FINDING THE BEST AREA TO OPEN A NEW RESTAURANT IN TORONTO

APPLIED DATA SCIENCE CAPSTONE BY IBM/COURSERA

Introduction

- Toronto is one of the most populous city in Canada

- A restaurant is a business which prepares and serves food and drink to customers in return for money

- In this project we will try to find an optimal location for a restaurant in Toronto
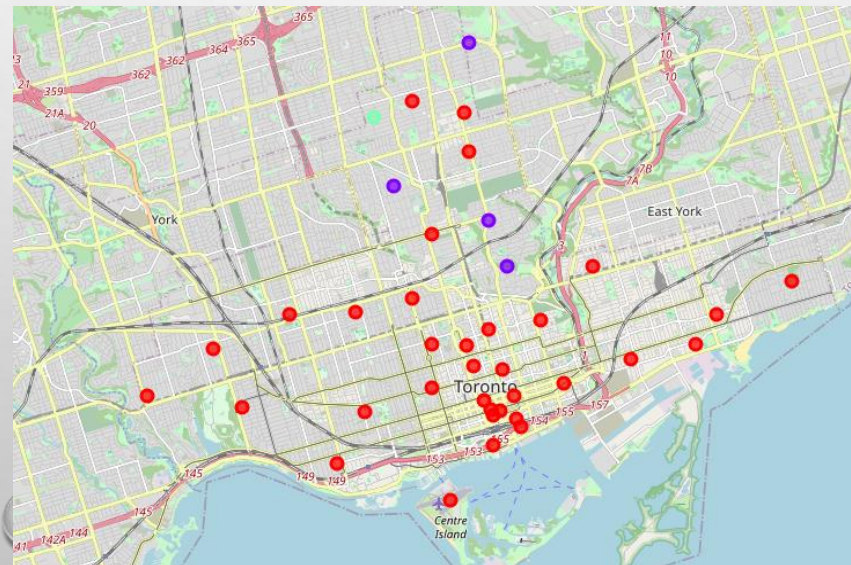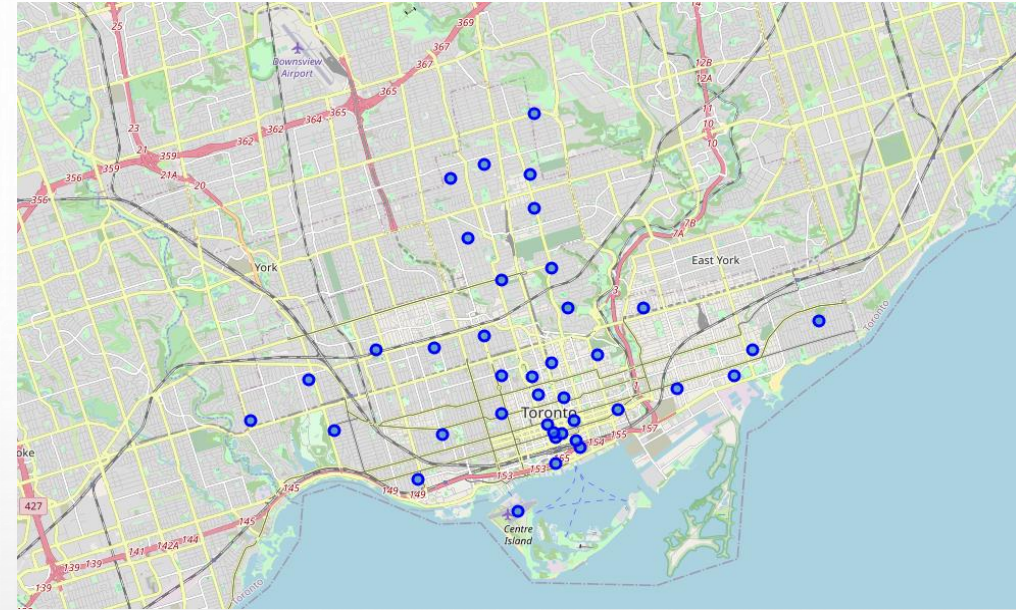
- Machine learning process is used in this study

Data Acquisition

- **A Wikipedia page exists that has all the information we need to explore and cluster the neighborhoods in Toronto**

- ➢ **https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M**
- ➢ **http://cocl.us/Geospatial_data**

- **Three most common venues in these neighborhoods in Toronto will be obtained using Foursquare API**

	Postal Code	Borough	Neighbourhood	Latitude	Longitude
0	M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636
1	M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494
2	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937
3	M5C	Downtown Toronto	St. James Town	43.651494	-79.375418
4	M4E	East Toronto	The Beaches	43.676357	-79.293031

Methodology

- **A map of Toronto with the neighborhoods is obtained**
- **Then top 100 venues in Toronto with the radius of 0.5 km are specified and neighborhoods are clustered using k-means into 3 clusters.**

Results and Discussion

- **Neighborhoods with the 1st and 2nd most common venues as restaurants are obtained**

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
0	High Park, The Junction South	Mexican Restaurant	Café	Bar
1	Kensington Market, Chinatown, Grange Park	Vegetarian / Vegan Restaurant	Mexican Restaurant	Bar
2	The Danforth West, Riverdale	Greek Restaurant	Coffee Shop	Italian Restaurant

1st most common restaurant

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
0	Church and Wellesley	Coffee Shop	Sushi Restaurant	Japanese Restaurant
1	Commerce Court, Victoria Hotel	Coffee Shop	Restaurant	Café
2	Forest Hill North & West, Forest Hill Road Park	Park	Sushi Restaurant	Jewelry Store
3	Kensington Market, Chinatown, Grange Park	Vegetarian / Vegan Restaurant	Mexican Restaurant	Bar
4	St. James Town, Cabbagetown	Coffee Shop	Restaurant	Pizza Place
5	Stn A PO Boxes	Coffee Shop	Italian Restaurant	Restaurant
6	Summerhill West, Rathnelly, South Hill, Forest...	Coffee Shop	American Restaurant	Restaurant

2nd most common restaurant

Conclusions

- By calculating the most common venues in each neighborhood of Toronto, restaurant density distribution in these neighborhoods are obtained

- Clustering of those locations was then performed in order to create major zones of interest

- The 1st and 2nd most common venues as restaurant in all neighborhoods are obtained and the stakeholders can decide where to open their new restaurant