


A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green. They are positioned diagonally, with the blue one partially covering the green one.

# Capstone Project

Battle of the Neighborhoods



# Finding Similarities amongst Postal Code Areas

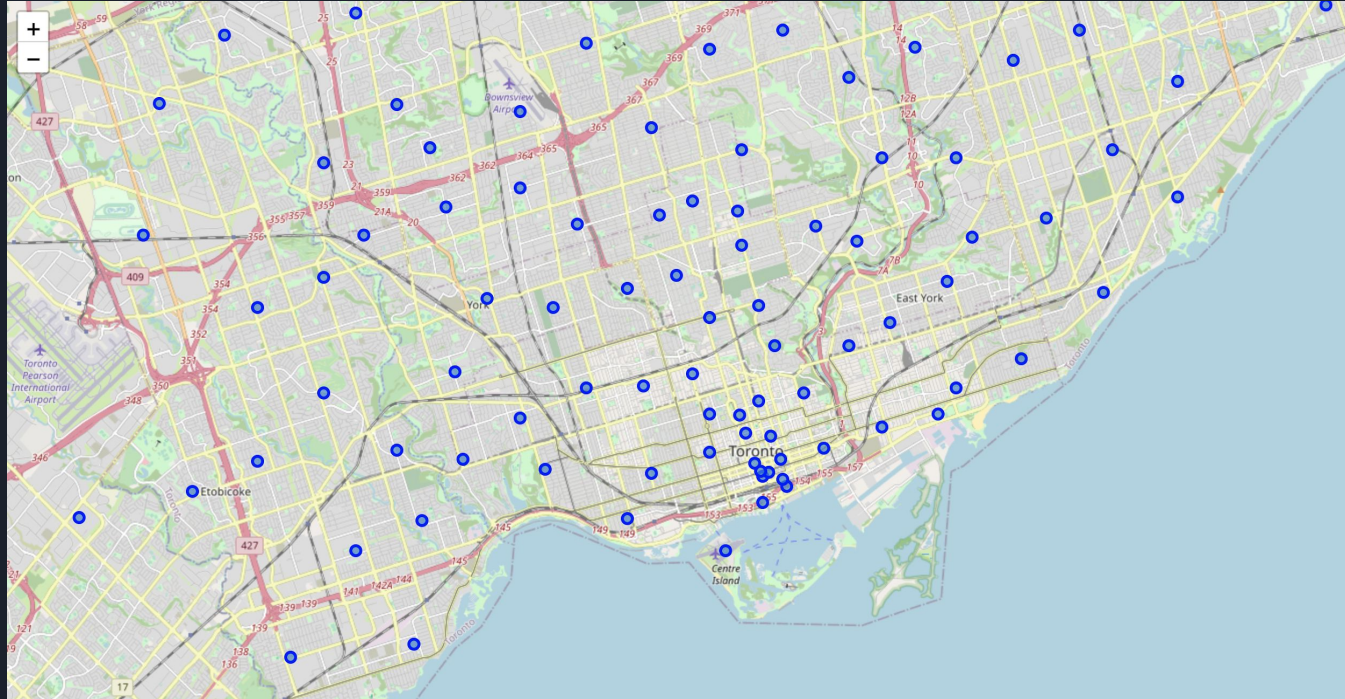
- The decision to open a Restaurant can be a daunting experience and requires a good level of local understanding of an area.
- Whether the restaurant is successful or not can be broadly defined by the following.
  - Location, Location, Location
  - Supply & Demand.
- Predicting the ideal location based likeness gives entrepreneurs a probability of replicating what worked for other neighborhoods;
- And based on similarities are there potential shortfalls that should be present in a neighborhood, leading towards better decisions around supply and demand for a particular cuisine.



