Predicting to open an Indian Restaurant

Introduction

- We analyse the neighborhoods in Toronto to identify the most profitable area since the success of the restaurant depends on the people and ambience.

- One of the most immigrant-friendly cities in North America with more than half of the entire Indian Canadian population residing in Toronto it is one of the best places to start an Indian restaurant.

- This idea of analysis is good for someone looking to open a restaurant in the Indian dense populated city. And also it is helpful for any contractor to take up this idea and do the business.

Data Sources

- I'm using "List of Postal code of Canada: M" wiki page to get all the information about the neighborhoods present in Toronto.

  (https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)

- Then I'm using "https://cocl.us/Geospatial_data" csv file to get all the geographical coordinates of the neighborhoods.

- To get information about the distribution of population by their ethnicity I'm using "Demographics of Toronto" wiki page.(https://en.m.wikipedia.org/wiki/Demographics_of_Toronto#Ethnic_diversity)

- To get location and other information about various venues in Toronto I'm using Foursquare's explore API.

Methodology

1. Exploratory Data Analysis
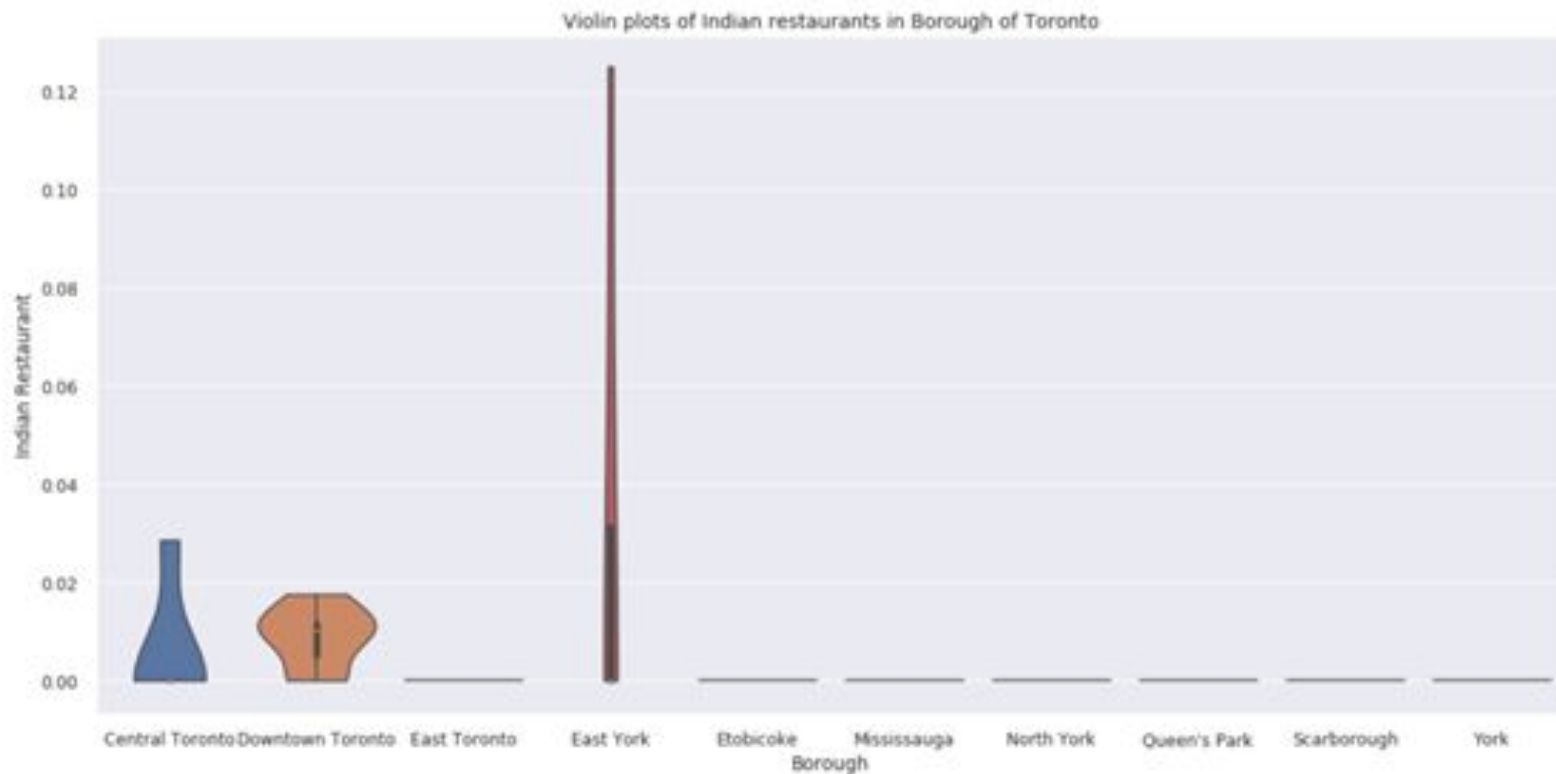
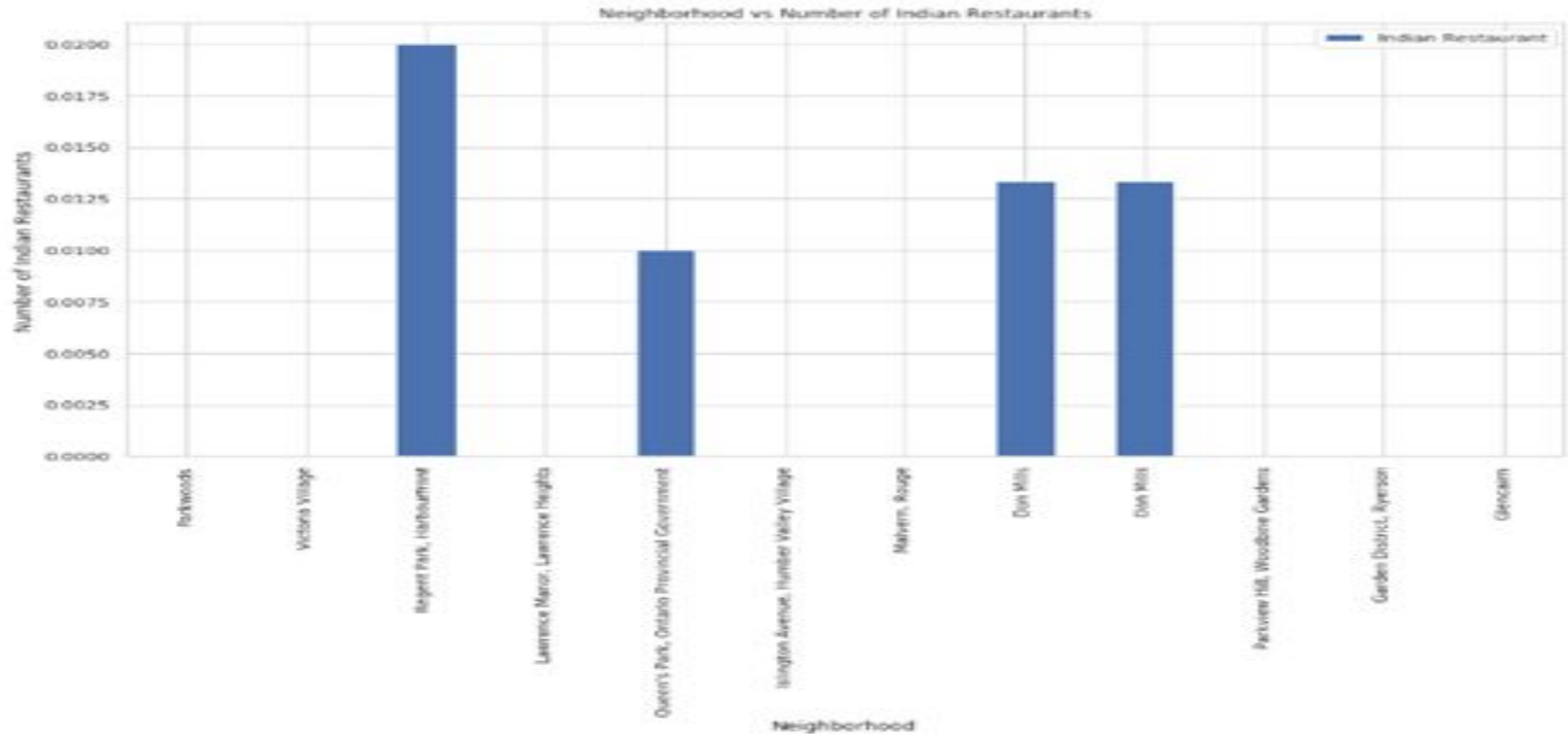2. Predictive Modelling
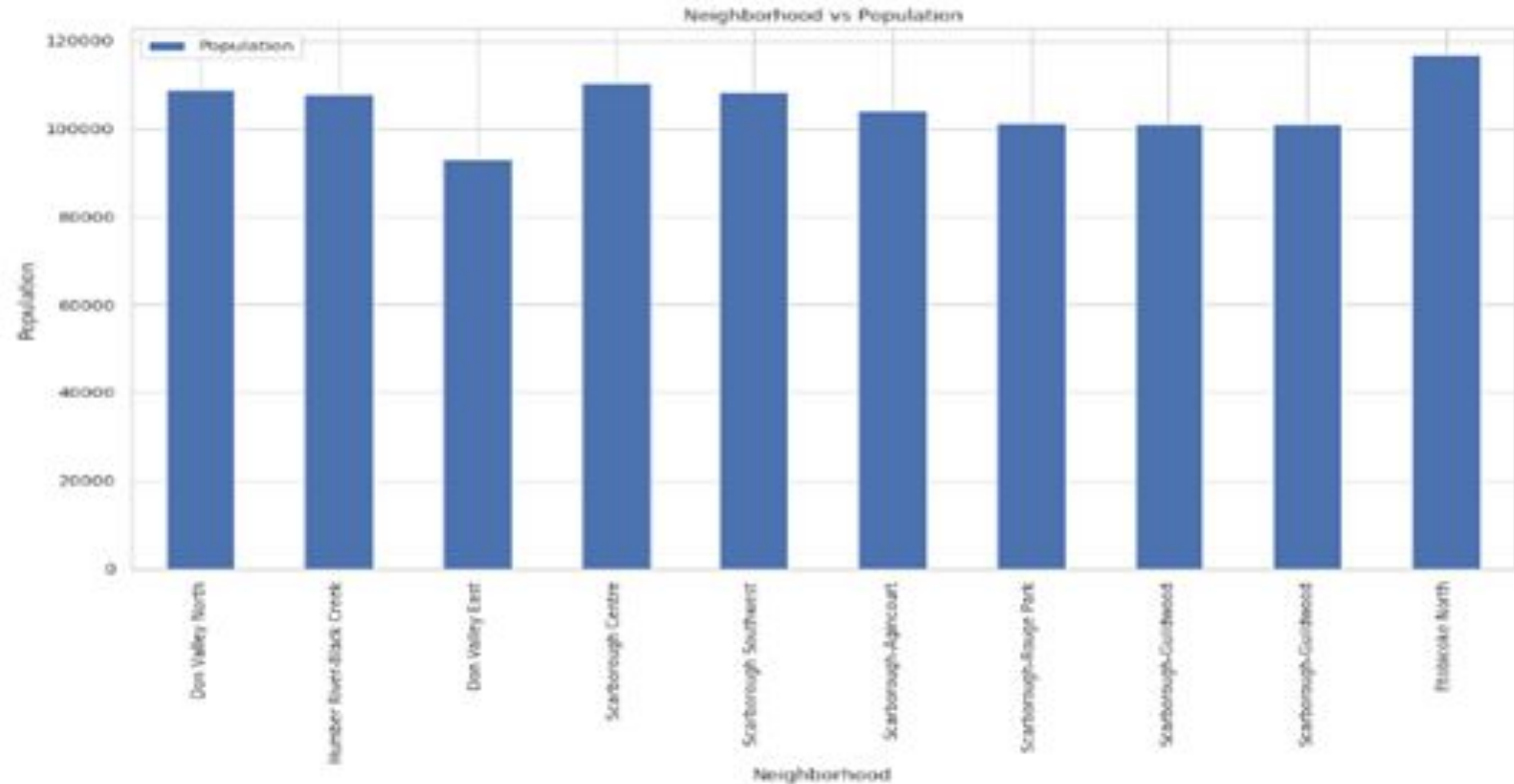
Exploratory Data Analysis

