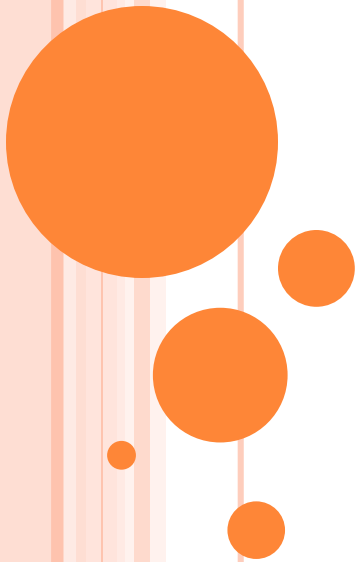# Determining the most ideal Toronto neighborhood to start an Indian restaurant

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UNDERSTANDING THE PROBLEM

- A Canadian client owns a chain of Indian restaurants across major Canadian cities – including Montreal & Vancouver
- He wants to open an Indian restaurant in Toronto
- Toronto is one of world's most popular and commercially sound cities
- The challenge is to identify the best neighborhood in Toronto to start the client's Indian restaurant

Client's Expectations

- The client prefers the restaurant to be in Downtown Toronto
- Second preference for the restaurant is West Toronto
- The neighborhood should not have any eatery or restaurant among its top 2 commonly visited venues
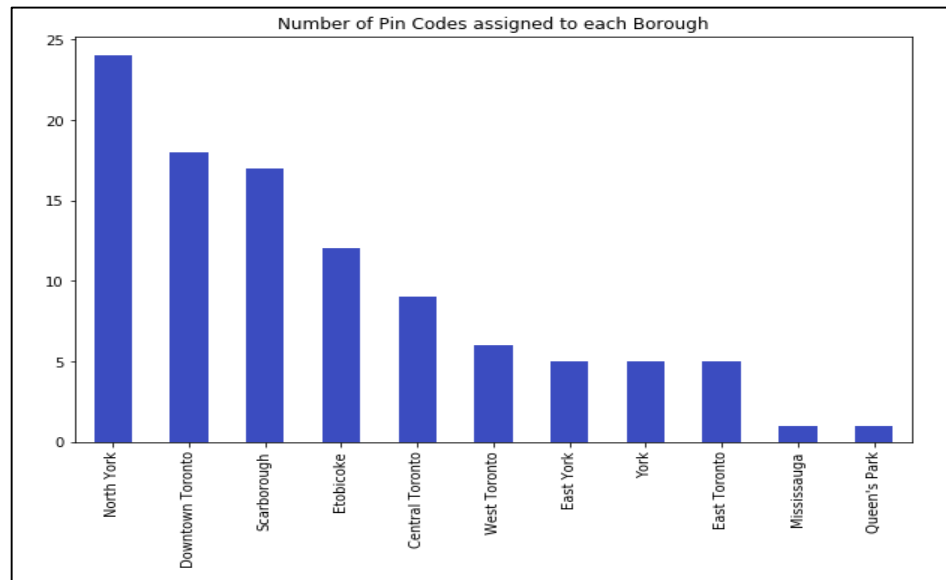- Any café or coffee shop is assumed to fall under an eatery

Data Acquisition and Pre-processing

- Wikipedia page for the list of postal codes for all Toronto boroughs (https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)

- The geospatial co-ordinates of all Toronto boroughs (http://cocl.us/Geospatial_data)

- Foursquare API to get top venues associated with each neighborhood

- The obtained data was modified and pre-processed to remove unassigned or blank values

- Similar rows were merged together to consolidate the data

Initial Exploratory analysis

- Downtown Toronto has the second most number of pin codes assigned to any borough in Toronto

