01

Where is a good place to open a restaurant in Toronto?

BUSINESS IDEA

WHERE TO OPEN A RESTAURANT IS ALWAYS A HARD PROBLEM FOR EVERY ENTREPREUNER, ESPECIALLY IN BIG CITY, HOW TO FIND A IDEAL PLACE WHICH NOT CLOSE TO TOO MANY COMPETITOR BUT CAN ALSO ATTRACT CUSTOMER. IN THIS ANALYSIS WE WILL COVER ON THIS PROBLEM, AND PUT A SPECIFIC TYPE AS OUR CORE TOPIC - JAPANESE RESTAURANT

Technique & Requirement

TOPIC - JAPANESE RESTAURANT

Japanese restaurant is always a competitive type of restaurant in western country, this will offer enough sample for us.

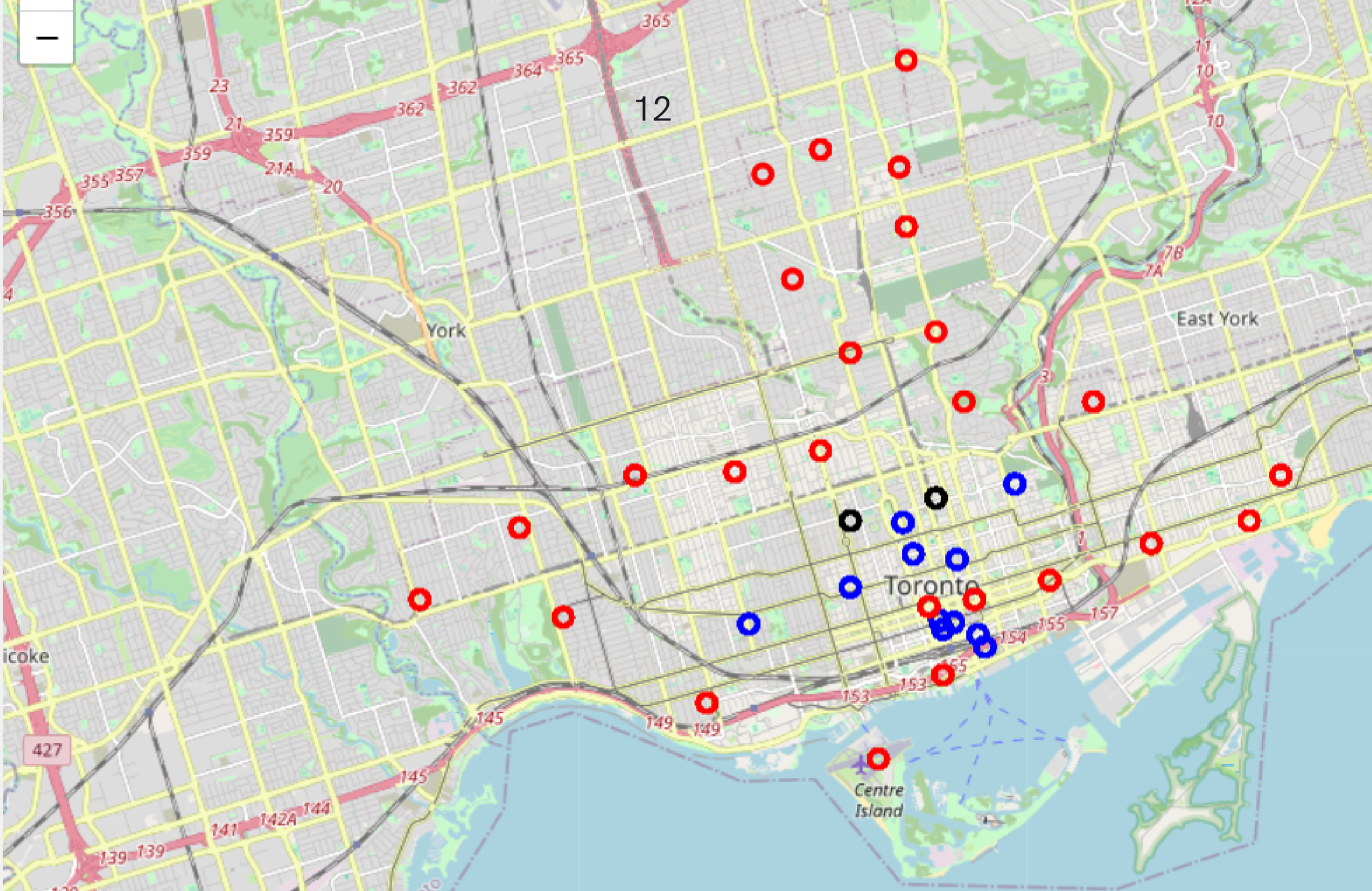
MACHINE LEARNING TECHNIQUE USED- K-MEANS

Its very straightforward and easy to achieve, it is also sensitive to noise and for this situation I think K-means is a good fit

DATA SOURCE

1.
Taipei neighborhoods data from Wikipedia
2.
Latitude and longtitude from Geocoder package
3.
Venue related data from Foursquare API

K-means Clustering Result



Method:

Digging into each cluster

Observation:

Clearly, we can see that most of the Japanese restaurant are in cluster 0, so we should avoid this area since it would be very risky and competitive

```
6]: #Cluster 0
to_merged.loc[(to_merged['Cluster Labels'] ==0) & (to_merged['Venue Category'] == 'Japanese Restaurant') ]
```

