Capstone Project - The Battle of Neighborhoods (Week 2)

TSAI YI-FAN (National Chi Nan University,Dept,of International Business Studies)
2018/10/02

A description of the problem and a discussion of the background

National Chi Nan University is a research intensive university in Pu Li, Taiwan. The university nearly famous attraction "Sun Moon Lake" and a lot of foreign sightseers visiting. Chi Nan University have beautiful campus and open to visit the general public.

The school side hope than more public and foreign sightseers visit campus , but campus have not enough restaurant, sightseers must to go to Pu Li town look for restaurant, The school side want to make restaurant guide information for foreign sightseers and want to know restaurant style, address, telephone number on school around, of course, foreign sightseers don't want to eat McDonald's or fast food restaurant, so the school side hope collect Taiwanese cuisine restaurant, Chinese cuisine restaurant and Taiwan tea restaurant information, the information will help sightseers looking for own interested restaurant style and improve visit willingness.

we see the map center on National chi nan university:

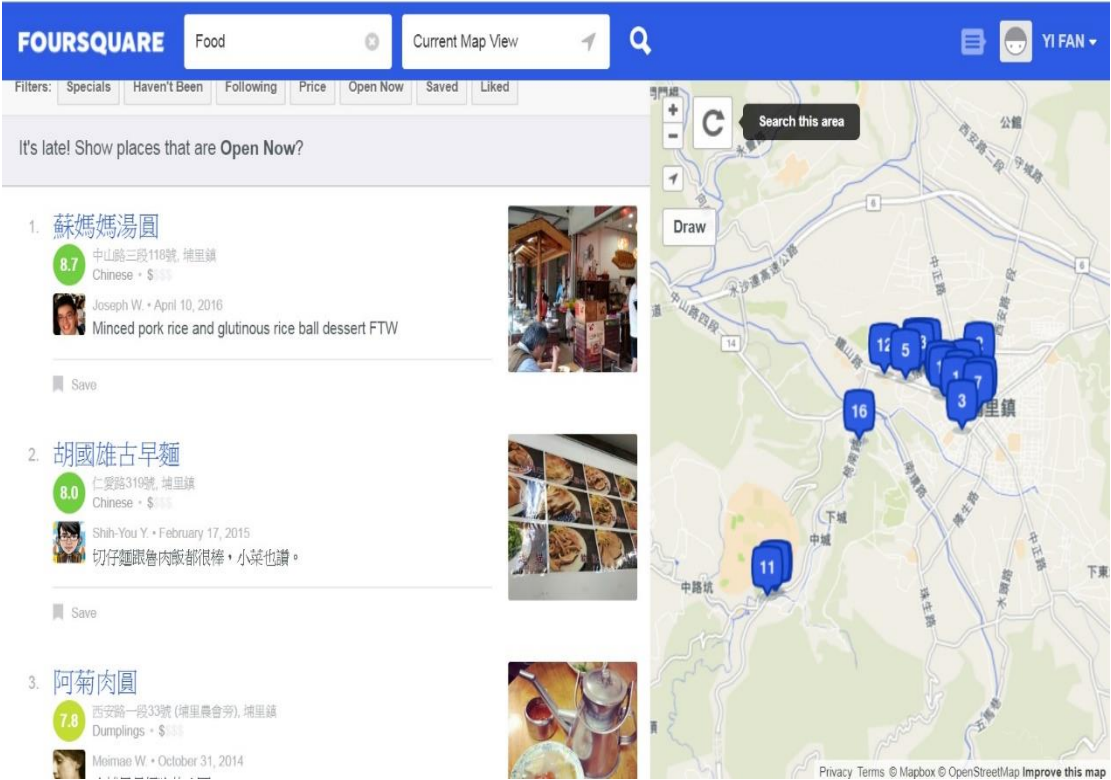Red point is Taiwanese cuisine restaurant, yellow point is Taiwan tea restaurant.