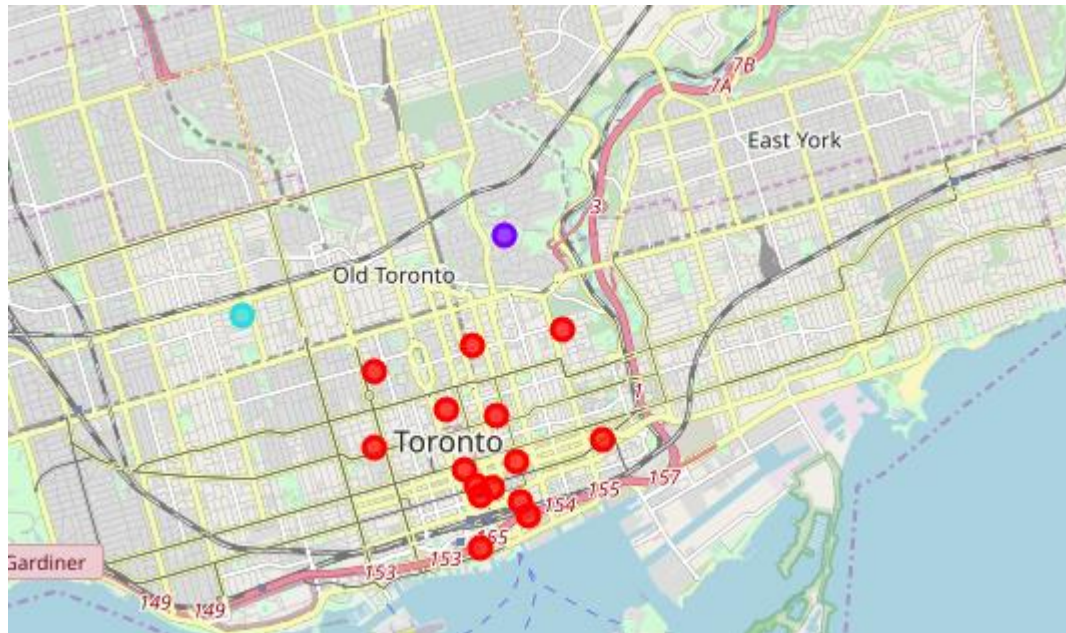- Downtown Toronto is the densest borough in Toronto

Identifying The Most Common Venues in Each Downtown Toronto Neighborhood

	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
0	Adelaide, King, Richmond	Coffee Shop	Café	Steakhouse	Bar	American Restaurant	Bakery	Cosmetics Shop	Restaurant	Hotel	Thai Restaurant
1	Bathurst Quay, CN Tower, Harbourfront West, Is...	Airport Terminal	Airport Lounge	Airport Service	Harbor / Marina	Boat or Ferry	Sculpture Garden	Bar	Plane	Boutique	Airport Food Court
2	Berczy Park	Coffee Shop	Cocktail Bar	Beer Bar	Bakery	Steakhouse	Seafood Restaurant	Cheese Shop	Italian Restaurant	Café	Farmers Market
3	Cabbagetown, St. James Town	Coffee Shop	Restaurant	Bakery	Park	Pub	Pizza Place	Café	Italian Restaurant	Indian Restaurant	Farmers Market
4	Central Bay Street	Coffee Shop	Café	Italian Restaurant	Middle Eastern Restaurant	Sandwich Place	Burger Joint	Sushi Restaurant	Bubble Tea Shop	Bar	Spa
5	Chinatown, Grange Park, Kensington Market	Café	Vegetarian / Vegan Restaurant	Coffee Shop	Bakery	Mexican Restaurant	Bar	Dumpling Restaurant	Vietnamese Restaurant	Chinese Restaurant	Cocktail Bar
6	Christie	Grocery Store	Café	Park	Diner	Baby Store	Coffee Shop	Convenience Store	Italian Restaurant	Restaurant	Nightclub
7	Church and Wellesley	Coffee Shop	Japanese Restaurant	Sushi Restaurant	Gay Bar	Restaurant	Men's Store	Mediterranean Restaurant	Hotel	Gym	Gastropub
8	Commerce Court, Victoria Hotel	Coffee Shop	Café	Hotel	Restaurant	American Restaurant	Seafood Restaurant	Bakery	Steakhouse	Italian Restaurant	Gastropub
9	Design Exchange, Toronto Dominion Centre	Coffee Shop	Café	Hotel	Restaurant	Italian Restaurant	Gastropub	Bakery	Deli / Bodega	American Restaurant	Burger Joint
10	First Canadian Place, Underground city	Coffee Shop	Café	Hotel	Restaurant	American Restaurant	Bakery	Bar	Steakhouse	Gastropub	Deli / Bodega

VISUALIZING NEIGHBORHOODS AFTER CLUSTERING THEM USING K-MEANS

- We chose to segregate all the Toronto neighborhoods into 4 clusters
- These clusters were formed on the basis of the similarity of the most common venues

Takeaways from the analysis

- The clusters in red are situated in the heart of Downtown Toronto
- Each of the neighborhoods in this cluster have either a café or a coffee shop as the most common visited venue
- The clusters with pin codes **M4W** and **M5V** fit the client's requirements and can be considered for decision-making
- **M4W** (**Rosedale**) is more preferable due to its geographic location being more suited to the client's business. **M5V** is more isolated than the rest of Downtown Toronto.

CONCLUSION & FUTURE DIRECTIONS

○ We were able to accurately cluster the neighborhoods and identify the best possible neighborhood for the client's restaurant meeting the client's current requirements.

○ The analysis can be further improved by considering various other factors such as:

- Population of the neighborhoods
- Geographical coordinates of the neighborhoods as opposed to boroughs
- Average per-capita income of the population
- Ratings of the restaurants in the neighborhood
- Crime rate of the neighborhoods
- Real-estate prices of the neighborhoods