6]:

	Neighborhood	Japanese Restaurant	Cluster Labels	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
17	Kensington Market, Chinatown, Grange Park	0.017241	0	43.653206	-79.400049	Gushi	43.652258	-79.404884	Japanese Restaurant
23	Queen's Park, Ontario Provincial Government	0.027778	0	43.662301	-79.389494	Tokyo Grill	43.665085	-79.384707	Japanese Restaurant
19	Little Portugal, Trinity	0.022727	0	43.647927	-79.419750	Bazara	43.648535	-79.420521	Japanese Restaurant
13	Garden District, Ryerson	0.030000	0	43.657162	-79.378937	Kinka Izakaya Original	43.660596	-79.378891	Japanese Restaurant
13	Garden District, Ryerson	0.030000	0	43.657162	-79.378937	KAKA	43.657457	-79.384192	Japanese Restaurant
13	Garden District, Ryerson	0.030000	0	43.657162	-79.378937	Katsuya	43.659860	-79.378788	Japanese Restaurant
37	Toronto Dominion Centre, Design Exchange	0.030000	0	43.647177	-79.381576	Chotto Matte	43.646473	-79.378782	Japanese Restaurant
37	Toronto Dominion Centre, Design Exchange	0.030000	0	43.647177	-79.381576	Ki Modern Japanese + Bar	43.647167	-79.379608	Japanese Restaurant
37	Toronto Dominion Centre, Design Exchange	0.030000	0	43.647177	-79.381576	Ninki Izakaya	43.650228	-79.384863	Japanese Restaurant
30	St. James Town, Cabbagetown	0.023810	0	43.667967	-79.367675	Kingyo Toronto	43.665895	-79.368415	Japanese Restaurant
31	Stn A PO Boxes	0.032258	0	43.646435	-79.374846	Ki Modern Japanese + Bar	43.647167	-79.379608	Japanese Restaurant
31	Stn A PO Boxes	0.032258	0	43.646435	-79.374846	NAMI	43.650853	-79.375887	Japanese Restaurant
31	Stn A PO Boxes	0.032258	0	43.646435	-79.374846	Chotto Matte	43.646473	-79.378782	Japanese Restaurant
7	Commerce Court, Victoria Hotel	0.030000	0	43.648198	-79.379817	Ki Modern Japanese + Bar	43.647167	-79.379608	Japanese Restaurant
7	Commerce Court, Victoria Hotel	0.030000	0	43.648198	-79.379817	NAMI	43.650853	-79.375887	Japanese Restaurant
4	Central Bay Street	0.032258	0	43.657952	-79.387383	Omai	43.656006	-79.392494	Japanese Restaurant
7	Commerce Court, Victoria Hotel	0.030000	0	43.648198	-79.379817	Chotto Matte	43.646473	-79.378782	Japanese Restaurant
4	Central Bay Street	0.032258	0	43.657952	-79.387383	Rolltation	43.654918	-79.387424	Japanese Restaurant
11	First Canadian Place, Underground city	0.040000	0	43.648429	-79.382280	Fune Japanese Restaurant	43.648514	-79.386457	Japanese Restaurant
0	Berczy Park	0.017241	0	43.644771	-79.373306	Chotto Matte	43.646473	-79.378782	Japanese Restaurant

Observation:
There are several Japanese in cluster1 and 2, which are both significant lower than cluster 0, so we can say if we want to open a Japanese restaurant, we should focus on cluster 1 and 2

```
#Cluster 1
to_merged.loc[(to_merged['Cluster Labels'] ==1) & (to_merged['Venue Category'] == 'Japanese Restaurant') ]
```

	Neighborhood	Japanese Restaurant	Cluster Labels	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Ven Longitu
29	St. James Town	0.012500	1	43.651494	-79.375418	Gyu-Kaku Japanese BBQ	43.651422	-79.3750
14	Harbourfront East, Union Station, Toronto Islands	0.010000	1	43.640816	-79.381752	Miku	43.641374	-79.3775
25	Richmond, Adelaide, King	0.010989	1	43.650571	-79.384568	Fune Japanese Restaurant	43.648514	-79.3864

```
#Cluster 2

to_merged.loc[(to_merged['Cluster Labels'] ==2) & (to_merged['Venue Category'] == 'Japanese Restaurant') ]
```

	Neighborhood	Japanese Restaurant	Cluster Labels	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude
6	Church and Wellesley	0.064935	2	43.665860	-79.383160	Kokoni Izakaya	43.664181	-79.380258
38	University of Toronto, Harbord	0.058824	2	43.662696	-79.400049	Yasu	43.662837	-79.403217
38	University of Toronto, Harbord	0.058824	2	43.662696	-79.400049	Gyubee	43.667088	-79.400571
6	Church and Wellesley	0.064935	2	43.665860	-79.383160	Tokyo Grill	43.665085	-79.384707
6	Church and Wellesley	0.064935	2	43.665860	-79.383160	Kawa Sushi	43.663894	-79.380210
6	Church and Wellesley	0.064935	2	43.665860	-79.383160	Onnki Donburi	43.669757	-79.384574
6	Church and Wellesley	0.064935	2	43.665860	-79.383160	Tokyo Kitchen	43.668783	-79.385153

```
# Cluster 3
to_merged.loc[(to_merged['Cluster Labels'] ==3) & (to_merged['Venue Category'] == 'Japanese Restaurant') ]
```