

Capstone Project - The Battle of the Neighborhoods

Introduction

Toronto is the most populous city in Canada and the fourth most populous city in North America. Toronto has population of 2,731,571(2016,Wikipedia), and is an international centre of business, finance, arts, and culture, and is recognized as one of the most multicultural and cosmopolitan cities in the world.

Canada's largest city comes to mind as I stroll around downtown Toronto which is peppered with buzzing cafés, eateries with changing chalkboard menus, bars serving artisanal cocktails, vibrant food trucks and delis and bakeries redolent of freshly baked goods.

(Read more at: https://economictimes.indiatimes.com/magazines/panache/why-toronto-is-a-paradise-for-foodies/articleshow/61895555.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst)

I would like to make regional clustering of venue information using Foursquare location to inform the cuisine diversity in Toronto by borough.

My work is aimed towards Entrepreneurs or Business owners who want to open a new Restaurant or grow their current business. The analysis will provide vital information that can be used by the target audience.

Data

- Data 1: Use a real world data set from wikipedia showing Neighborhoods in Toronto.

Data source : https://en.wikipedia.org/w/index.php?title=List_of_postal_codes_of_Canada:_M&direction=next&oldid=942655364

- Data 2: Use a real world data set of postal code in Tronto from csv file.

Data source : http://cocl.us/Geospatial_data

- Data 3: Gathering additional information about restaurants in Toronto from Foursquare.

Data source : https://api.foursquare.com/v2/venues/explore?&client_id={} &client_secret={} &v={} &ll={},{} &radius={} &limit={}

I used data 1 and data 2 to be merged so that I get postal code with decimal infomation for each borough. Then I gathered the additional information about the restaurants in toronto and preprocessed the data to make it more intuitive. For example, what kind of cuisine is the most common in certain area in Toronto.

Analysis

I used k-mean cluster to analysing the data and then created the map figure so that what cluster belongs where.

Results

There are two clusters and I attached each cluster's detailed information below.

