




Battle of the neighborhoods - a piece of the pie

Capstone project, JG, 2020-03-31



What food-venues in Toronto?

- What kind of food-venues are there?
- Are there too many of one kind - CATEGORY?
- Number of food-venues for a CATEGORY - let us take that as a sign of:
 - Market share
 - Popularity



Where can you find a food-venue?

- Neighborhoods of Toronto were derived via Post Codes obtained from Wikipedia and wrangled into place
- The location (Latitude and Longitude) of the Neighborhood is used to acquire the venues from FOURSQUARE.com via an API
- A JSON-object is returned.



Only food-venues

- All kinds of venues are returned for a location:
"coffee shop", "bakery", "Italian Restaurant",
"trail", "park"
- I would like to work only with the "food"-
categories of venues:
"coffee shop", "bakery", "Italian Restaurant"
~~"trail", "park"~~
- Needed: A "higher level" category.

A “higher level” category

- It was found in the value of the ‘prefix’ column in the ‘icon’-dictionary:

```
'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/italian_'}
```

- The full specification:

```
['response']['groups'][0]['items'][i]['venue']  
['categories'][0]['icon']['prefix']
```

Where “i” = nth value

How to access the 'prefix'-column

- Normally - flatten the JSON object:
`json_normalize(venues) # flatten JSON`
- This returns a dataframe with rows and columns – like a table
- It returned 'category','lat','lng'
- BUT NOT ['icon']['prefix']
- No matter what, it just returned 'NaN'

How to access the 'prefix'-column

- JSON-object consists of LIST and DICTIONARIES
- Used Python to traverse the JSON-object;

```
N = len(venues)
for i in range(N):
    icon_prefix = venues[i]['venue']['categories'][0]['icon']['prefix']
    category_group=icon_prefix.split('/')[5]
    if category_group == 'food':
        ....
```

- And extract just the “food”-venues
- Benefits: Easy, neat, and to the point.

Categories of food-venues

There were 81 unique categories in the data returned by FOURSQUARE.com.

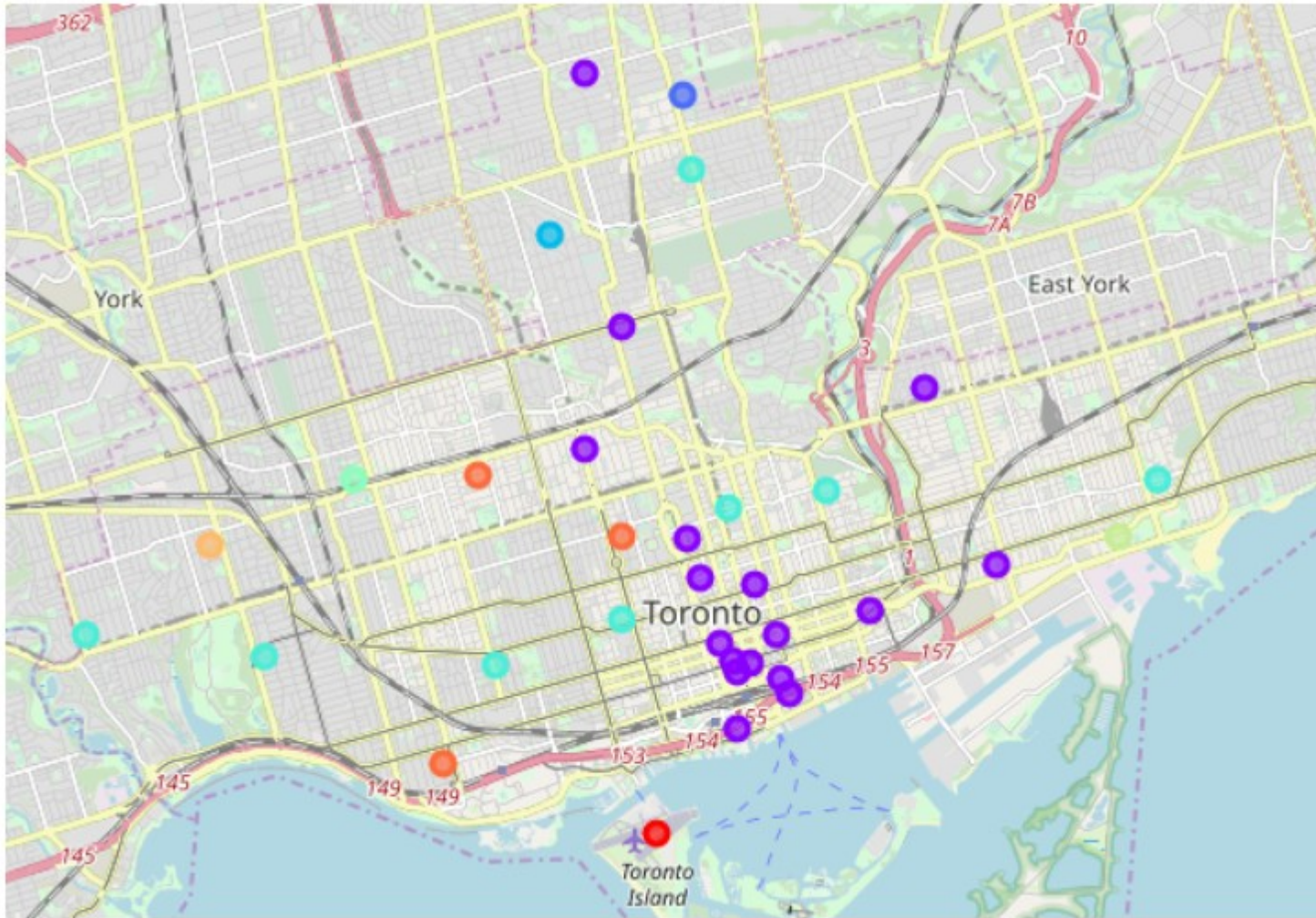
Here are the top categories for the food:

