

COMPARE TORONTO AND VANCOUVER FOR INVESTORS

SEGMENTATION OF NEIGHBORHOODS.



Why should we compare Toronto and Vancouver?

- Two of the most representative cities in Canada.
- Discover the top common venues in both regions.
- Developing patterns are same or different?
- What's the advantages of these two cities
- What's the cons of them
- Find the opportunities for investors



Data acquisition and cleaning

Wikipedia(Toronto): [List of postal codes of Canada: M](#)

Wikipedia(Vancouver): [List of postal codes of Canada: V](#)

[Latitudes and longitudes\(Vancouver\)](#)

[Latitudes and longitudes\(Toronto\)](#)

Drop all the nan and not assigned values.

Eliminate the duplicate stuff and combine into one row or column.

Merge the datasets into one table using postal codes and locations.

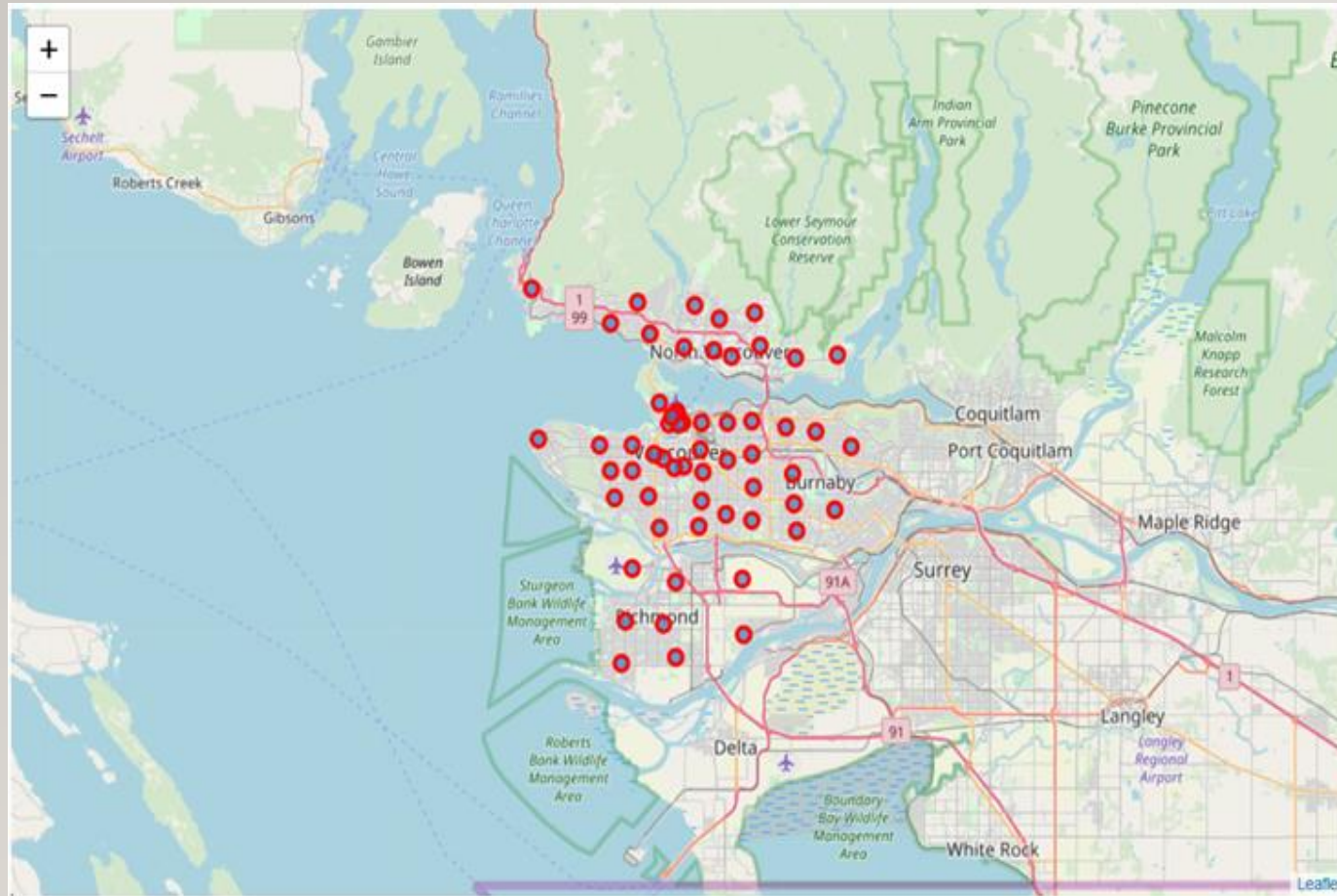
The complete data is composed of postcodes, borough, neighborhoods, latitudes and longitudes.



