.shape
```

```
(98, 12)
```

```
kmeans.labels_
```

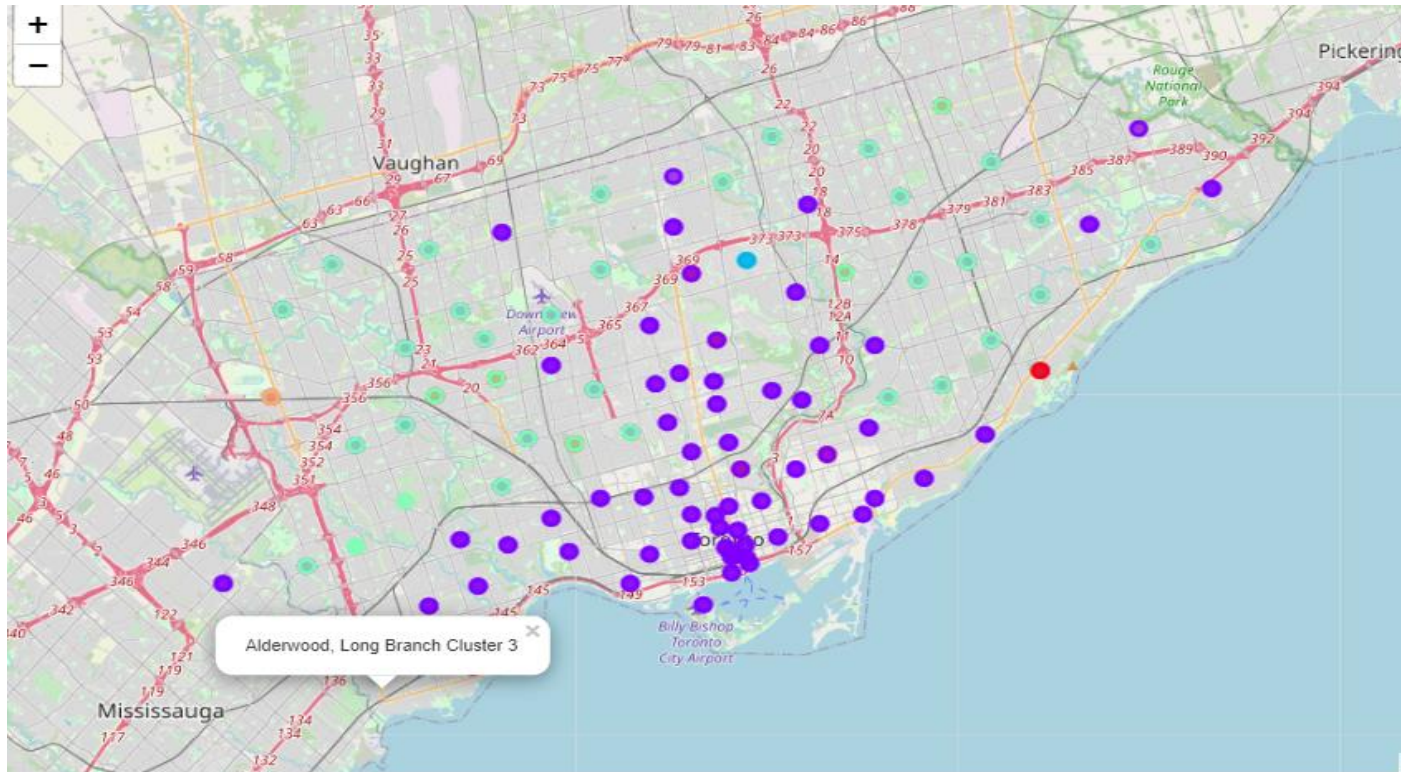
```
array([3, 3, 3, 3, 1, 1, 1, 1, 1, 1, 3, 1, 3, 1, 1, 1, 3, 0, 1, 1, 1, 3,
       1, 3, 3, 1, 1, 3, 1, 1, 1, 1, 3, 3, 3, 1, 1, 3, 3, 3, 1, 3, 3,
       1, 3, 1, 1, 1, 1, 3, 1, 1, 1, 3, 1, 4, 1, 1, 1, 3, 3, 1, 1, 1,
       1, 1, 1, 1, 3, 3, 3, 1, 1, 3, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 3,
       3, 3, 3, 1, 1, 3, 1, 1, 1, 2])
```

```
toronto_grouped_shape
```

- Cluster 0 is in Scarborough with the neighbourhoods 'Cliffside, Cliffcrest, Scarborough Village West'. It was not grouped with any other clusters due to the unique venue category. Cluster 0 has a Pizza place as the most common venue category.
- Cluster 1 is the largest cluster of neighborhood postal codes spread across the boroughs in Toronto. Cluster 1 can be categorized having a lot of coffee shops, cafes and park. Interestingly Indian restaurant has been observed to be 1<sup>st</sup> common venue for a neighbourhood within this cluster.
- Cluster 2 is another unique cluster in North York with parks, restaurants and pool.
- Cluster 3 is the 2<sup>nd</sup> largest cluster with primarily coffee shops and pizza places, banks and restaurants. This seems like an exciting and happening part of Toronto.
- Cluster 4 is a unique cluster with hotels and coffee shops, drug stores.



# Cluster visualization using folium maps



# Results & Conclusion

- Of the total boroughs we identified that only Central Toronto, Downtown Toronto, East Toronto, East York, North York & Scarborough boroughs have high amount of Indian restaurants with the help of Bar charts
- The borough/neighbourhood with highest number of India restaurant are East Toroto (India Bazaar, The Beaches West), Central Toronto (Davisville), East York (Thornccliffe Park), Central Toronto (The Annex, North Midtown, Yorkville), Downtown Toronto (Christie)
- Although Scarborough has a high density of South Asians living in it, the number of South Asian (Indian or Bangladeshi) restaurants do seem to as much as the other populous regions for South Asians.
- Cluster 3 seems like the ideal cluster to open a new Bangladeshi restaurant, due to the nature of the cluster where lots restaurants exists already. Moreover, cluster 3 quite a few Scarborough neighbourhood in it and because of the reason in the point above, it makes all the sense to open the Bangladeshi restaurant in Scarborough.