The neighborhoods in Toronto and NYC that are similar to Ginza

Makoto Watanabe

7 May 2020

1. Introduction

A description of the problem and a discussion of the background¶

I like Ginza area in Japan. Because it is one of the areas where good restaurants are on in Tokyo, Japan. So I would like to know neighborhoods that are similar to Ginza ,are inTorontoand NYC. In other words, neighborhoods that have good restaurants.

A description of the data and how it will be used to solve the problem.

Price tier and rating of restaurants data from Foursquare API. Category is out of consideration, it must depend on countries.

Retribe venues data from Foursquare API. Specially restaurants and shops. Clustering them.

2. Data

Neighborhoods¶

Toronto

I got neighborhoods' latitude and longitude in Toronto from below as this course's week3.

https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M https://cocl.us/Geospatial_data

https://geo.nyu.edu/download/file/nyu-2451-36180-geojson.json

NYC

https://ibm.box.com/shared/static/fbpwbovar7lf8p5sgddm06cgipa2rxpe.json

Venues' data

Use below foursquare's API to get venues in each neighborhood. GET

https://api.foursquare.com/v2/venues/search And use below to get venues' price tire and rating. GET

https://api.foursquare.com/v2/venues/VENUE_ID

Features and data cleaning

Bias for the restaurants in Ginza is that they have a high reputation and are expensive .

So extracted values from venue data are venues' id, name, price tire and rating.

I dropped venue data that contain values above.

3. Methodology¶

I used k-means clustering shops by price tire and rating , not by kinds of restaurants. Because the deviation of kinds of restaurants depends on the country. Ginza is in Japan , so I thought venues in Ginza contain many Japanese restaurants and venues in Toronto and NYC have less Japanese restaurants.

And venus clustered with the above result by k-means with a number of clusters of venues. In first ,clustered with a percentage of clusters of venues but neighborhoods that have a small number of venues were in the same cluster as Ginza. They are not similar to Ginza.