Using Nominatim from geopy.geocoders to render the maps (preview)



Toronto



Vancouver

Calculate the frequency and see the top common venues in both cities.

	Neighbourhood	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
0	Berczy Park	Coffee Shop	Cocktail Bar	Restaurant	Farmers Market	Cheese Shop	Café	Pub	Bakery	Steakhouse	Italian Restaurant
1	Business Reply Mail Processing Centre 969 Eastern	Yoga Studio	Auto Workshop	Pizza Place	Park	Restaurant	Butcher	Burrito Place	Brewery	Skate Park	Smoke Shop
2	Central Bay Street	Coffee Shop	Café	Italian Restaurant	Burger Joint	Bar	Chinese Restaurant	Thai Restaurant	Salad Place	Bubble Tea Shop	Spa
3	Christie	Café	Grocery Store	Park	Convenience Store	Italian Restaurant	Baby Store	Diner	Athletics & Sports	Nightclub	Restaurant
4	Church and Wellesley	Japanese Restaurant	Coffee Shop	Sushi Restaurant	Gay Bar	Restaurant	Burger Joint	Pub	Mediterranean Restaurant	Gastropub	Fast Food Restaurant

Toronto



	Neighbourhood	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
0	Bentall Centre	Hotel	Restaurant	Italian Restaurant	Seafood Restaurant	Bakery	Breakfast Spot	Coffee Shop	Concert Hall	Yoga Studio	Burger Joint
1	Burnaby Heights / Willingdon Heights / West Ce...	Shopping Plaza	Yoga Studio	Comfort Food Restaurant	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant	Fair
2	Cascade-Schou / Douglas-Gilpin	Snack Place	Bookstore	Auto Garage	Bus Station	Bus Stop	Sandwich Place	Park	Coffee Shop	Department Store	Dessert Shop
3	Central	Convenience Store	Pharmacy	Clothing Store	Sushi Restaurant	Chinese Restaurant	Sandwich Place	Donut Shop	Fast Food Restaurant	Farmers Market	Farm
4	Central Kitsilano / Greektown	Coffee Shop	Grocery Store	Restaurant	Japanese Restaurant	Pharmacy	Pizza Place	Fast Food Restaurant	Supplement Shop	Food Truck	Breakfast Spot

Vancouver



Apply K-means to cluster the neighborhoods based on the frequency of top venues.

