



A JOURNEY INTO THE RESTAURANTS OF TORONTO

The Battle of
Neighborhoods – Coursera
Capston Project

INTRODUCTION

- ✓ Toronto is the most populous city in Canada, and one of the most multicultural cities in the world.
- ✓ Cuisine is a key ingredient for knowing different cultures and habits, and is one of the most immediate methods for tourists to get in touch with different cultures.
- ✓ The goal of the project is to give a simple recommendation to tourists in Toronto regarding the district of the city in which they could find the higher concentration of specific kinds of restaurants.
- ✓ In particular the analysis will focus on the possibility of finding vegetarian restaurants.

DATA OVERVIEW

We will leverage Foursquare location data and machine learning to address the problem, in particular, Foursquare location data and clustering methods will allow to group the neighbourhoods according to their restaurant venues information.

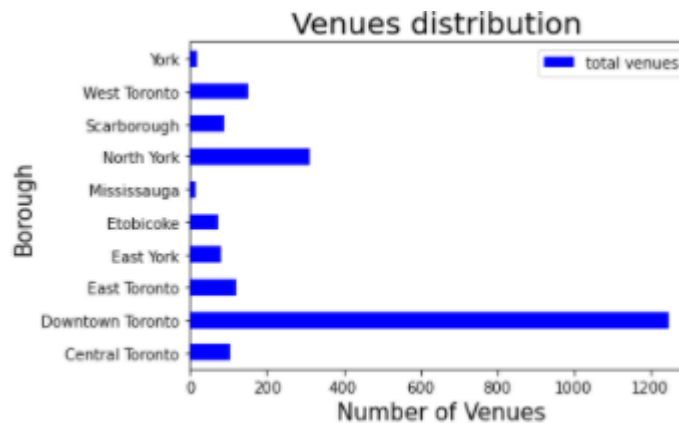
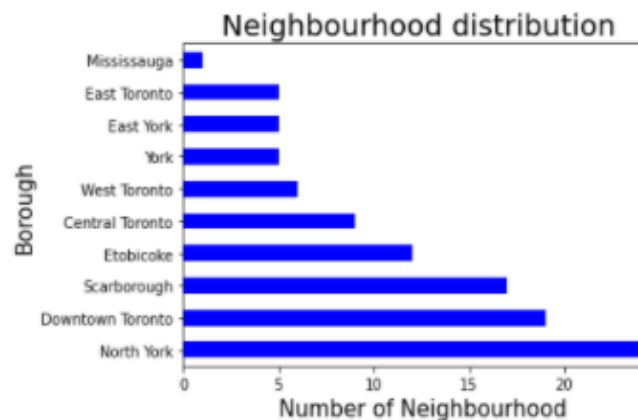
In detail, the data will be collected via several CVS file from difference data sources:

- via Wikipedia, we will collect the list of neighbourhoods in Toronto (
- via Geocoder package, we will address the Geographical location of the neighbourhoods
- via Forursquare we will collect the Venue data, and in particular the restaurants in Toronto.

BOROUGH CHARACTERIZATION

Toronto has 240 neighbourhoods, grouped into 10 Boroughs.