In case, I will use Foursquare API to search for venues and make the call to the Foursquare database and in return, I use K-means clustering to do classification restaurant style and distance, the data form:

```
0          碧廬茶會館 Bih Lu Taiwan Organic Tea Co.
1                     Taiwan Next 南投縣競選總部
2                     Taiwan Adventist College
3      台灣銀行 埔里分行 | Bank of Taiwan Puli Branch
4                  Geographic Center Of Taiwan
5                         Taiwan Times Village
6                      臺灣內地 Taiwan Inland
7                      Fly Taiwan Paragliding
8          日月潭台灣真美會館 Taiwan Beauty Hotel
9    The Wen Wan Resort Sun Moon Lake (日月行館)
Name: name, dtype: object
0          碧廬茶會館 Bih Lu Taiwan Organic Tea Co.
1                     Taiwan Next 南投縣競選總部
2                     Taiwan Adventist College
3      台灣銀行 埔里分行 | Bank of Taiwan Puli Branch
4                  Geographic Center Of Taiwan
5                         Taiwan Times Village
6                      臺灣內地 Taiwan Inland
7                      Fly Taiwan Paragliding
8          日月潭台灣真美會館 Taiwan Beauty Hotel
9    The Wen Wan Resort Sun Moon Lake (日月行館)
Name: name, dtype: object
```
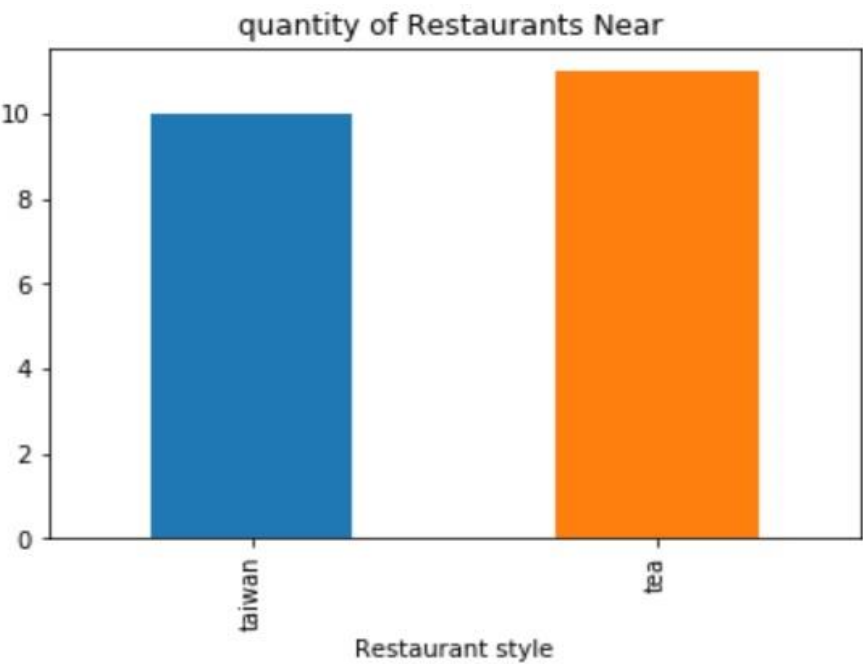
	name	categories	address	cc	city	country	crossStreet	distance	formattedAddress	labeledLatLngs	lat	lng	postalCode	state	id
0	碧廬茶會館 Bih Lu Taiwan Organic Tea Co.	Tea Room	埔里鎮樹人路38號	TW	Buli	臺灣	Shuren Rd.,	5793	[埔里鎮樹人路38號 (Shuren Rd.,), Puli, 南投縣 54547, 臺灣]	[{'label': 'display', 'lng': 120.9710928706909...	23.987260	120.971093	54547	南投縣	51bfb153498ec937254e1482
1	Taiwan Next 南投縣競選總部	General Entertainment	NaN	TW	NaN	臺灣	NaN	4099	[臺灣]	[{'label': 'display', 'lng': 120.9686584472656...	23.961220	120.968658	NaN	NaN	4ee46a9461aff5a341c7100d
2	Taiwan Adventist College	General College & University	NaN	TW	NaN	臺灣	NaN	4999	[臺灣]	[{'label': 'display', 'lng': 120.9369084326880...	23.906947	120.936808	NaN	NaN	549c00c9498e8a88a04f1c1d
3	台灣銀行 埔里分行	Bank of Taiwan Puli Branch	Bank	埔里鎮東榮路112號	TW	NaN	臺灣	近第三市場	4081	[埔里鎮東榮路112號 (近第三市場), 臺灣]	[{'label': 'display', 'lng': 120.9675903320312...	23.963757	120.967590	NaN	NaN	54f12eaf498e2fcc7d8dbbcf
4	Geographic Center Of Taiwan	Monument / Landmark	NaN	TW	Puli Township	臺灣	NaN	5712	[Puli Township, 545, 臺灣]	[{'label': 'display', 'lng': 120.980446, 'lat'...	23.973602	120.980446	545	NaN	5b03acaa295513002c474c5c