Figure 1. K-means' distortion

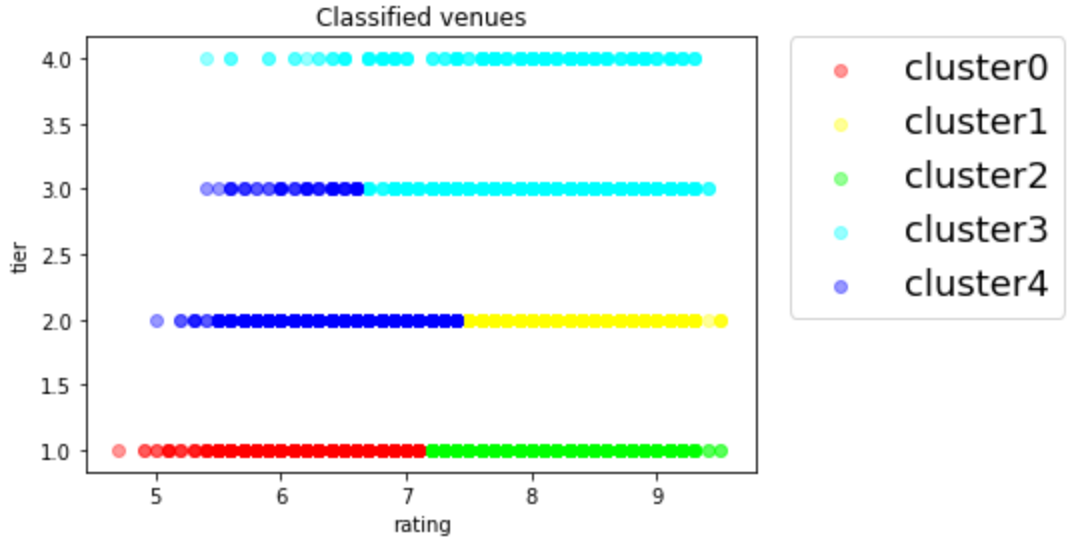


Figure 2. Classified all venues

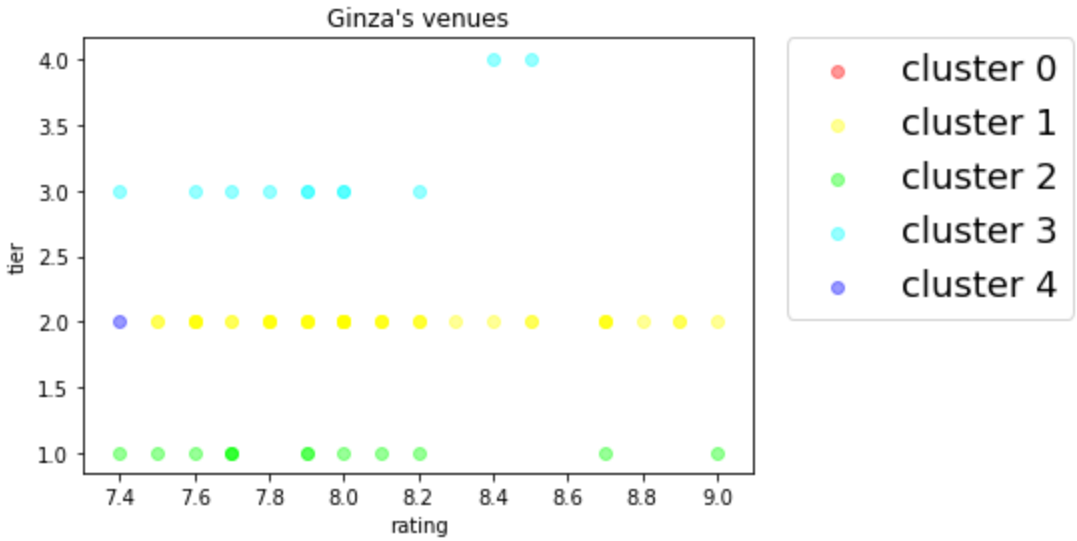


Figure 3. Classified venues in Ginza

4. Results

There are venues below the table in Ginza.

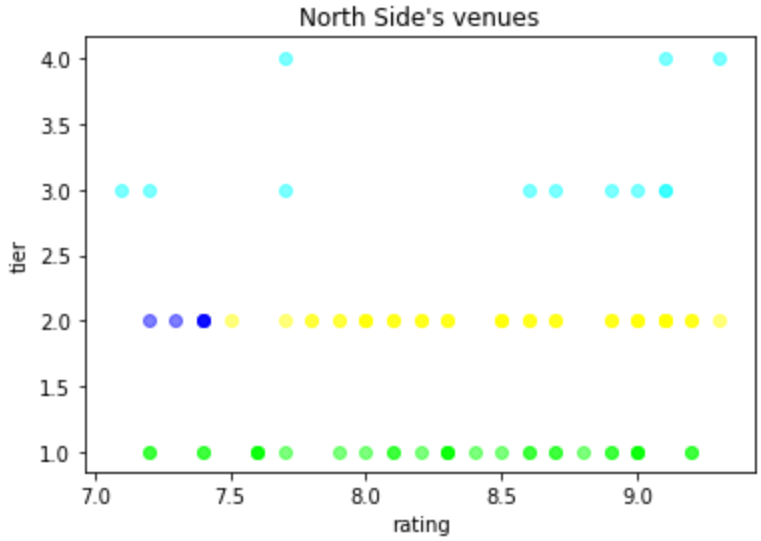
Neighborhoods	Cluster 0	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Ginza	0	46	13	11	1

