Introduction

Introduction

I am a person living in **Hong Kong**.

I am living in the **Kennedy Town region**, where it is very close to the underground station. The region has a balance of the eastern and western culture. It is easily accessible to the central downtown, but far enough to enjoy a quiet and relaxed environment. Recently, I have been invited by my boss to work in Toronto. The package is a nice deal and I decided to accept it. I am very excited, and at the same time very busy at the preparation work. I am **looking for an apartment in Toronto** which has a similar ambience compared to my current living environment. The question is, **which Neighborhood should I look for**?

Business Problem

Business Problem

To find a neighborhood in Toronto that exhibits the closest characteristics compared to my current home: Kennedy town. The steps could include:

1. Getting the characteristics of Kennedy Town
2. Matching the characteristics of Kennedy Town to a neighborhood (or a few neighborhoods) in Toronto for consideration

Data

Data – Toronto Data
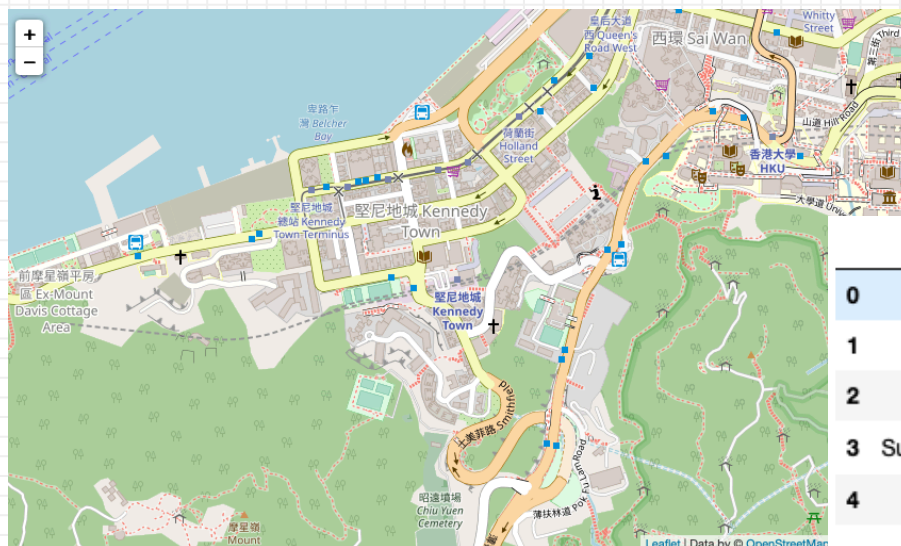
We will use the Toronto Data we have prepared in week 3.

	Postcode	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

Data – Kenney Town Data
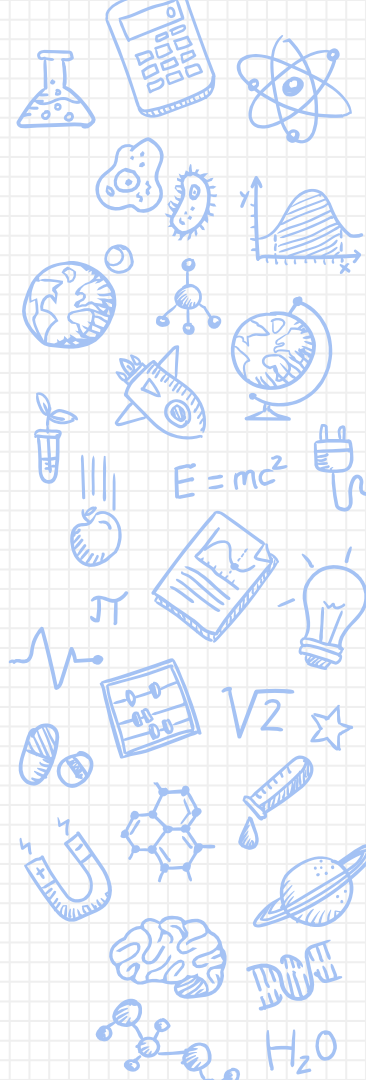
We will use foursquare to get the Kennedy Town data.