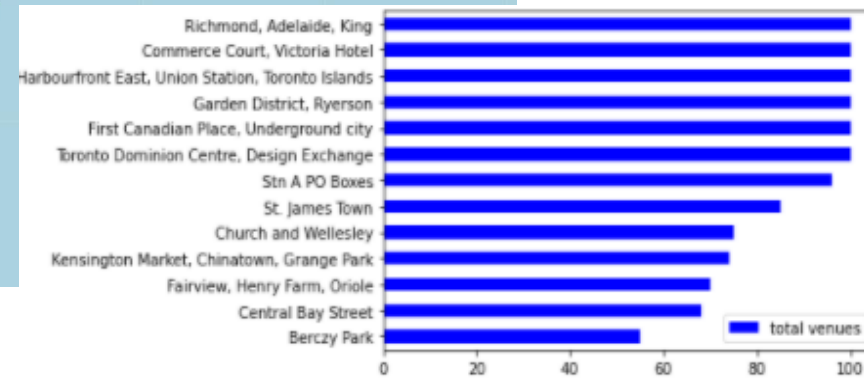
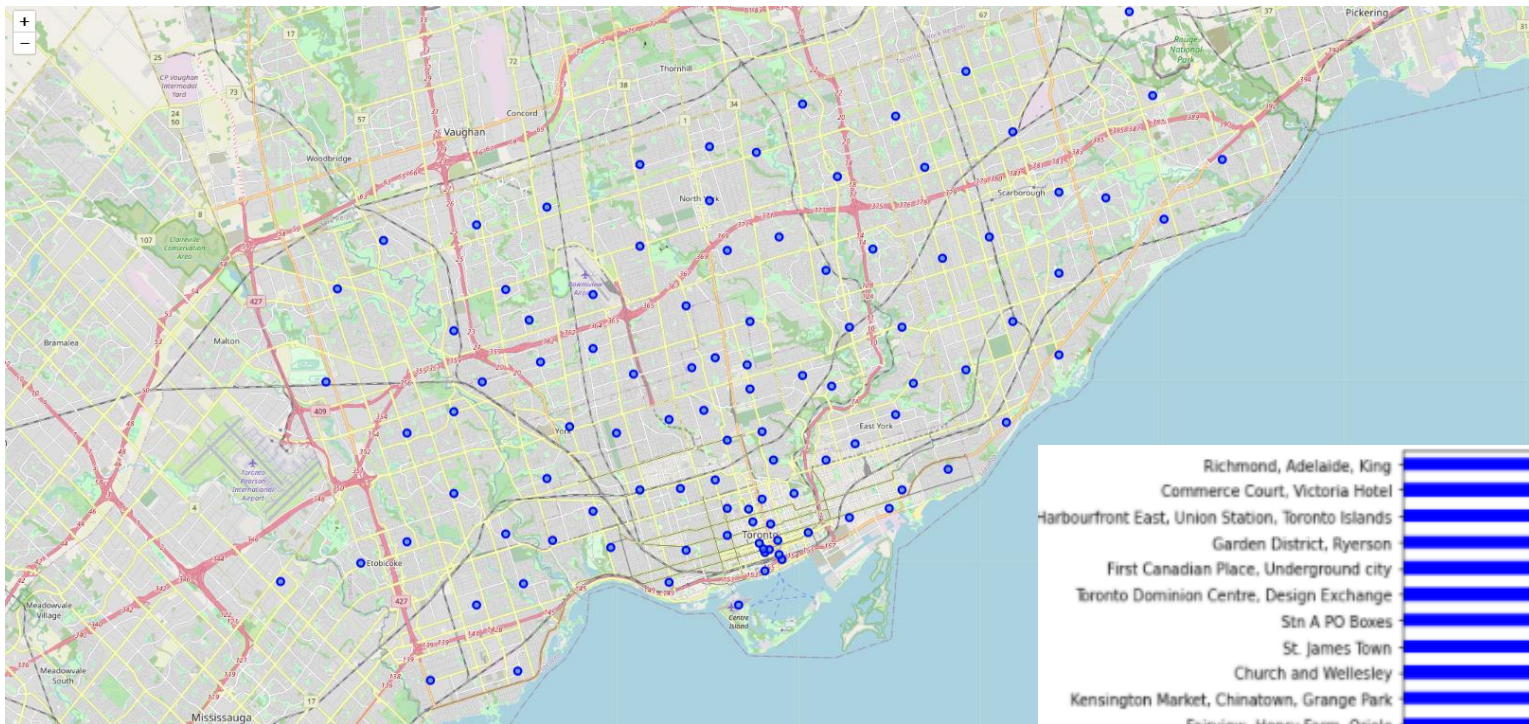
From a tourist point of view, Downtown Toronto is the borough most rich of venues, followed by North York and West Toronto.



