


Data Science for Indian Restaurants

Finding out best neighborhoods to open Indian
restaurants in Toronto basis existing Indian
restaurant density and population density

19th Jun 2020

Coordinate data of 103 areas in Toronto

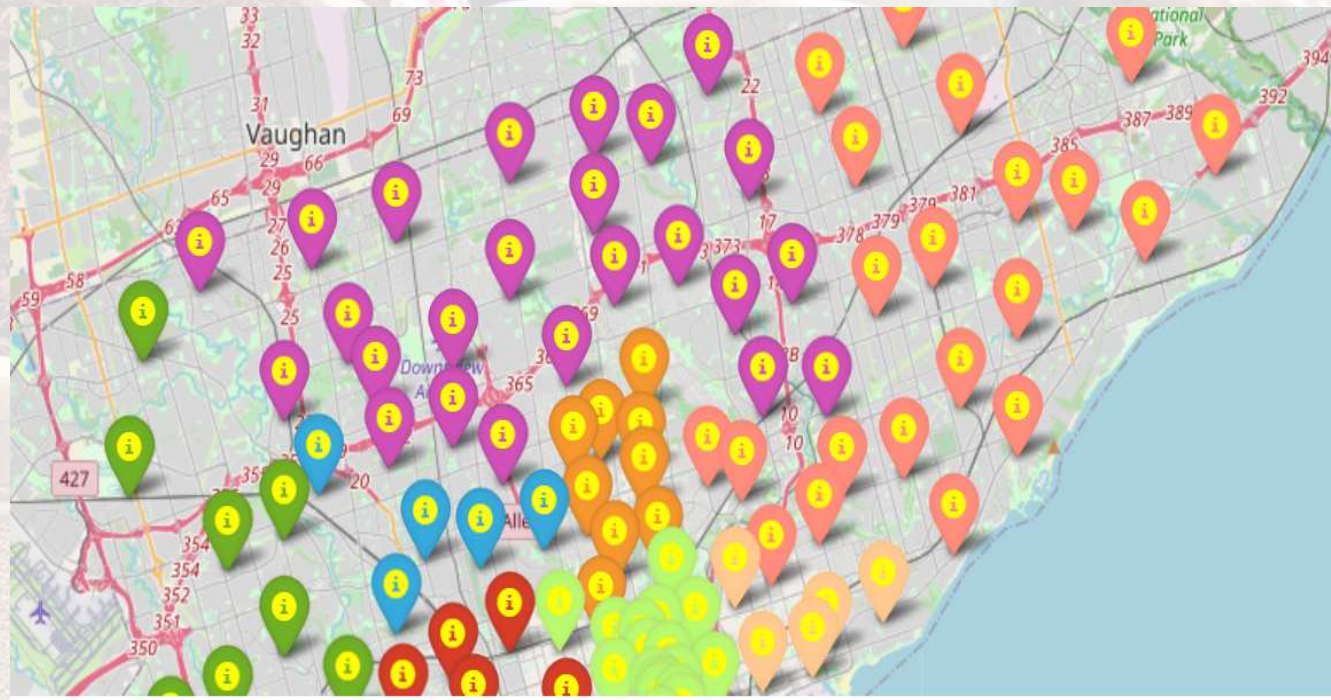
- Data was retrieved from Foursquare API and geocoder
- Blended data allowed us to determine coordinates for regions
- This was used to group Postal Code wise data to visually depict the spread of these areas on the map of Canada

Postal Code	Borough	Neighborhood	Latitude	Longitude
M3A	North York	Parkwoods	43.753259	-79.329656
M4A	North York	Victoria Village	43.725882	-79.315572
M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636
M6A	North York	Lawrence Manor, Lawrence Heights	43.718518	-79.464763
M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494
...
M8X	Etobicoke	The Kingsway, Montgomery Road, Old Mill North	43.653654	-79.506944
M4Y	Downtown Toronto	Church and Wellesley	43.665860	-79.383160
M7Y	East Toronto	Business reply mail Processing Centre, South C...	43.662744	-79.321558
M8Y	Etobicoke	Old Mill South, King's Mill Park, Sunnylea, Hu...	43.636258	-79.498509
M8Z	Etobicoke	Mimico NW, The Queensway West, South of Bloor,...	43.628841	-79.520999

Postal Codes of Toronto

- These are all the postal code wise data points available in the dataset
- Below distribution of areas has been depicted with different colors in the map:

<i>North York</i>	24
<i>Downtown Toronto</i>	19
<i>Scarborough</i>	17
<i>Etobicoke</i>	12
<i>Central Toronto</i>	9
<i>West Toronto</i>	6
<i>York</i>	5
<i>East Toronto</i>	5
<i>East York</i>	5
<i>Mississauga</i>	1