I use English word to analysis the data and find restaurant information be marked in Chinese word, and location name have "Pu Li" and "Bu Li" two ways, it interference capture data.

We can see restaurant mark very few, it is unusual, so we open Foursquare website to research pu li restaurant information, the conclusion as follows:

We know pu li town is historic spot, why restaurant information so few, even a lot of foreign sightseers visited but have not enough restaurant information in Foursquare database, form analysis conclusion as follows:
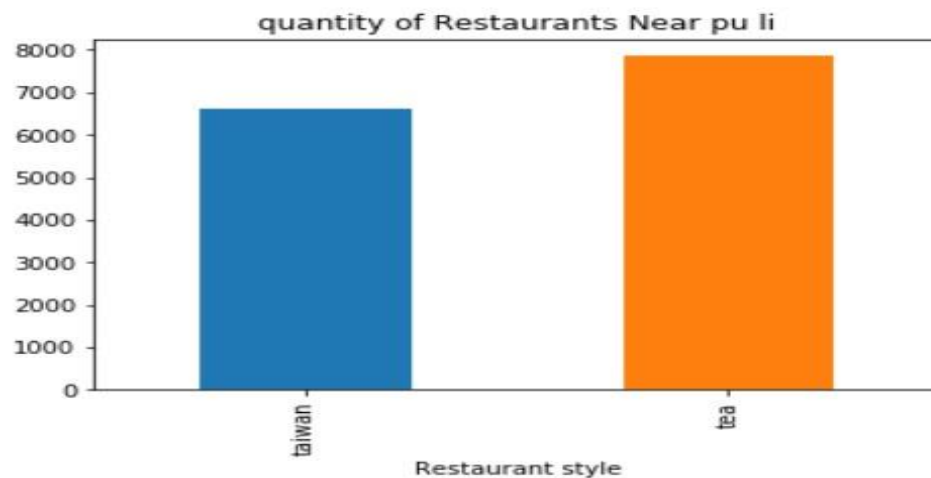
Taiwanese cuisine restaurant quantity is 10, Taiwan tea restaurant is 11, and I can't find any Chinese restaurant mark in Chinese key word, we think foreign sightseers may be can't identify difference of Taiwanese cuisine and Chinese cuisine or they do not know how to mark restaurant information in Romanization.

```
type
taiwan     6607.000000
tea        7858.909091
Name: distance, dtype: float64
```

```python
avgDis.plot(kind = 'Bar')

plt.title('quantity of Restaurants Near pu li')
plt.xlabel('Restaurant style')
plt.show()
```


The school side can help restaurant set up Romanization, it will help provide enough restaurant information, National Chi Nan University is a research-intensive university and have enough ability to do the thing, if the school side hope more foreign sightseers visit campus, enough restaurant information is required, of course contain traffic information that how to go to the school.