Folium Library and Leaflet Map

Relationship between Borough and Indian Restaurant

Violin plots of Indian restaurants in Borough of Toronto

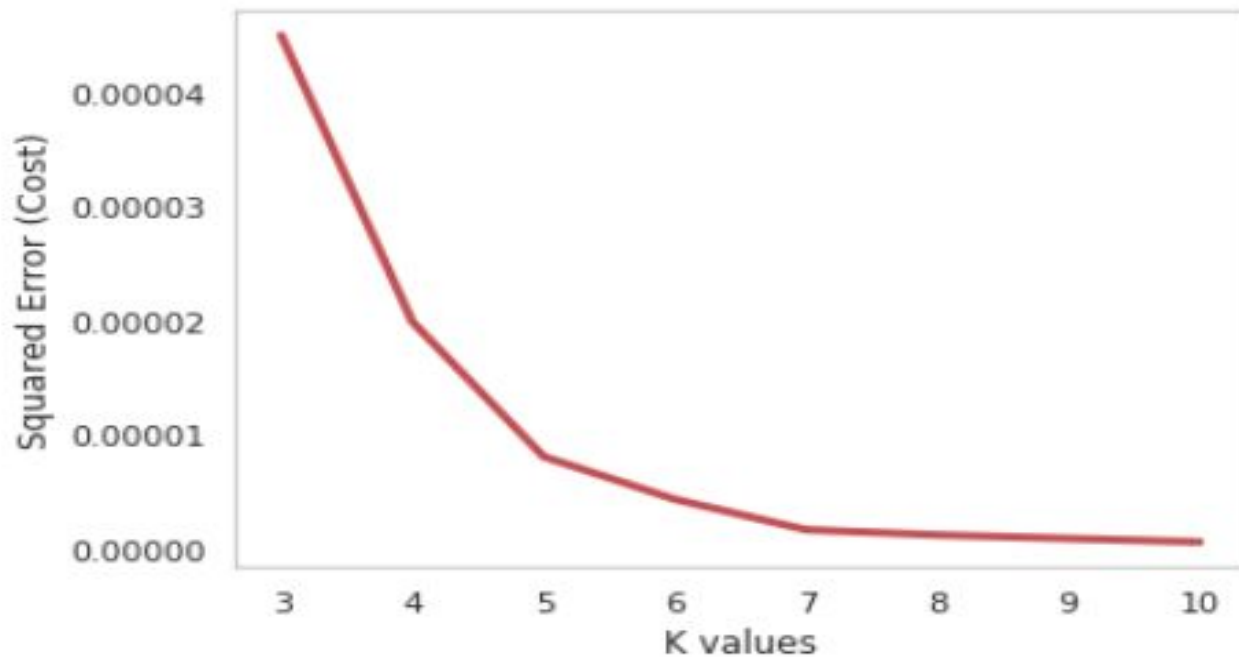# Relationship between Neighborhood and Indian Restaurant.

