

Introduction/Business Problem

Let say if you are a buisness manerger who want to invest a Indian food restaruant in a mid-size city which has fast growth. You have to decide where or which neighborhoods to open the restaruant. In order to answer this question, you maty need a model get some recommendations where to start your business.

Therefore, we will base our model on a mature city/metropolitan city. Because your city will also become a metropolis some day.

Data import (Toronto)

- Neighborhood information get from Wiki



The screenshot shows the Wikipedia article titled "List of postal codes of Canada: M". The article text states: "This is a list of postal codes in Canada where the first letter is M. Postal codes beginning with M are located within the city of Toronto in the province of Ontario. Only the first three characters are listed, corresponding to the Forward Sortation Area. Canada Post provides a free postal code look-up tool on its website,^[1] via its applications for such smartphones as the iPhone and BlackBerry,^[2] and sells hard-copy directories and CD-ROMs. Many vendors also sell validation tools, which allow customers to properly match addresses and postal codes. Hard-copy directories can also be consulted in all post offices, and some libraries."

Postcode	Borough	Neighbourhood
M1A	Not assigned	Not assigned
M2A	Not assigned	Not assigned
M3A	North York	Parkwoods
M4A	North York	Victoria Village
M5A	Downtown Toronto	Harbourfront
M5A	Downtown Toronto	Regent Park
M6A	North York	Lawrence Heights
M6A	North York	Lawrence Manor
M7A	Queen's Park	Not assigned
M8A	Not assigned	Not assigned
M9A	Etobicoke	Islington Avenue



- Scrap from website and organize into DataFrame

	PostalCode	Borough	Neighborhood
0	M1B	Scarborough	Rouge,Malvern
1	M1C	Scarborough	Highland Creek,Rouge Hill,Port Union
2	M1E	Scarborough	Guildwood,Morningside,West Hill
3	M1G	Scarborough	Woburn
4	M1H	Scarborough	Cedarbrae

https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M

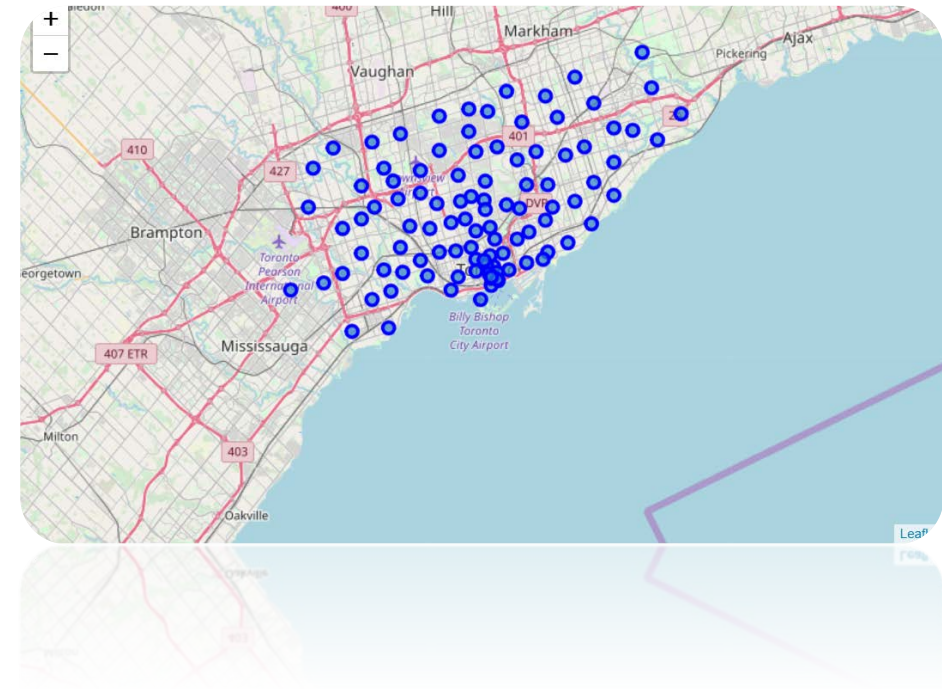
Get location information

- Use geocoder package to get location information:

	PostalCode	Borough	Neighborhood	Latitude	Longitude
0	M1B	Scarborough	Rouge,Malvern	43.806686	-79.194353
1	M1C	Scarborough	Highland Creek,Rouge Hill,Port Union	43.784535	-79.160497
2	M1E	Scarborough	Guildwood,Morningside,West Hill	43.763573	-79.188711
3	M1G	Scarborough	Woburn	43.770992	-79.216917
4	M1H	Scarborough	Cedarbrae	43.773136	-79.239476

- Plot the location using folium package

Neighborhood location in Toronto on map



Get venues information

- Use **Foursquare** API, we can explore the venues around on specific location, so we could achieve venues' name and category

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Rouge,Malvern	43.806686	-79.194353	African Rainforest Pavilion	43.817725	-79.183433	Zoo Exhibit
1	Rouge,Malvern	43.806686	-79.194353	Toronto Pan Am Sports Centre	43.790623	-79.193869	Athletics & Sports
2	Rouge,Malvern	43.806686	-79.194353	Toronto Zoo	43.820582	-79.181551	Zoo
3	Rouge,Malvern	43.806686	-79.194353	Polar Bear Exhibit	43.823372	-79.185145	Zoo
4	Rouge,Malvern	43.806686	-79.194353	Canadiana exhibit	43.817894	-79.193260	Zoo Exhibit

- Create one-hot encoding for each category

	Neighborhood	Afghan Restaurant	African Restaurant	Airport	Airport Lounge	American Restaurant	Aquarium	Art Gallery	Arts & Crafts Store	A: Restau
0	Adelaide,King,Richmond	0	0	0	0	1	1	2	2	0
1	Agincourt	0	0	0	0	1	0	0	1	1
2	Agincourt North,L'Amoreaux East,Milliken,Steel...	0	0	0	0	1	0	0	1	2
3	Albion Gardens,Beaumont Heights,Humbergate,Jam...	0	0	0	0	0	0	0	0	3
4	Alderwood,Long Branch	0	0	0	0	1	0	0	1	1

<http://www.foursquare.com>