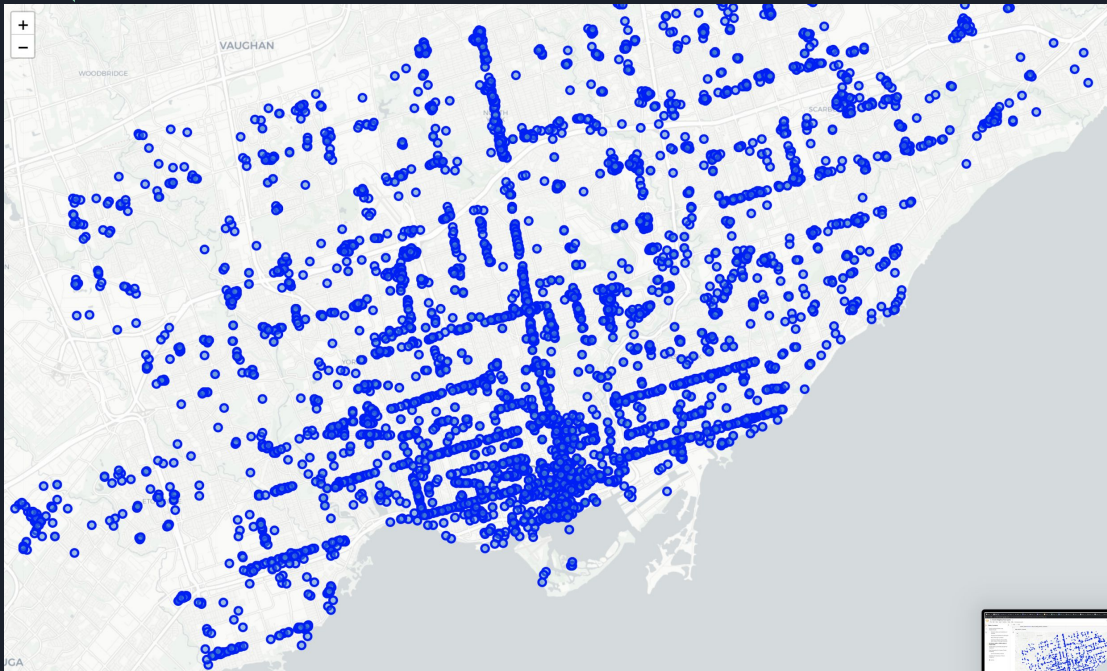
# Data Acquisition and Cleaning

- Postal Code, Neighborhood and Boroughs were scraped from [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)
- Geolocations for postal codes were provided by Coursera
- Venue data was requested through the FourSquare Places API.
- Dataset contained 6922 rows and 5 columns
  - 6922 venue locations
  - 103 postal codes
  - 362 unique venue categories

# Location of the Postal Code Centroids



# Location of the Venues



Map of the 6922 venue locations that were requested from the foursquare database.

Search radius was 1500m from postal code centroids.

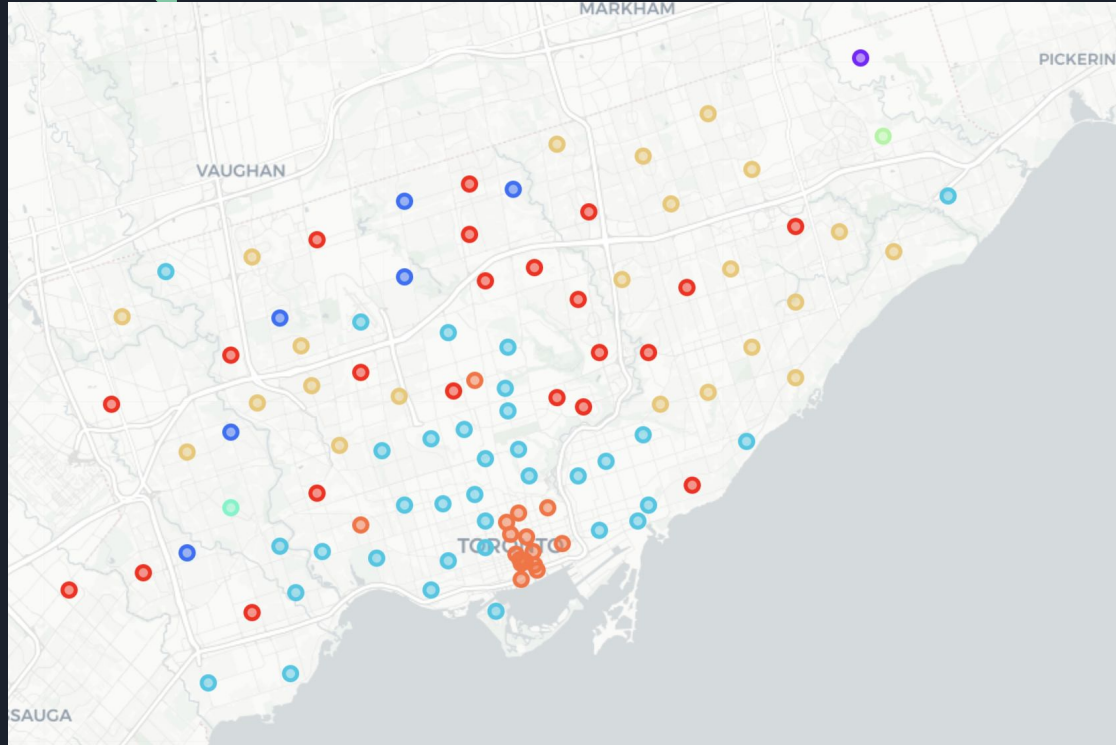


# Frequency Matrix

1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Zoo Exhibit	Restaurant	Fast Food Restaurant	Pizza Place	Women's Store
Park	Gym / Fitness Center	Italian Restaurant	Burger Joint	Neighborhood
Pizza Place	Breakfast Spot	Bank	Coffee Shop	Restaurant
Coffee Shop	Pizza Place	Pharmacy	Fast Food Restaurant	Indian Restaurant
Coffee Shop	Restaurant	Sandwich Place	Clothing Store	Gas Station