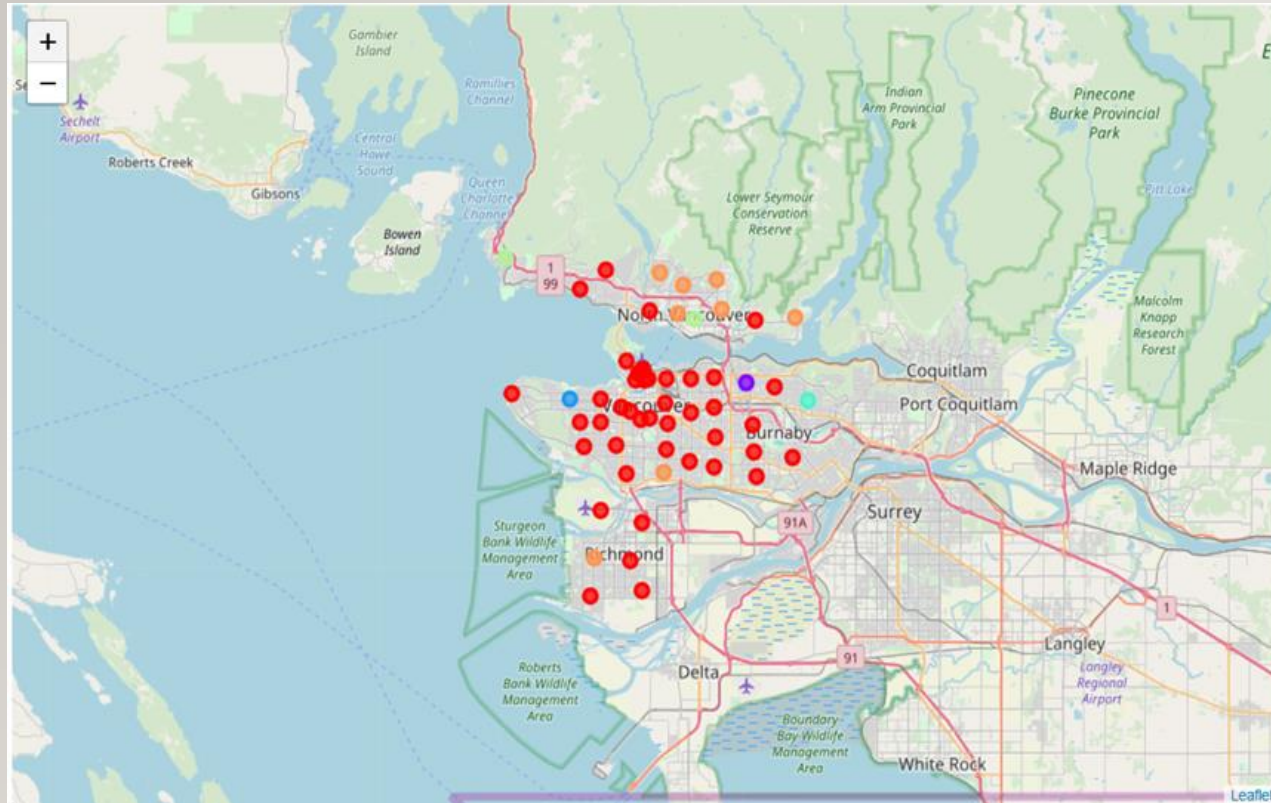
	Postcode	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st most Common Venue	2nd most Common Venue	3rd most Common Venue	4th most Common Venue	5th most Common Venue	6th most Common Venue	7th most Common Venue	8th most Common Venue
0	V5A	Burnaby	Government Road / Lake City / SFU / Burnaby Mo...	49.264485	-122.941439	3.0	Burger Joint	Golf Course	Golf Driving Range	Yoga Studio	Fish & Chips Shop	Field	Fast Food Restaurant	Farm Ma
1	V5B	Burnaby	Parkcrest-Aubrey / Ardingley-Sprott	49.273582	-122.977384	0.0	Stadium	Bus Stop	Playground	Martial Arts Dojo	Golf Course	Filipino Restaurant	Field	Fast f Restau
2	V5C	Burnaby	Burnaby Heights / Willingdon Heights / West Ce...	49.276181	-123.007376	1.0	Shopping Plaza	Yoga Studio	Comfort Food Restaurant	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market	F
3	V5E	Burnaby	Lakeview-Mayfield / Richmond Park / Kingsway-B...	49.226319	-122.957311	0.0	Mobile Phone Shop	Bus Stop	Yoga Studio	Concert Hall	Filipino Restaurant	Field	Fast Food Restaurant	Farm Ma
4	V5G	Burnaby	Cascade-Schou / Douglas-Gilpin	49.247746	-123.000456	0.0	Snack Place	Bookstore	Auto Garage	Bus Station	Bus Stop	Sandwich Place	Park	Co s