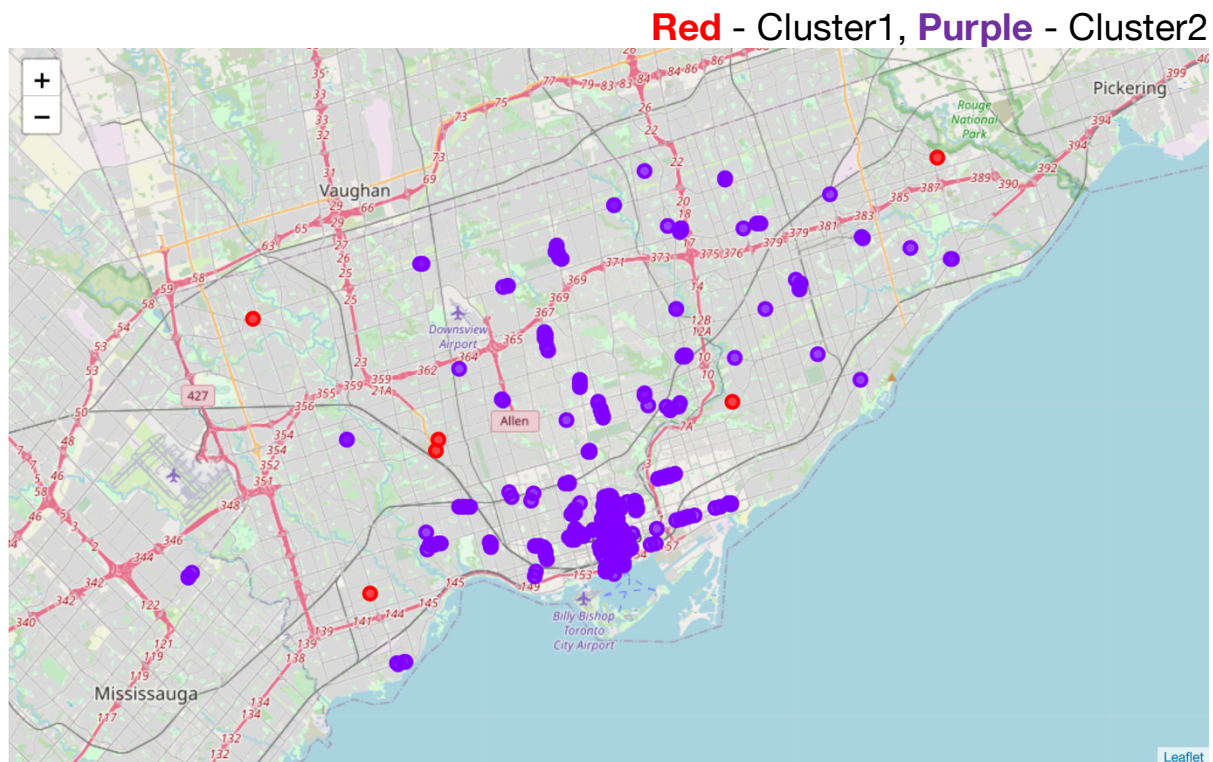
Cluster 1

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
99	Rouge, Malvern	Fast Food Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Falafel Restaurant	Ethiopian Restaurant	Eastern European Restaurant
115	Woodbine Gardens, Parkview Hill	Fast Food Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Falafel Restaurant	Ethiopian Restaurant	Eastern European Restaurant
1314	Del Ray, Keelesdale, Mount Dennis, Silverthorn	Fast Food Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Falafel Restaurant	Ethiopian Restaurant	Eastern European Restaurant
1747	Albion Gardens, Beaumont Heights, Humburgate, ...	Fast Food Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Falafel Restaurant	Ethiopian Restaurant	Eastern European Restaurant
2119	Kingsway Park South West, Mimico NW, The Queen...	Fast Food Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Falafel Restaurant	Ethiopian Restaurant	Eastern European Restaurant

Cluster 2

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
3	Victoria Village	Portuguese Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant	Falafel Restaurant	Ethiopian Restaurant
12	Harbourfront	Asian Restaurant	French Restaurant	Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	Filipino Restaurant	Fast Food Restaurant	Falafel Restaurant
53	Lawrence Heights, Lawrence Manor	Vietnamese Restaurant	Dim Sum Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant	Falafel Restaurant	Ethiopian Restaurant	Eastern European Restaurant
67	Queen's Park	Sushi Restaurant	Italian Restaurant	Mexican Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant	Falafel Restaurant
100	Don Mills North	Japanese Restaurant	Caribbean Restaurant	Vietnamese Restaurant	Doner Restaurant	Gluten-free Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant	Falafel Restaurant
125	Ryerson, Garden District	Middle Eastern Restaurant	Japanese Restaurant	Ramen Restaurant	Italian Restaurant	Fast Food Restaurant	Chinese Restaurant	Modern European Restaurant	Ethiopian Restaurant	Thai Restaurant	Seafood Restaurant
217	Glencairn	Asian Restaurant	Sushi Restaurant	Japanese Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	German Restaurant	French Restaurant	Filipino Restaurant	Fast Food Restaurant	Falafel Restaurant
223	Flemingdon Park, Don Mills South	Asian Restaurant	Restaurant	Italian Restaurant	Japanese Restaurant	Chinese Restaurant	Dim Sum Restaurant	Vietnamese Restaurant	Eastern European Restaurant	German Restaurant	French Restaurant
251	St. James Town	American Restaurant	Restaurant	Italian Restaurant	Japanese Restaurant	Moroccan Restaurant	Middle Eastern Restaurant	New American Restaurant	German Restaurant	Vegetarian / Vegan Restaurant	Comfort Food Restaurant

Cluster 1&2 on map



If a company want to open a restaurant in preferred location and irrespective of cuisine, refer to that neighborhood in specific cluster and chose cuisine with the least common restaurant for better profits

If a company want to open a restaurant with a preferred cuisine and irrespective of location, refer to the cluster with the least number of restaurants with that specific cuisine and select one among the neighborhoods based on company's preference.

Conclusion

This analysis is performed on limited data. This may be right or may be wrong. But if good amount of data is available there is scope to come up with better results. If there are lot of restaurants probably there is lot of demand. Toronto has so many restaurants, yet certain neighborhood or borough doesn't have a specific cuisine restaurant available. As per the neighborhood or restaurant type mentioned like fast food restaurant analysis can be checked. A venue with lowest risk and competition can be identified.