Venue Category	Count
Coffee Shop	157
Cafe	89
Restaurant	64
Italian Restaurant	42
Bakery, Japanese Restaurant	33
Pizza Place	29
Seafood Restaurant	25
American Restaurant,Gastropub,Sandwich Place,Thai Restaurant	23

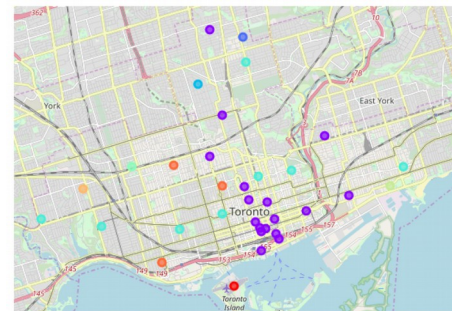
And some of the categories of which there are only a few counted:

Dumpling Restaurant	3
Donut Shop	2
Doner Restaurant	1

Neighborhoods clustered – just food



Coffee Shops and Cafe's Cluster



- 18 Neighborhoods – 14 #1's
- (Purple Color) North-South City Centre – Cluster 2

	Neighborhood	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
41	The Danforth West, Riverdale	1	Greek Restaurant	Coffee Shop	Italian Restaurant	Ice Cream Shop	Bubble Tea Shop	Diner	Juice Bar	Pizza Place	Caribbean Restaurant	Café
43	Studio District	1	Café	Coffee Shop	American Restaurant	Bakery	Gastropub	Brewery	Sandwich Place	Comfort Food Restaurant	Middle Eastern Restaurant	Italian Restaurant
46	North Toronto West	1	Coffee Shop	Diner	Chinese Restaurant	Fast Food Restaurant	Mexican Restaurant	Café	Restaurant	Dessert Shop	Cuban Restaurant	Cupcake Shop
49	Deer Park, Forest Hill SE, Rathnelly, South Hill, ...	1	Coffee Shop	Sushi Restaurant	Pizza Place	Burger Joint	Restaurant	Fried Chicken Joint	Vietnamese Restaurant	American Restaurant	Falafel Restaurant	Ethiopian Restaurant
53	Harbourfront	1	Coffee Shop	Mexican Restaurant	Breakfast Spot	Café	Restaurant	Bakery	Dessert Shop	Ice Cream Shop	French Restaurant	Asian Restaurant
54	Ryerson, Garden District	1	Coffee Shop	Middle Eastern Restaurant	Bubble Tea Shop	Japanese Restaurant	Café	Pizza Place	Ramen Restaurant	Restaurant	Fast Food Restaurant	Diner

The Cafe club cluster



- Light brown triangle of 3 Neighborhoods
- Probably Students (University of Toronto)

	Neighborhood	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
66	Harbord, University of Toronto	8	Café	Japanese Restaurant	Bakery	Restaurant	Chinese Restaurant	Comfort Food Restaurant	Noodle House	Dessert Shop	Italian Restaurant	Sandwich Place
75	Christie	8	Café	Coffee Shop	Restaurant	Diner	Italian Restaurant	Donut Shop	Cuban Restaurant	Cupcake Shop	Deli / Bodega	Dessert Shop
78	Brockton, Exhibition Place, Parkdale Village	8	Café	Coffee Shop	Breakfast Spot	Bakery	Burrito Place	Restaurant	Italian Restaurant	Ethiopian Restaurant	Empanada Restaurant	Eastern European Restaurant

Dumplings , donuts and doner's clusters



- 2 clusters North of the city
- Cluster 3 - Davisville (Medium blue, North on the map)

	Neighborhood	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
45	Davisville North	2	Breakfast Spot	Sandwich Place	Dumpling Restaurant	Cuban Restaurant	Cupcake Shop	Deli / Bodega	Dessert Shop	Diner	Doner Restaurant	Donut Shop

- Cluster 4 – Forest Hill North, Forest Hill West (Light blue, in the middle of the map.)

	Neighborhood	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
64	Forest Hill North, Forest Hill West	3	Sushi Restaurant	Wings Joint	Dumpling Restaurant	Creperie	Cuban Restaurant	Cupcake Shop	Deli / Bodega	Dessert Shop	Diner	Doner Restaurant

Restaurants cluster



- High Park, The Junction South, (Cluster 8, light brown, west of the city) have 4 "proper" categories of restaurants – Mexican, Thai, Cajun/Creole and Italian.