Finding 1: Avg. 3 Indian restaurants per area

- Left table indicates mean of 3.3 Indian restaurants per area/neighborhood
- Population data available for 102 neighborhoods thus reducing dataset to 102
- So we deduce areas with 4 or more restaurants are saturated
- Right table shows Saturation column added to the dataset where if Count_Indian_Restaurants >3, Saturation is 'y'

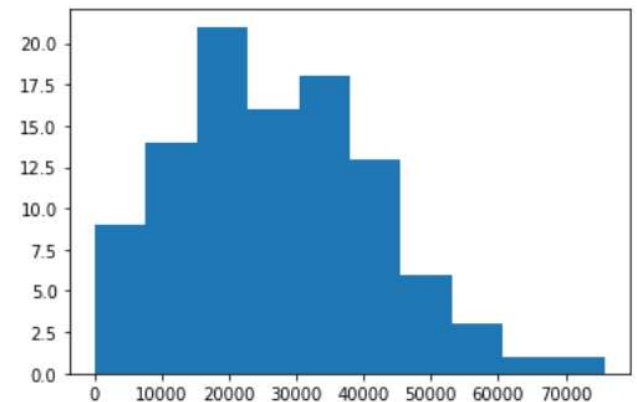
	Latitude	Longitude	Count_Indian_Restaurants	Population, 2016
count	102.000000	102.000000	102.000000	102.000000
mean	43.705271	-79.395009	3.343137	26785.676471
std	0.052286	0.095146	5.374113	15160.057881
min	43.602414	-79.594054	0.000000	0.000000
25%	43.661782	-79.462654	0.000000	16717.000000
50%	43.700636	-79.388790	1.000000	24866.500000
75%	43.745613	-79.340923	3.750000	36933.000000
max	43.836125	-79.160497	23.000000	75897.000000

Postal Code	Borough	Neighborhood	Latitude	Longitude	Count_Indian_Restaurants	Saturation
M3A	North York	Parkwoods	43.753259	-79.329656	0	n
M4A	North York	Victoria Village	43.725882	-79.315572	3	n
M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636	5	y
M6A	North York	Lawrence Manor, Lawrence Heights	43.718518	-79.464763	0	n
M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494	12	y
...
M8X	Etobicoke	The Kingsway, Montgomery Road, Old Mill North	43.653654	-79.506944	2	n
M4Y	Downtown Toronto	Church and Wellesley	43.665860	-79.383160	9	y
M7Y	East Toronto	Business reply mail Processing Centre, South C...	43.662744	-79.321558	5	y
M8Y	Etobicoke	Old Mill South, King's Mill Park, Sunnylea, Hu...	43.636258	-79.498509	0	n
M8Z	Etobicoke	Mimico NW, The Queensway West, South of Bloor,...	43.628841	-79.520999	1	n

Finding 2: Avg. 27k population per area

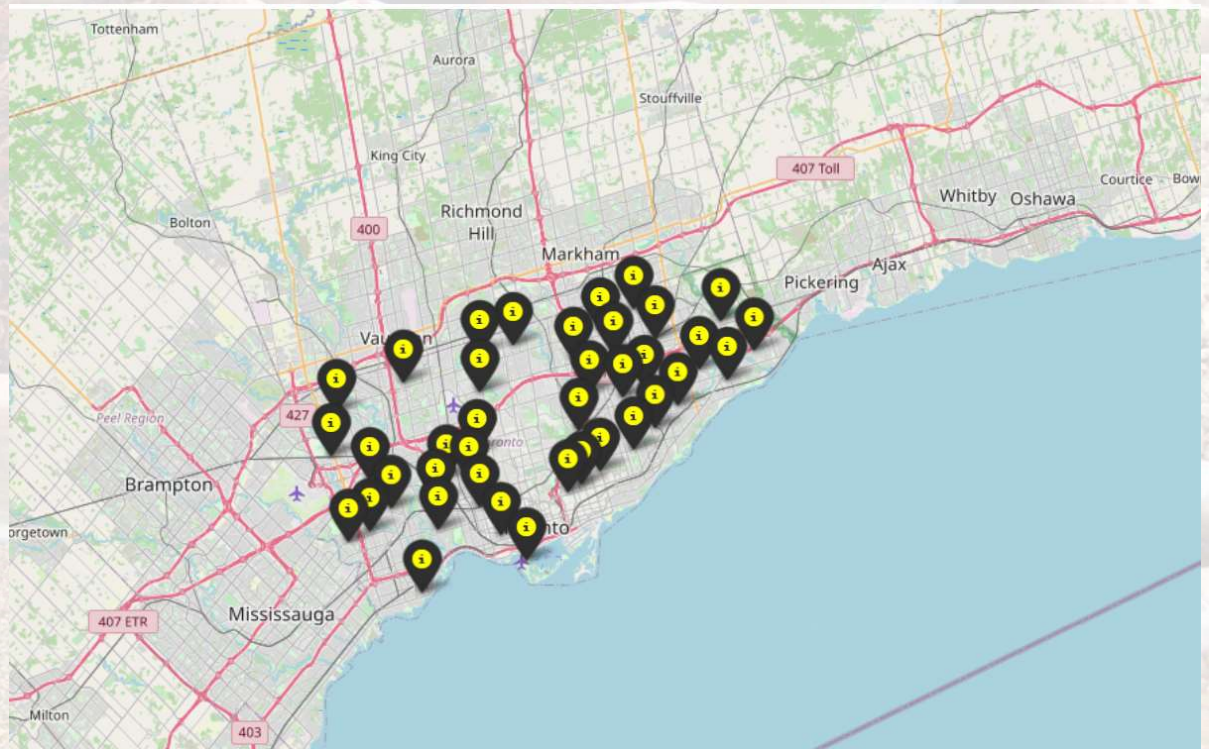
- The table indicates mean of 27,000 population per area
- We deduce areas with more than 27,000 population might have drive higher demand
- So, areas with lower competition from Indian restaurants and higher demand from population density would be good for new Indian restaurant businesses