Borough	Number of venues
Downtown Toronto	1248
North York	312
West Toronto	153
East Toronto	119
Central Toronto	104
Scarbourough	90
East York	79
Etobicoke	74
York	20
Mississauga	13

NEIGHBOURHOOD CHARACTERIZATION

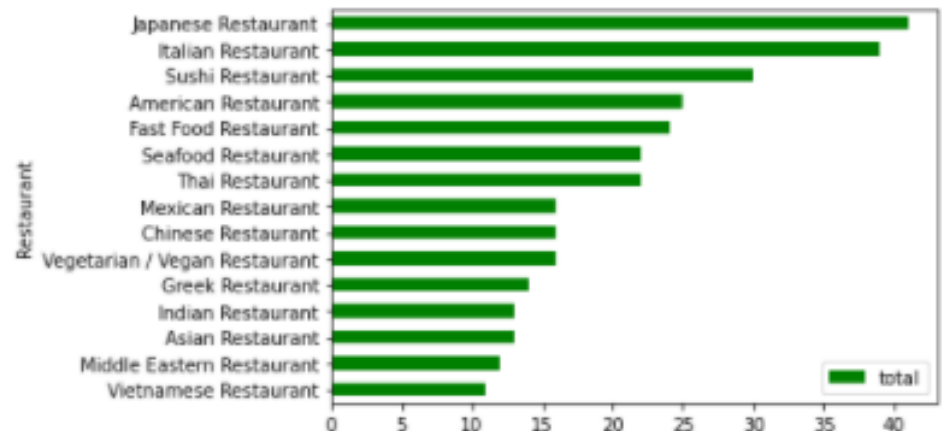
Map of Neighbourhoods location and representation of Neighbourhoods with more than 50 venues.



TOP RESTAURANTS IN TORONTO

Toronto has 483 restaurants representing 50 different style of cuisines. The most widespread are the Japanese and the Italian ones.

Restaurant	Total
Japanese	41
Italian	41
Sushi	29
American	26
Fast Food	25
Thai	22
Seafood	22
Vegetarian/Vegan	16

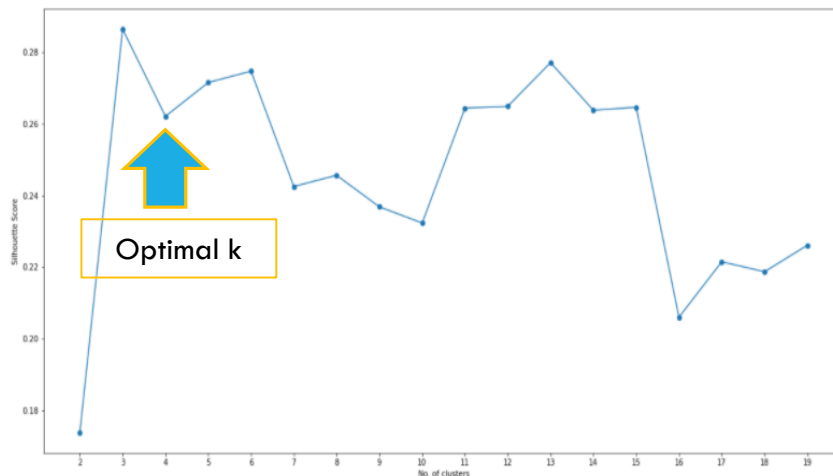


CLUSTERING OF NEIGHBOURHOODS BASED ON RESTAURANTS

Machine learning methods (such as Kmeans) show that Toronto Neighbourhoods can be clustered based on the Restaurants characteristics.