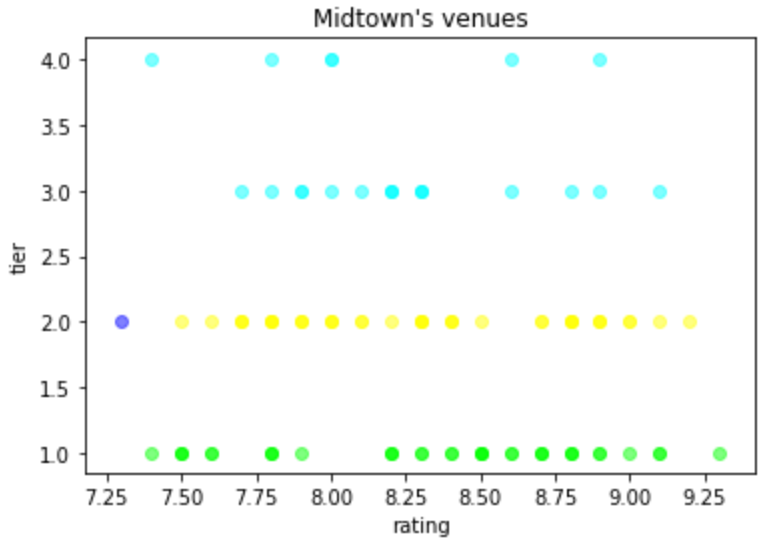
Table 1. Classified venues in Ginza

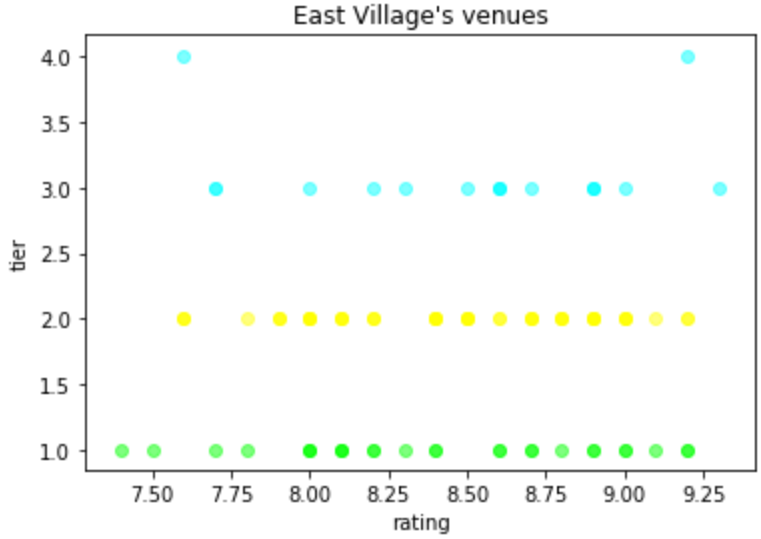
Toronto has no venue that is clustered as the same Ginza.

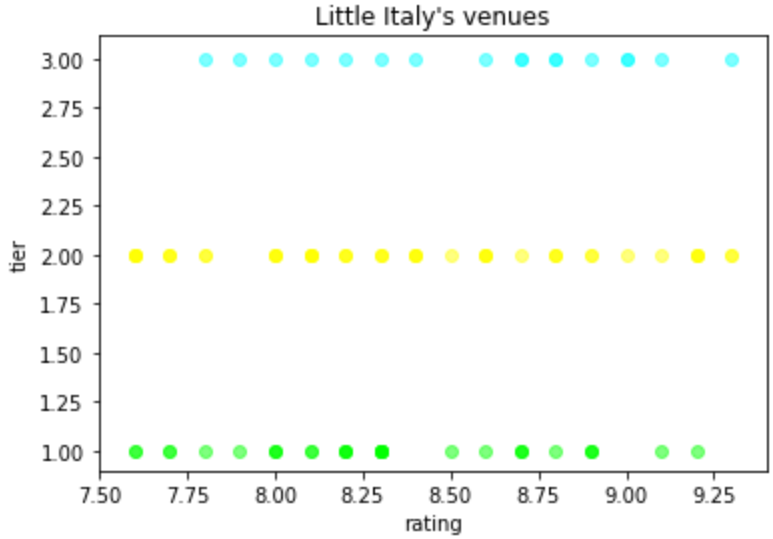
And NYC has 8 neighborhoods that have the venues in Ginza. See the table below.