Relationship between neighborhood and Indian population

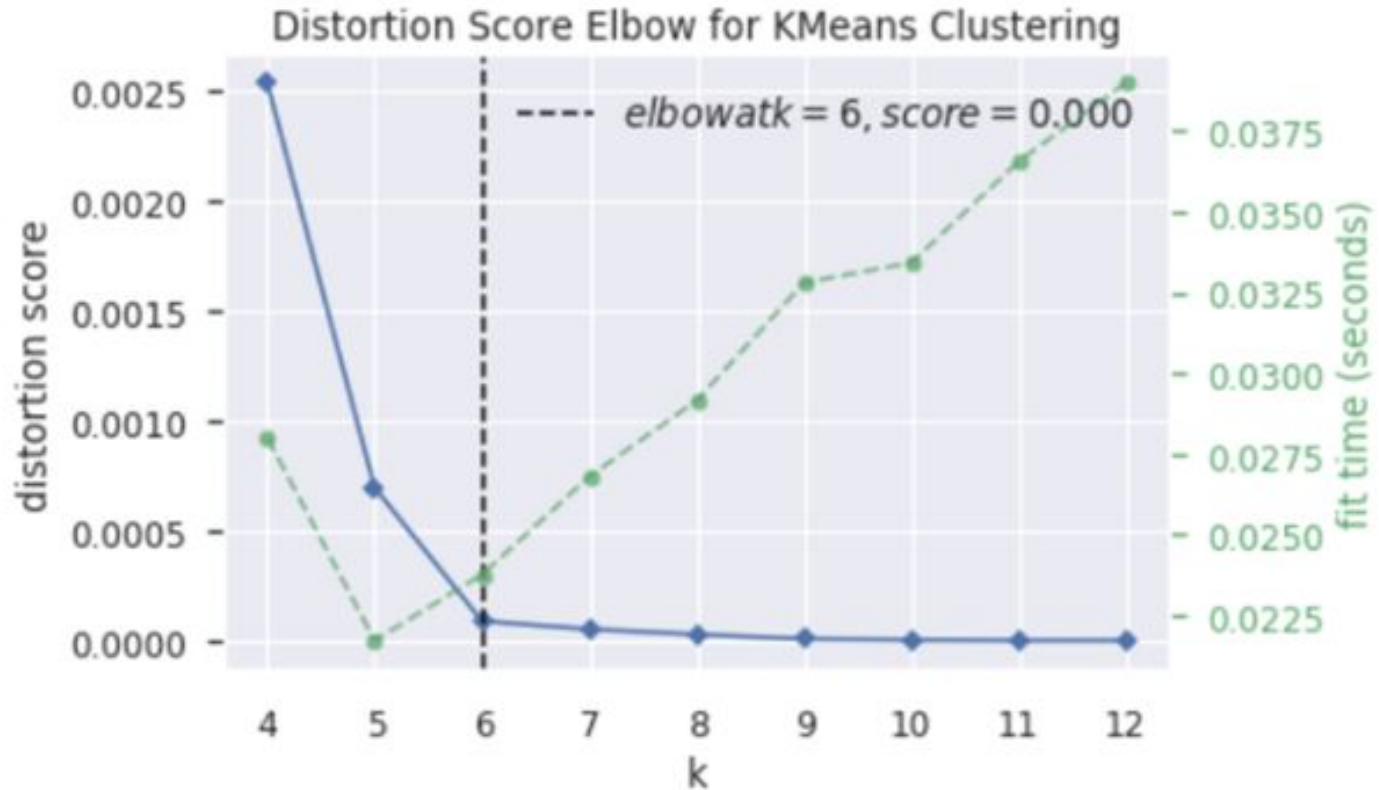# Predictive Modelling

Elbow method to identify best K value

Elbow visualizer to identify the K value

Distortion Score Elbow for KMeans Clustering

Map of Clustering Neighborhoods of Toronto

Results

- In those boroughs we identified that only Central Toronto, Downtown Toronto, East Toronto, & East York boroughs have high amount of Indian restaurants with the help of bar plots between Number of Indian restaurants in Borough of Toronto.

- With the help of clusters examining looks like Downtown Toronto, Central Toronto, East York are already densely populated with Indian restaurants. So it is better idea to leave those boroughs out and consider only Scarborough, East Toronto & North York for the new restaurant's location.

- After careful consideration it is a good idea to open a new Indian restaurant in Scarborough borough since it has high number of Indian population which gives a higher number of customers possibility and lower competition since very less Indian restaurants in the neighborhoods.

Discussions

- According to this analysis, Scarborough borough will provide the least competition for the new upcoming Indian restaurant as there are very little Indian restaurants spread or no Indian restaurants in few neighborhoods.

- Also looking at the population distribution looks like it is densely populated with Indian crowd which helps the new restaurant by providing high customer visit possibility.

- Some of the drawbacks of this analysis are — the clustering is completely based only on data obtained from Foursquare API.

Conclusions

- Finally to conclude this project, we have got a chance to on a business problem like how a real like data scientists would do. We have used many python libraries to fetch the data, to manipulate the contents & to analyse and visualize those datasets.

- Some of the drawbacks or areas of improvements shows us that this analysis can be further improved with the help of more data and different machine learning technique.

- we can use this project to analysis any scenario such as opening a different cuisine restaurant or opening of a new gym and etc.