	name	categories	lat	lng
0	Winstons Coffee	Coffee Shop	22.281374	114.127172
1	Comptoir	French Restaurant	22.281209	114.126975
2	Little Creatures	Brewery	22.283950	114.128264
3	Sun Hing Restaurant (新興食家)	Dim Sum Restaurant	22.283036	114.128209
4	Catch.	Breakfast Spot	22.283152	114.126988

Methodology

Methodology

Majorly relied on Foursquare API to retrieve all venues of each neighborhoods, then group by each neighborhoods and to count how many venues before filter top 10 most common venue types of each neighborhoods.

We will process the Kennedy Town data in the same way, and see which cluster does Kennedy Town falls in. The Neighborhoods in the same cluster should demonstrate similar characteristics as Kennedy Town

Analysis

Analysis

A snapshot of Toronto's Neighborhood's most common venues

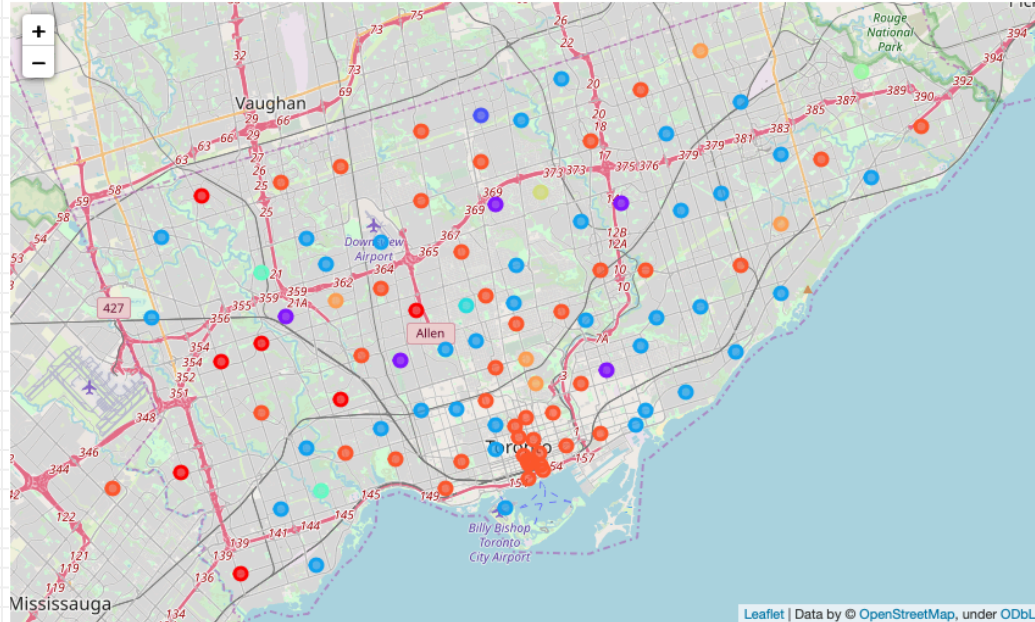|	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Adelaide, King, Richmond	Coffee Shop	Café	Steakhouse	Bar	Thai Restaurant	Restaurant	Hotel	Cosmetics Shop	Burger Joint	Sushi Restaurant
1	Agincourt	Latin American Restaurant	Lounge	Breakfast Spot	Dumpling Restaurant	Discount Store	Dog Run	Doner Restaurant	Donut Shop	Drugstore	Electronics Store
2	Agincourt North, L'Amoreaux East, Milliken, St...	Park	Bakery	Playground	Donut Shop	Dim Sum Restaurant	Diner	Discount Store	Dog Run	Doner Restaurant	Drugstore
3	Albion Gardens, Beaumond Heights, Humbergate, ...	Grocery Store	Discount Store	Fast Food Restaurant	Beer Store	Japanese Restaurant	Sandwich Place	Fried Chicken Joint	Liquor Store	Pharmacy	Pizza Place
4	Alderwood, Long Branch	Pizza Place	Sandwich Place	Gym	Coffee Shop	Skating Rink	Pharmacy	Pub	Pool	Yoga Studio	Department Store

Analysis

A snapshot of Kennedy Town's Neighborhood's most common venues.