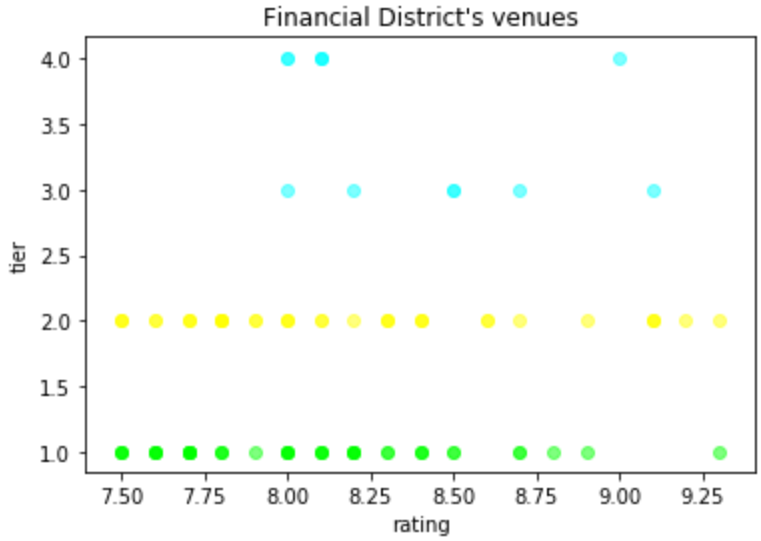
Neighborhoods	Cluster 0	Cluster 1	Cluster 2	Cluster 3	Cluster 4
North Side	0	46	33	12	1
Midtown	0	39	35	22	6
East Village	0	51	27	17	20
Little Italy	0	48	33	17	0
Financial District	0	36	46	12	0
Murray Hill	4	58	25	22	20
Noho	0	57	29	14	0
Midtown South	0	56	26	16	0