	Latitude	Longitude	Count_Indian_Restaurants	Population, 2016
count	102.000000	102.000000	102.000000	102.000000
mean	43.705271	-79.395009	3.343137	26785.676471
std	0.052286	0.095146	5.374113	15160.057881
min	43.602414	-79.594054	0.000000	0.000000
25%	43.661782	-79.462654	0.000000	16717.000000
50%	43.700636	-79.388790	1.000000	24866.500000
75%	43.745613	-79.340923	3.750000	36933.000000
max	43.836125	-79.160497	23.000000	75897.000000



Conclusion

- 38 neighborhoods were determined suitable for opening Indian restaurants
- The map depicts all 38 neighborhoods
- List of all 38 neighborhoods on next slide



Appendix

Postal Code	Borough	Neighborhood
M3A	North York	Parkwoods
M9A	Etobicoke	Islington Avenue, Humber Valley Village
M1B	Scarborough	Malvern, Rouge
M6B	North York	Glencairn
M9B	Etobicoke	West Deane Park, Princess Gardens, Martin Grov...
M1C	Scarborough	Rouge Hill, Port Union, Highland Creek
M3C	North York	Don Mills
M4C	East York	Woodbine Heights
M9C	Etobicoke	Eringate, Bloordale Gardens, Old Burnhamthorpe...
M1E	Scarborough	Guildwood, Morningside, West Hill
M6E	York	Caledonia-Fairbanks
M1G	Scarborough	Woburn
M3H	North York	Bathurst Manor, Wilson Heights, Downsview North
M6H	West Toronto	Dufferin, Dovercourt Village
M1J	Scarborough	Scarborough Village
M2J	North York	Fairview, Henry Farm, Oriole
M4J	East York	East Toronto, Broadview North (Old East York)
M6J	West Toronto	Little Portugal, Trinity
M1K	Scarborough	Kennedy Park, Ionview, East Birchmount Park
M4K	East Toronto	The Danforth West, Riverdale
M1L	Scarborough	Golden Mile, Clairlea, Oakridge
M2M	North York	Willowdale, Newtonbrook
M6M	York	Del Ray, Mount Dennis, Keelsdale and Silverthorn
M3N	North York	Downsview
M6N	York	Runnymede, The Junction North
M1P	Scarborough	Dorset Park, Wexford Heights, Scarborough Town...

Postal Code	Borough	Neighborhood
M1R	Scarborough	Wexford, Maryvale
M2R	North York	Willowdale, Willowdale West
M9R	Etobicoke	Kingsview Village, St. Phillips, Martin Grove ...
M1S	Scarborough	Agincourt
M6S	West Toronto	Runnymede, Swansea
M1T	Scarborough	Clarks Corners, Tam O'Shanter, Sullivan
M1V	Scarborough	Milliken, Agincourt North, Steeles East, L'Amo...
M5V	Downtown Toronto	CN Tower, King and Spadina, Railway Lands, Har...
M8V	Etobicoke	New Toronto, Mimico South, Humber Bay Shores
M9V	Etobicoke	South Steeles, Silverstone, Humbergate, Jamest...
M1W	Scarborough	Steeles West, L'Amoreaux West
M9W	Etobicoke	Northwest, West Humber - Clairville