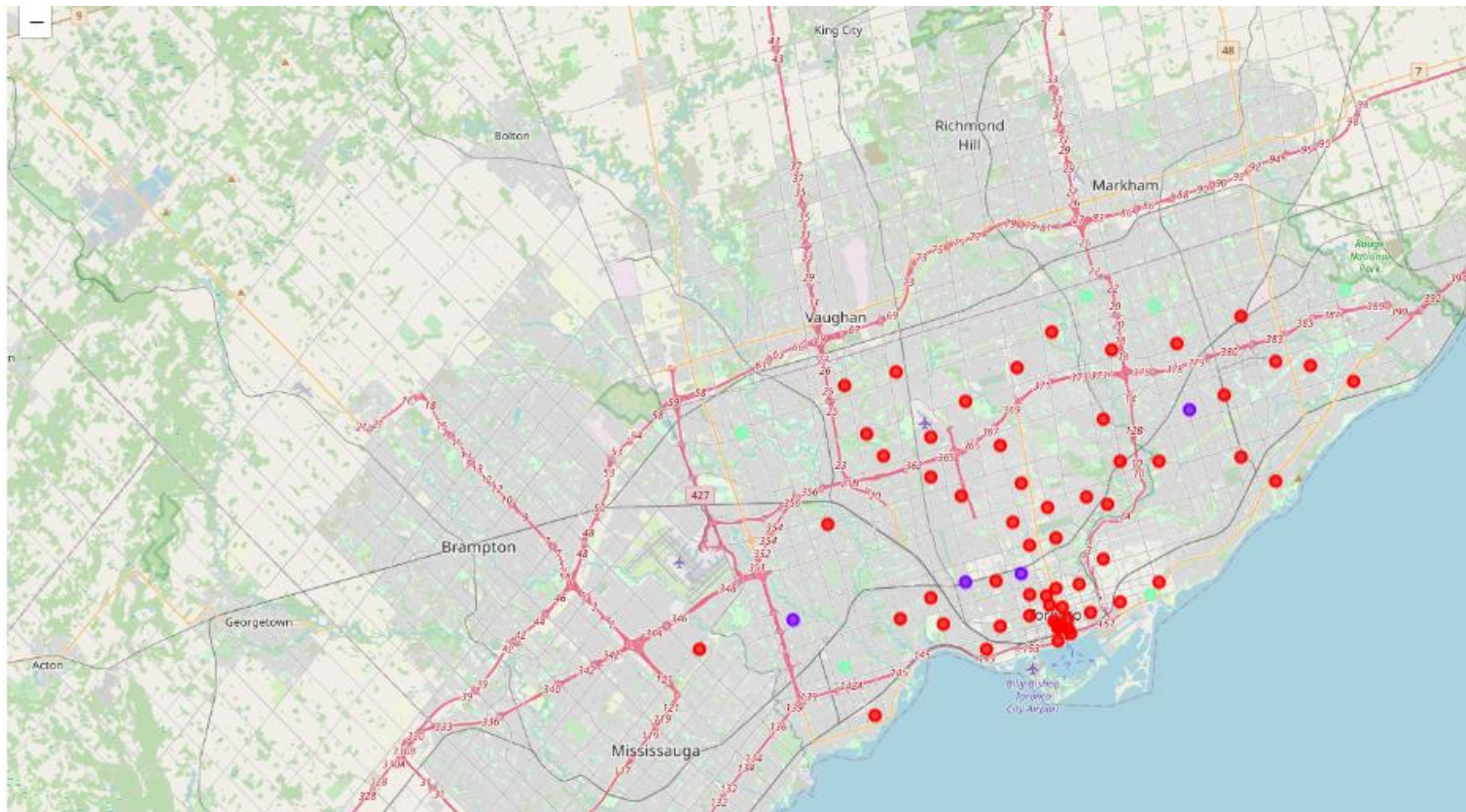
Silhouette Score predicts an optimal k equal to 3.

We found 3 different clusters in Toronto based on restaurants.