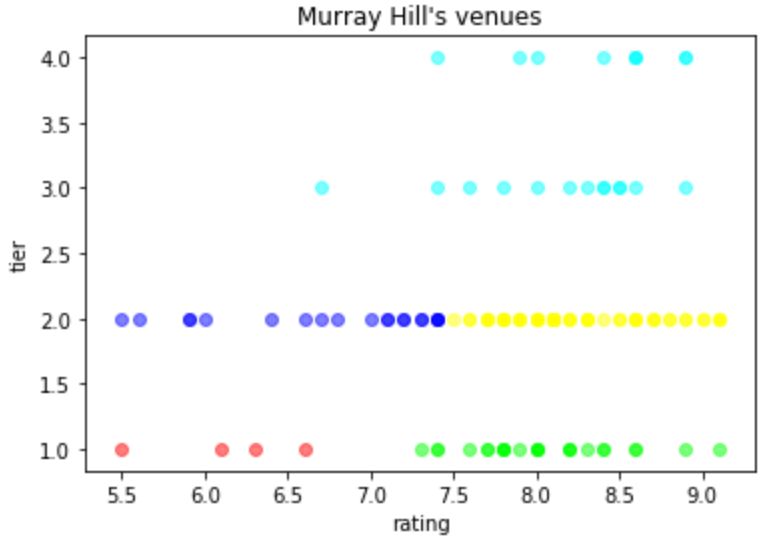

North Side's venues
tier
rating
4.0
3.5
3.0
2.5
2.0
1.5
1.0
7.0
7.5
8.0
8.5
9.0

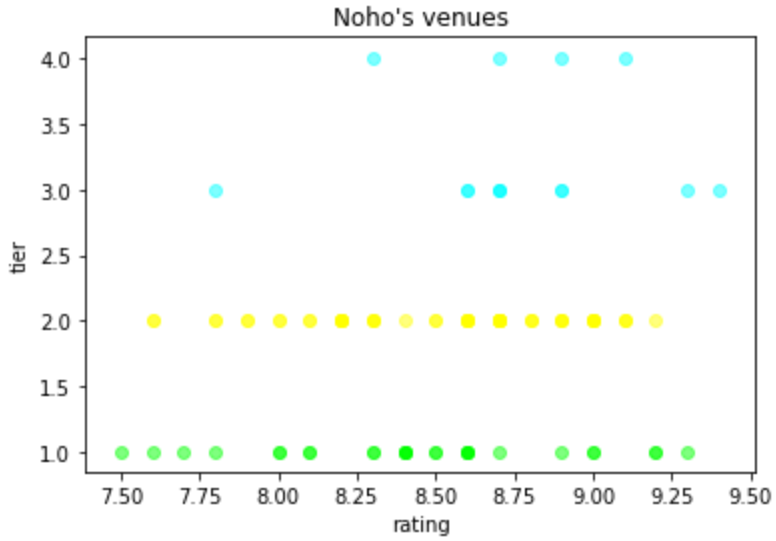

Midtown's venues
tier
rating
4.0
3.5
3.0
2.5
2.0
1.5
1.0
7.25
7.50
7.75
8.00
8.25
8.50
8.75
9.00
9.25

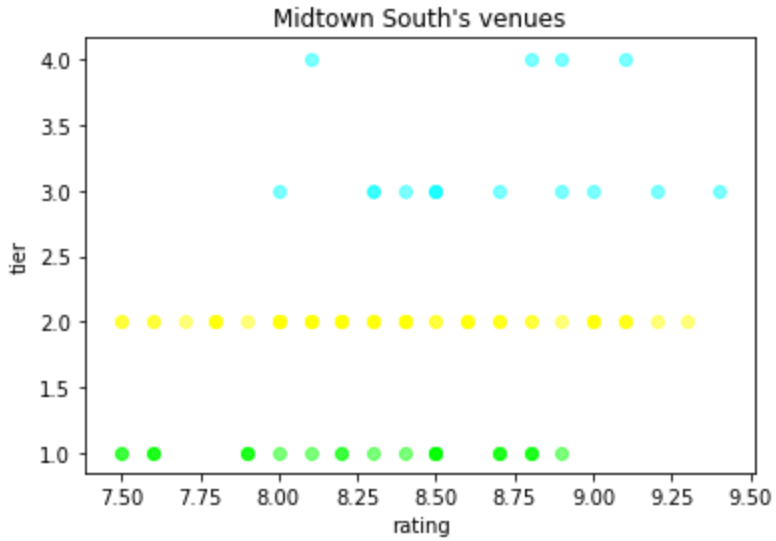

East Village's venues
4.0
3.5
3.0
2.5
2.0
1.5
1.0
tier
7.50
7.75
8.00
8.25
8.50
8.75
9.00
9.25
rating


Little Italy's venues
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
tier
7.50
7.75
8.00
8.25
8.50
8.75
9.00
9.25
rating


Financial District's venues
tier
rating
4.0
3.5
3.0
2.5
2.0
1.5
1.0
7.50
7.75
8.00
8.25
8.50
8.75
9.00
9.25


Murray Hill's venues
tier
rating
4.0
3.5
3.0
2.5
2.0
1.5
1.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0





5. Discussion

I thought that because Toronto's population is less than Ginza(Tokyo) and NYC so Toronto doesn't have enough venues.

Neighborhoods in NYC except for Murray Hill are similar to Ginza.

The rating range of venues in Murray Hill are wider than others and Ginza.

6. Conclusion

The venues of NYC that are similar to Ginza are North Side, Midtown, East Village, Little Italy, Financial District, , Murray Hill, Noho and Midtown South.

And I couldn’t find any venue that is similar to GInza in Toronto .

I guess because the population density of venues in Toronto is less than Ginza.