A brief view of Vancouver

	Postcode	Borough	Neighbourhood	Latitude	Longitude	Cluster Labels	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
0	M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636	0	Coffee Shop	Pub	Bakery	Park	Café	Breakfast Spot	Theater
1	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937	0	Coffee Shop	Clothing Store	Cosmetics Shop	Café	Diner	Thai Restaurant	Ramen Restaurant
2	M5C	Downtown Toronto	St. James Town	43.651494	-79.375418	0	Coffee Shop	Restaurant	Café	Hotel	Breakfast Spot	Park	Gastropub
3	M4E	East Toronto	The Beaches	43.676357	-79.293031	3	Coffee Shop	Health Food Store	Pub	Other Great Outdoors	Neighborhood	Event Space	Falafel Restaurant
4	M5E	Downtown Toronto	Berczy Park	43.644771	-79.373306	0	Coffee Shop	Cocktail Bar	Bakery	Cheese Shop	Pub	Café	Restaurant

A brief view of Toronto

Visualize them using mapping.



0.0 43

5.0 8

4.0 2

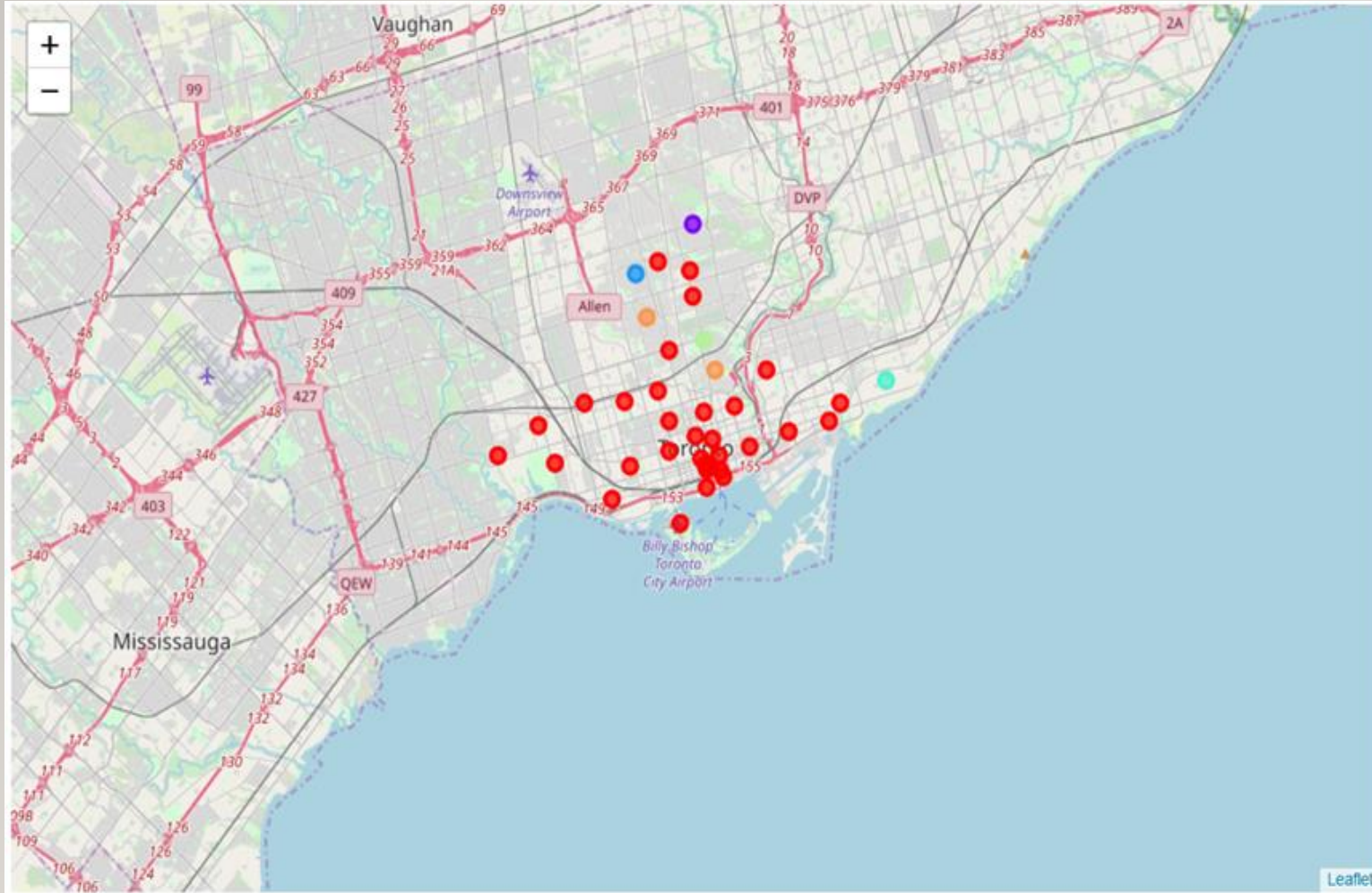
2.0 1

1.0 1

3.0 1

Name: Cluster Labels, dtype: int64

The cluster I, which is labeled as 0, has the dominating performance. Centered around Vancouver area.



```
0    32
5     2
4     1
3     1
2     1
1     1
Name: Cluster Labels, dtype: int64
```

Cluster 1 also has the most points.
Centered around central Toronto area.

Compare the dominating clusters

	Borough	Cluster Labels	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
0	Downtown Toronto	0	Coffee Shop	Pub	Bakery	Park	Café	Breakfast Spot	Theater	Restaurant	Mexican Restaurant	Gym / Fitness Center
1	Downtown Toronto	0	Coffee Shop	Clothing Store	Cosmetics Shop	Café	Diner	Thai Restaurant	Ramen Restaurant	Bubble Tea Shop	Plaza	Japanese Restaurant
2	Downtown Toronto	0	Coffee Shop	Restaurant	Café	Hotel	Breakfast Spot	Park	Gastropub	Italian Restaurant	Cosmetics Shop	Clothing Store
4	Downtown Toronto	0	Coffee Shop	Cocktail Bar	Bakery	Cheese Shop	Pub	Café	Restaurant	Farmers Market	Seafood Restaurant	Steakhouse