	Neighborhood	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
82	High Park, The Junction South	7	Mexican Restaurant	Thai Restaurant	Café	Fried Chicken Joint	Fast Food Restaurant	Gastropub	Bakery	Cajun / Creole Restaurant	Italian Restaurant	Diner

The Baker and the Brewer - cluster



- Cluster 6 (Dovercourt Village, Dufferin) (Light Turquoise, North West of the city)

	Neighborhood	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
76	Dovercourt Village,Dufferin	5	Bakery	Brewery	Coffee Shop	Café	Middle Eastern Restaurant	Fast Food Restaurant	Doner Restaurant	Cupcake Shop	Food	Deli / Bodega

- In Toronto, there are 33 bakeries and 12 breweries

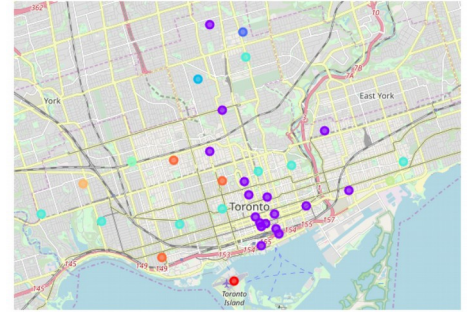
Beer and Pizza - cluster



- Cluster 7 - Business Reply Centre Post code for mailing companies – far East
- Mostly fast foods.

	Neighborhood	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
87	Business Reply Mail Processing Centre 969 Eastern	6	Brewery	Pizza Place	Fast Food Restaurant	Burrito Place	Restaurant	Doner Restaurant	Cuban Restaurant	Cupcake Shop	Deli / Bodega	Dessert Shop

Harbourlights - cluster



- Cluster 1 - CN Tower, Bathurst Quay, Island Airport, harbour,
- (Reddish in the South)

	Neighborhood	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
68	CN Tower,Bathurst Quay,Island airport,Harbourf...	0	Coffee Shop	Comfort Food Restaurant	Creperie	Cuban Restaurant	Cupcake Shop	Deli / Bodega	Dessert Shop	Diner	Doner Restaurant	Donut Shop

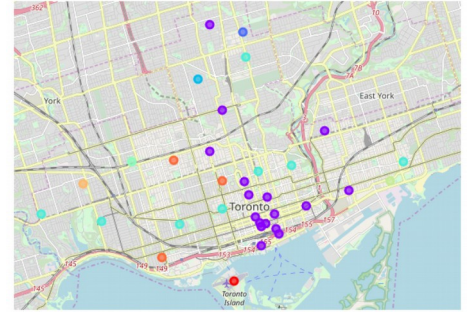
A bit of everything cluster



- The “wave” of turquoise-colored neighborhoods running East to West – Cluster 5

	Neighborhood	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
42	The Beaches West, India Bazaar	4	Ice Cream Shop	Fast Food Restaurant	Fish & Chips Shop	Sushi Restaurant	Steakhouse	Pizza Place	Burrito Place	Sandwich Place	Italian Restaurant	Restaurant
47	Davisville	4	Sandwich Place	Dessert Shop	Sushi Restaurant	Coffee Shop	Café	Italian Restaurant	Pizza Place	Seafood Restaurant	Greek Restaurant	Restaurant
51	Cabbagetown, St. James Town	4	Restaurant	Coffee Shop	Italian Restaurant	Chinese Restaurant	Café	Bakery	Pizza Place	Gastropub	Caribbean Restaurant	Indian Restaurant
52	Church and Wellesley	4	Japanese Restaurant	Coffee Shop	Restaurant	Sushi Restaurant	Mediterranean Restaurant	Café	Gastropub	Juice Bar	Italian Restaurant	Indian Restaurant
67	Chinatown, Grange Park, Kensington Market	4	Vietnamese Restaurant	Café	Vegetarian / Vegan Restaurant	Coffee Shop	Dumpling Restaurant	Mexican Restaurant	Dessert Shop	Burger Joint	Chinese Restaurant	Bakery
77	Little Portugal, Trinity	4	Asian Restaurant	Coffee Shop	Restaurant	Vietnamese Restaurant	Pizza Place	Café	Deli / Bodega	Mac & Cheese Joint	Japanese Restaurant	Italian Restaurant
83	Parkdale, Roncesvalles	4	Coffee Shop	Eastern European Restaurant	Cuban Restaurant	Dessert Shop	Restaurant	Italian Restaurant	Breakfast Spot	Empanada Restaurant	Ethiopian Restaurant	Falafel Restaurant
84	Runnymede, Swansea	4	Coffee Shop	Café	Sushi Restaurant	Pizza Place	Italian Restaurant	Restaurant	Gastropub	Juice Bar	Falafel Restaurant	Burrito Place

Conclusion



- Coffee shops aplenty in the North-South cluster
- Cafe's are also everywhere
- Restaurants – from 42 “Italian restaurants” to 1 “Molecular Gastronomy Restaurant”
- “Wave of Turquoise colored” neighborhoods have a bit of everything.