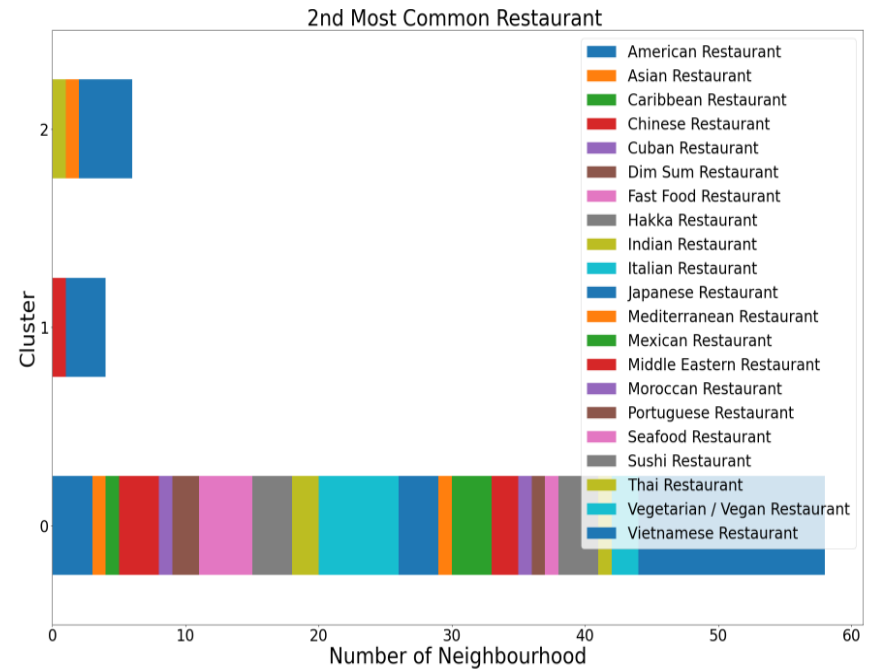
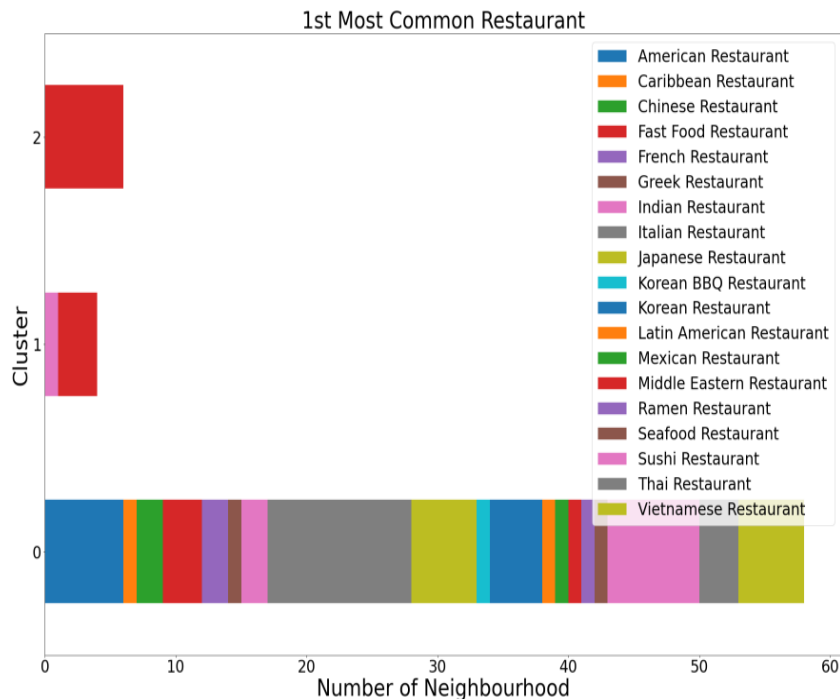