5	Downtown Toronto	0	Coffee Shop	Café	Italian Restaurant	Bubble Tea Shop	Bar	Burger Joint	Sandwich Place	Chinese Restaurant	Thai Restaurant	Spa
6	Downtown Toronto	0	Café	Grocery Store	Park	Convenience Store	Nightclub	Diner	Baby Store	Italian Restaurant	Restaurant	Athletics & Sports
7	Downtown Toronto	0	Coffee Shop	Café	Bar	Steakhouse	Thai Restaurant	Hotel	Restaurant	Burger Joint	Bakery	American Restaurant
8	West Toronto	0	Discount Store	Pharmacy	Supermarket	Bakery	Music Venue	Liquor Store	Brewery	Middle Eastern Restaurant	Café	Bar
9	Downtown Toronto	0	Coffee Shop	Hotel	Aquarium	Café	Pizza Place	Italian Restaurant	Brewery	Restaurant	Scenic Lookout	History Museum

VS

6	Burnaby	0.0	Liquor Store	Sandwich Place	Grocery Store	Yoga Studio	Donut Shop	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant
7	Vancouver	0.0	Theme Park Ride / Attraction	Vietnamese Restaurant	Event Space	Theme Park	Office	Bridal Shop	Bus Line	Bus Station	Sandwich Place	Fair
8	Vancouver	0.0	Pizza Place	Coffee Shop	Asian Restaurant	Grocery Store	Theater	Fried Chicken Joint	Italian Restaurant	Bakery	Japanese Restaurant	Sushi Restaurant
9	Vancouver	0.0	Coffee Shop	Pizza Place	Arts & Crafts Store	Bus Stop	Sandwich Place	Restaurant	Liquor Store	Chinese Restaurant	Grocery Store	Office
10	Vancouver	0.0	Café	Bookstore	Church	Farmers Market	Park	Bike Shop	Sushi Restaurant	Beach	Lake	Dog Run
11	Vancouver	0.0	Japanese Restaurant	Pizza Place	Convenience Store	Asian Restaurant	Fried Chicken Joint	Bus Stop	Fish Market	Bus Station	Thrift / Vintage Store	Noodle House
12	Vancouver	0.0	Hotel	Asian Restaurant	Tennis Court	Other Great Outdoors	Dessert Shop	Hotpot Restaurant	Fast Food Restaurant	Farmers Market	Farm	Eastern European Restaurant

Coffee shop, café, restaurant, pizza place => Common => Both have highly developed catering industry.

