Report-Exploring Hong Kong Neighborhoods

Thursday, April 9, 2020   4:51 PM

1. Backgroud and Problem

Hong Kong, located on China's southern coast, Hong Kong is a unique place where East meets West and old meets new. A former British colony and current Special Administrative Region of China, Hong Kong is home to an exceptional culture. Having inherited ancient Chinese heritage and experienced a period of Western, colonial influence, Hong Kong is a multifaceted city where English and Cantonese, "Feng Shui" and football, towering skyscrapers and historical sites exist side by side.

Hong Kong is definitely one of the best places to start up a new business. Food is the most impportant part in people's daily life. Let's see how to start the battle of neighborhoods in Hong Kong.

Target Audience

Business personnel who wants to invest or open a restaurant. This analysis will be a comprehensive guide to start or expand restaurants targeting the large pool of office workers in Tokyo during lunch hours.
Freelancer who loves to have their own restaurant as a side business. This analysis will give an idea, how beneficial it is to open a restaurant and what are the pros and cons of this business.
New graduates, to find reasonable lunch/breakfast place close to office.

2. Data Preparation

Data used in the analysis are listed below:
- Districts of Hong_Kong -- Wikipedia Page.
- Using Geopy to get geological location by address name
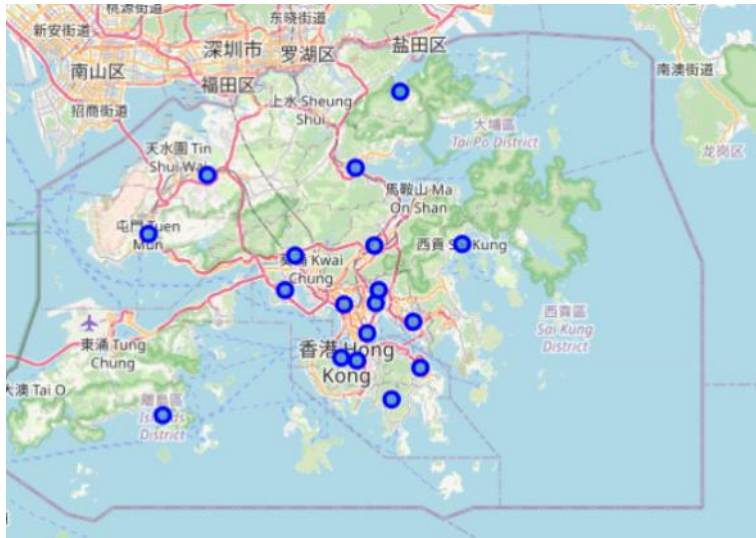- Using Foursquare API to get the most common venues of given district of Hong Kong

3. Methodology
Firstly, I used BeautifulSoup to scrape boroughs from Wikipedia and organize a table containing of Districts of Hong Kong.

	District	Chinese	Population	Area	Density	Region	Neighborhood
0	Central and Western	中西區	244600	12.44	19983.92	Hong Kong Island	Central and Western, Hong Kong Island
1	Eastern	東區	574500	18.56	31217.67	Hong Kong Island	Eastern, Hong Kong Island
2	Southern	南區	269200	38.85	6962.68	Hong Kong Island	Southern, Hong Kong Island
3	Wan Chai	灣仔區	150900	9.83	15300.10	Hong Kong Island	Wan Chai, Hong Kong Island
4	Sham Shui Po	深水埗區	390600	9.35	41529.41	Kowloon	Sham Shui Po, Kowloon
5	Kowloon City	九龍城區	405400	10.02	40194.70	Kowloon	Kowloon City, Kowloon
6	Kwun Tong	觀塘區	641100	11.27	56779.05	Kowloon	Kwun Tong, Kowloon
7	Wong Tai Sin	黃大仙區	426200	9.30	45645.16	Kowloon	Wong Tai Sin, Kowloon
8	Yau Tsim Mong	油尖旺區	318100	6.99	44864.09	Kowloon	Yau Tsim Mong, Kowloon
9	Islands	離島區	146900	175.12	825.14	New Territories	Islands, New Territories
10	Kwai Tsing	葵青區	507100	23.34	21503.86	New Territories	Kwai Tsing, New Territories
11	North	北區	310800	136.61	2220.19	New Territories	North District, New Territories
12	Sai Kung	西貢區	448600	129.65	3460.08	New Territories	Sai Kung, New Territories
13	Sha Tin	沙田區	648200	68.71	9433.85	New Territories	Sha Tin, New Territories
14	Tai Po	大埔區	307100	136.15	2220.35	New Territories	Tai Po, New Territories
15	Tsuen Wan	荃灣區	303600	61.71	4887.38	New Territories	Tsuen Wan, New Territories
16	Tuen Mun	屯門區	495900	82.89	5889.38	New Territories	Tuen Mun, New Territories
17	Yuen Long	元朗區	607200	138.46	4297.99	New Territories	Yuen Long, New Territories