# Cluster	Number of neighbourhoods
0	58
1	6
2	4

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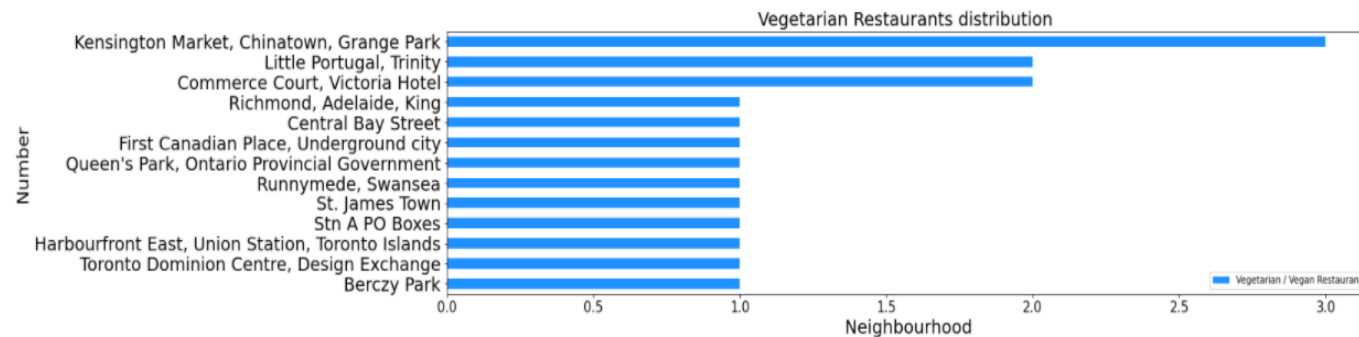
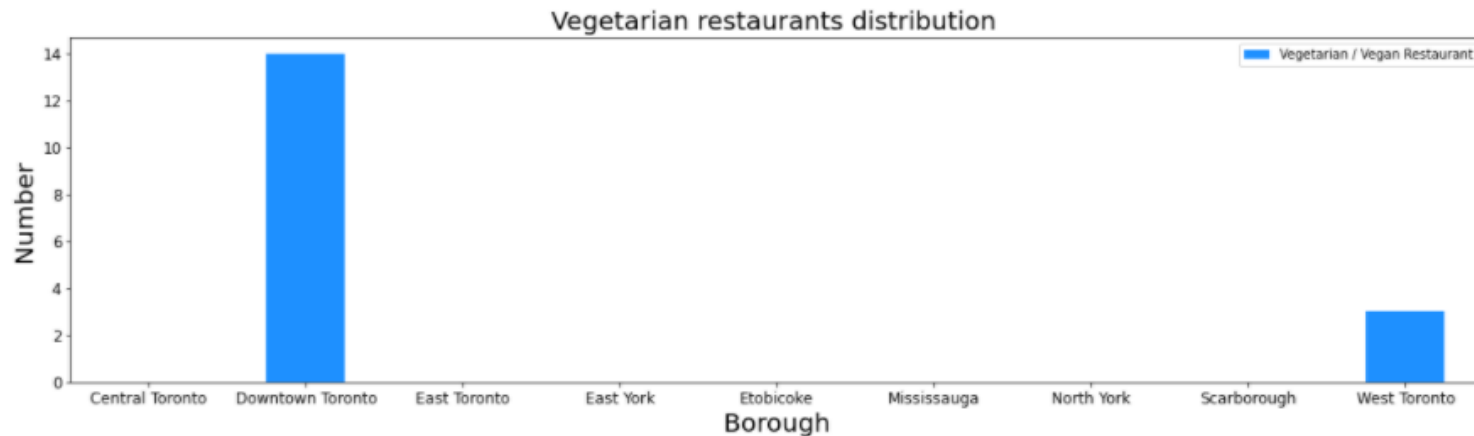


FIRST AND SECOND MOST COMMON RESTAURANTS FOR EACH CLUSTER



VEGETARIAN RESTAURANTS

There are 17 Vegetarian Restaurants in Toronto, mainly concentrated in Downtown Toronto.



CONCLUSION

- ❑ To conclude, in the project we have investigated the restaurants distribution in the neighbourhoods of Toronto. We have classified the neighbourhoods according to the most common restaurants you can find there.
- ❑ We used k-means for clustering and we found three different clusters.
- ❑ Finally, we focused on the possibility of finding vegetarian restaurants in the city of Toronto, and we found they are very concentrated in downtown Toronto.