Toronto – relatively single component/ distribution

Vancouver – Diversity wins

Compare the rest clusters

	Borough	Cluster Labels	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
17	Central Toronto	1	Park	Swim School	Bus Line	Yoga Studio	Discount Store	Farmers Market	Falafel Restaurant	Event Space	Ethiopian Restaurant	Electronics Store
18	Central Toronto	2	Garden	Pool	Yoga Studio	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Event Space	Ethiopian Restaurant	Electronics Store	Eastern European Restaurant
3	East Toronto	3	Coffee Shop	Health Food Store	Pub	Other Great Outdoors	Neighborhood	Event Space	Falafel Restaurant	Farmers Market	Ethiopian Restaurant	Diner
28	Central Toronto	4	Playground	Diner	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Event Space	Ethiopian Restaurant	Electronics Store	Eastern European Restaurant	Dumpling Restaurant
20	Central Toronto	5	Park	Trail	Sushi Restaurant	Jewelry Store	Yoga Studio	Discount Store	Farmers Market	Falafel Restaurant	Event Space	Ethiopian Restaurant
32	Downtown Toronto	5	Park	Playground	Trail	Diner	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Event Space	Ethiopian Restaurant	Electronics Store

15.8% of Total

Mainly entertainment, shopping centers, outdoor activities, but small quantities.

Located far from central area.

23.2% of Total

	Borough	Cluster Labels	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
2	Burnaby	1.0	Shopping Plaza	Yoga Studio	Comfort Food Restaurant	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant	Fair
32	Vancouver	2.0	Gym / Fitness Center	Yoga Studio	Donut Shop	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant	Fair
0	Burnaby	3.0	Burger Joint	Golf Course	Golf Driving Range	Yoga Studio	Fish & Chips Shop	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant
48	North Vancouver	4.0	Playground	Café	Convenience Store	Cosmetics Shop	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant
56	West Vancouver	4.0	Playground	Tapas Restaurant	Harbor / Marina	Dog Run	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant	Fair
17	Vancouver	5.0	Indian Restaurant	Park	Yoga Studio	Donut Shop	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant
42	Richmond	5.0	Eastern European Restaurant	Park	Sushi Restaurant	Farm	Basketball Court	Trail	Yoga Studio	Filipino Restaurant	Field	Fast Food Restaurant
44	North Vancouver	5.0	Dog Run	Pub	Park	Soccer Field	Yoga Studio	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant	Fair
46	North Vancouver	5.0	Distribution Center	Park	Trail	Dog Run	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant	Fair
47	North Vancouver	5.0	Convenience Store	Dance Studio	Park	Eastern European Restaurant	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market	Farm	Falafel Restaurant
49	North Vancouver	5.0	Park	Mediterranean Restaurant	Insurance Office	Athletics & Sports	Eastern European Restaurant	Fish & Chips Shop	Filipino Restaurant	Field	Fast Food Restaurant	Farmers Market

Conclusion and Recommendation

Both cities - Eating and drinking places are common

- entertainment and social activities small portion

=> similar in the distribution or proportion of the venues diversity

Dissimilarities - diversity catering industry (Toronto: Simple vs Vancouver: Diverse)

Both of them have achieved a mature and developed level.

Suggesting the investors to build or carry out the project and programs such as establishing more cinemas, fitness centers, amusement parks to foster the development of sporting goods, recreation and entertainment industry in both regions.

Future follow-up experiments:

1. Profit of the investment
2. Time series facility utility