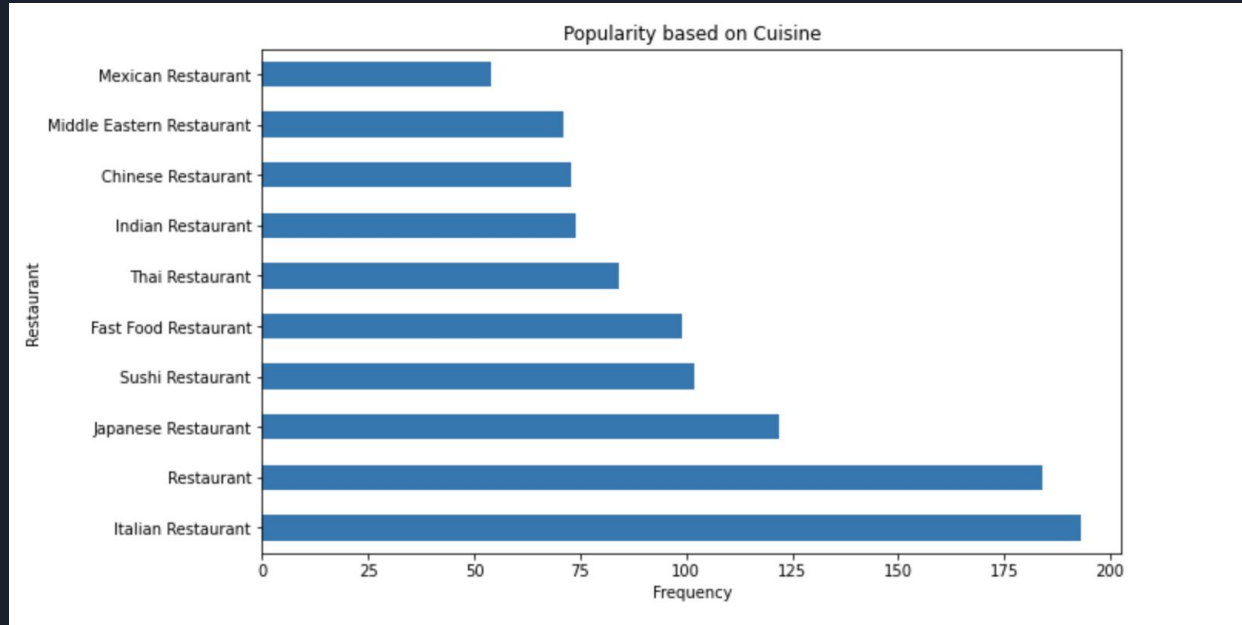
Sample output of frequently occurring venues by category within each postal code area

# K-means Segmentation Results



Cluster	Cluster Type	Legend
1	Coffee Shops and Mixed Restaurants	Red
2	Farms, National Parks	Purple
3	Banks	Blue
4	Coffee , Cafes and Italian Cuisine	Light Blue
5	Pharmacy and Shopping Mall	Cyan
6	Zoo Exhibits	Light Green
7	Asian Cuisine and Pharmacies	Yellow
8	Coffee, Cafe, Park and Japanese Restaurants	Orange

# "Italian" is the most common venue by Category





# Correlation

	Postal Code	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
45	M4P	Central Toronto	Davisville North	43.712751	-79.390197	3	Italian Restaurant	Coffee Shop	Park	Restaurant	Indian Restaurant
47	M4S	Central Toronto	Davisville	43.704324	-79.388790	3	Italian Restaurant	Pizza Place	Coffee Shop	Bakery	Park
48	M4T	Central Toronto	Moore Park, Summerhill East	43.689574	-79.383160	3	Italian Restaurant	Park	Sushi Restaurant	Coffee Shop	Grocery Store
49	M4V	Central Toronto	Summerhill West, Rathnelly, South Hill, Forest...	43.686412	-79.400049	3	Italian Restaurant	Café	Park	Sushi Restaurant	Coffee Shop
62	M5M	North York	Bedford Park, Lawrence Manor East	43.733283	-79.419750	3	Italian Restaurant	Coffee Shop	Bakery	Sushi Restaurant	Bagel Shop
65	M5R	Central Toronto	The Annex, North Midtown, Yorkville	43.672710	-79.405678	3	Italian Restaurant	Coffee Shop	Park	Grocery Store	Café
74	M6E	York	Caledonia-Fairbanks	43.689026	-79.453512	3	Italian Restaurant	Coffee Shop	Furniture / Home Store	Pizza Place	Bakery
91	M8Y	Etobicoke	Old Mill South, King's Mill Park, Sunnylea, Hu...	43.636258	-79.498509	3	Italian Restaurant	Coffee Shop	Restaurant	Pizza Place	Park

Italian often appeared alongside Coffee Shops or Cafes.

The same was true for Japanese Restaurants they also appeared alongside Cafes and Coffee Shops.

***M6P has a high frequency of Coffee and Cafes but not Italian Restaurants appeared in the top 5 list.***



# Recommendations

It would be safe to presume that Restaurants catering to Japanese cuisine should be located in Downtown Toronto and restaurants catering to Italian Cuisine should be located outside of Downtown Toronto and it would be prudent to find postal code locations that have both cafes and coffee shops appearing in high frequency to maximise the repeatability the success of other locations with similar characteristics.