Secondly, I used Geopy to get the geological location of each community board.

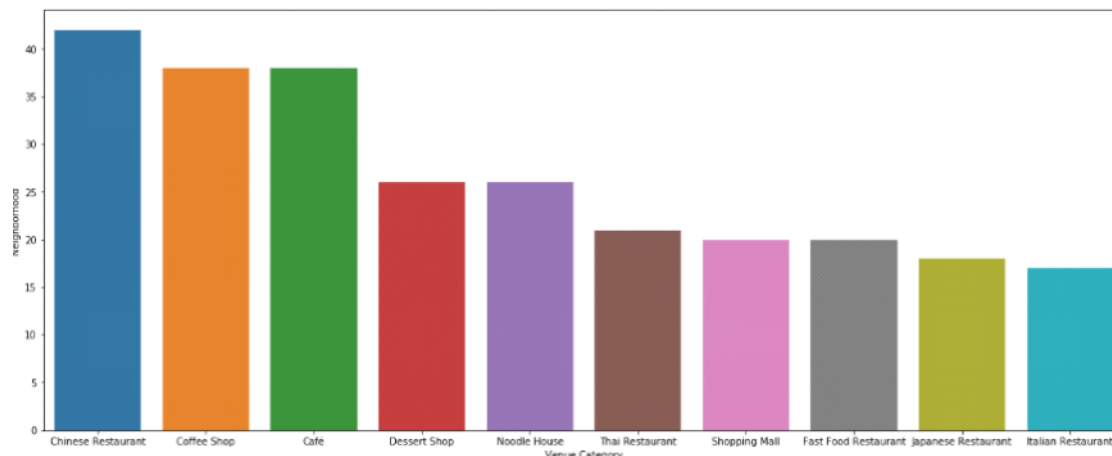|	District	Chinese	Population	Area	Density	Region	Neighborhood	Latitude	Longitude
0	Central and Western	中西區	244600	12.44	19983.92	Hong Kong Island	Central and Western, Hong Kong Island	22.281824	114.157863
1	Eastern	東區	574500	18.56	31217.67	Hong Kong Island	Eastern, Hong Kong Island	22.273078	114.233594
2	Southern	南區	269200	38.85	6962.68	Hong Kong Island	Southern, Hong Kong Island	22.244541	114.205376
3	Wan Chai	灣仔區	150900	9.83	15300.10	Hong Kong Island	Wan Chai, Hong Kong Island	22.279015	114.172483
4	Sham Shui Po	深水埗區	390600	9.35	41529.41	Kowloon	Sham Shui Po, Kowloon	22.328190	114.160854
5	Kowloon City	九龍城區	405400	10.02	40194.70	Kowloon	Kowloon City, Kowloon	22.330160	114.189937
6	Kwun Tong	觀塘區	641100	11.27	56779.05	Kowloon	Kwun Tong, Kowloon	22.312937	114.225610
7	Wong Tai Sin	黃大仙區	426200	9.30	45645.16	Kowloon	Wong Tai Sin, Kowloon	22.341654	114.193859
8	Yau Tsim Mong	油尖旺區	318100	6.99	44864.09	Kowloon	Yau Tsim Mong, Kowloon	22.302857	114.182032
9	Islands	離島區	146900	175.12	825.14	New Territories	Islands, New Territories	22.230076	113.986785
10	Kwai Tsing	葵青區	507100	23.34	21503.86	New Territories	Kwai Tsing, New Territories	22.341007	114.104285
11	North	北區	310800	136.61	2220.19	New Territories	North District, New Territories	22.516949	114.213593
12	Sai Kung	西貢區	448600	129.65	3460.08	New Territories	Sai Kung, New Territories	22.382249	114.272828
13	Sha Tin	沙田區	648200	68.71	9433.85	New Territories	Sha Tin, New Territories	22.381056	114.188879
14	Tai Po	大埔區	307100	136.15	2220.35	New Territories	Tai Po, New Territories	22.449402	114.171133
15	Tsuen Wan	荃灣區	303600	61.71	4887.38	New Territories	Tsuen Wan, New Territories	22.371661	114.113470
16	Tuen Mun	屯門區	495900	82.89	5889.38	New Territories	Tuen Mun, New Territories	22.390826	113.973169
17	Yuen Long	元朗區	607200	138.46	4297.99	New Territories	Yuen Long, New Territories	22.442646	114.030434