It seems that Kennedy Town is filled with a lot of restaurants!

	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	Kennedy_Town	Bus Stop	Hotpot Restaurant	Dim Sum Restaurant	Taco Place	Taiwanese Restaurant	Fish & Chips Shop	Market	Hobby Shop	Noodle House	Dumpling Restaurant

Analysis

We used k-means algorithm to divide all neighborhoods in Toronto into 10 clusters.

Results

Results

Kennedy Town was predicted by the k–means algorithm to be in **cluster 3.**
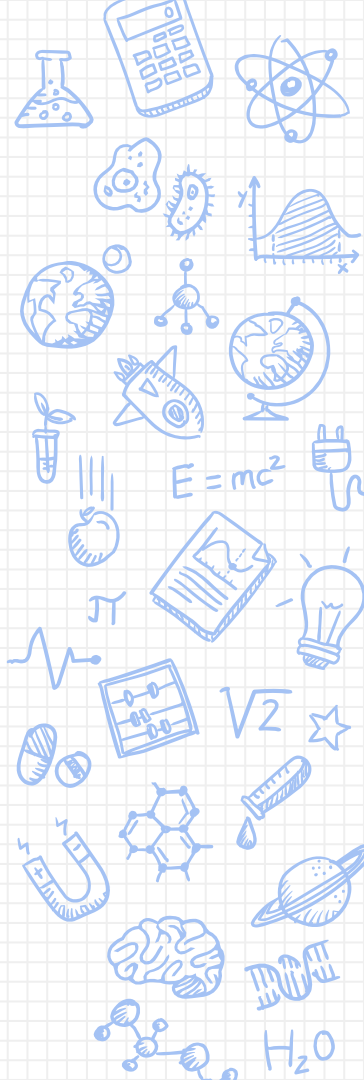
Let's take a look at the neighborhoods in Toronto cluster 3:

- Guildwood, Morningside, West Hill
- Cedarbrae
- Clairlea, Golden Mile, Oakridge
- Cliffcrest, Cliffside, Scarborough Village West
- Birch Cliff, Cliffside West
- Dorset Park, Scarborough Town Centre, Wexford Heights
- Maryvale, Wexford
- Agincourt
- Clarks Corners, Sullivan, Tam O'Shanter
- Hillcrest Village
- Bayview Village
- Don Mills North
- CFB Toronto, Downsview East
- Downsview West
- Downsview Central
- Woodbine Gardens, Parkview Hill
- Woodbine Heights
- The Beaches
- Thorncliffe Park
- The Beaches West, India Bazaar
- Lawrence Park
- Davisville North
- Forest Hill North, Forest Hill West
- Harbord, University of Toronto
- Chinatown, Grange Park, Kensington Market
- CN Tower, Bathurst Quay, Island airport, Harbourfront West, King and Spadina, Railway Lands, South Niagara
- Humewood-Cedarvale
- Christie
- Dovercourt Village, Dufferin
- High Park, The Junction South
- Business Reply Mail Processing Centre 969 Eastern
- Humber Bay Shores, Mimico South, New Toronto
- The Kingsway, Montgomery Road, Old Mill North
- Kingsway Park South West, Mimico NW, The Queensway West, Royal York South West, South of Bloor
- Albion Gardens, Beaumond Heights, Humbergate, Jamestown, Mount Olive, Silverstone, South Steeles, Thistletown
- Northwest

Discussion

Discussion

Taking a look at the most common places in Cluster 3 neighborhoods, we see that most of them really contains a lot of restaurants: e.g. Bakery, Hakka Restaurant, Pizza Place, Caribbean Restaurant, Thai Restaurant etc.

Therefore, from this perspective, the algorithm really works as expected.

Conclusion

Conclusion

Most of the restaurants are concentrated in the Cluster 3 Neighborhoods in Toronto.

I will start searching my new home in those Cluster 3 neighborhoods.