Next, I utilized the Foursquare API to explore the boroughs and segment them. I designed the limit as 100 venues and the radius 500 meters for each borough from their given latitude and longitude information.

```
# Let's check the size of the resulting dataframe
print(hk_venues.shape)
hk_venues.head()
```

(645, 7)

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Central and Western, Hong Kong Island	22.281824	114.157863	Mandarin Grill + Bar (文華扒房＋酒吧)	22.281928	114.159408	Steakhouse
1	Central and Western, Hong Kong Island	22.281824	114.157863	Mandarin Oriental Hong Kong (香港文華東方酒店)	22.281857	114.159382	Hotel
2	Central and Western, Hong Kong Island	22.281824	114.157863	Mott 32 (卅二公館)	22.280286	114.159080	Dim Sum Restaurant
3	Central and Western, Hong Kong Island	22.281824	114.157863	XYZ	22.280877	114.157108	Cycle Studio
4	Central and Western, Hong Kong Island	22.281824	114.157863	The Mandarin Cake Shop	22.281959	114.159416	Bakery

The most popular venue category are Chinese Restaurant and coffee shop/café.

	Venue Category	Neighborhood
0	Chinese Restaurant	42
1	Coffee Shop	38
2	Café	38
3	Dessert Shop	26
4	Noodle House	26
5	Thai Restaurant	21
6	Shopping Mall	20
7	Fast Food Restaurant	20
8	Japanese Restaurant	18
9	Italian Restaurant	17

Finally, I used Kmean to cluster the similar district and analysis the result

	District	Chinese	Population	Area	Density	Region	Neighborhood	Latitude	Longitude	Cluster Labels
0	Central and Western	中西區	244600	12.44	19983.92	Hong Kong Island	Central and Western, Hong Kong Island	22.281824	114.157863	0
1	Eastern	東區	574500	18.56	31217.67	Hong Kong Island	Eastern, Hong Kong Island	22.273078	114.233594	1
2	Southern	南區	269200	38.85	6962.68	Hong Kong Island	Southern, Hong Kong Island	22.244541	114.205376	2
3	Wan Chai	灣仔區	150900	9.83	15300.10	Hong Kong Island	Wan Chai, Hong Kong Island	22.279015	114.172483	0
4	Sham Shui Po	深水埗區	390600	9.35	41529.41	Kowloon	Sham Shui Po, Kowloon	22.328190	114.160854	0

4. Results and Discussion

As a recommendation to those who plan to operate a restaurant, location selection is only one fundamental problem to think over. We still need to consider the rent, visitors flow rate and so on.

	District
Cluster Labels	
0	Central and Western,Wan Chai,Sham Shui Po,Kowl...
1	Eastern
2	Southern
3	Islands
4	Kwai Tsing

5. Conclusion

As a result, Chinese restaurant and coffee shop are the most popular venues in Hong Kong. They should consider locations in a busy area or close to local communities.