

## ***The Battle of Neighborhoods: Coursera Capstone Project***

### ***Looking for potential place(s) to open a new Korean restaurant in Kwun Tong District, Hong Kong.***

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#### **1. Introduction/Business Problem**

Hong Kong is a city acting as global hub between China and other developed countries in the world, because it was a colony of United Kingdom and now is special administration region of China. People can find any type of cuisine in Hong Kong, making it a very competitive market.

The Korea-based company is planned to expand their business outside Korea and they are thinking of Hong Kong as the first place to open a restaurant. Preliminary research showing that there would be a development project in Kwun Tong District lead by the government. Company management finds there is a potential opportunity to develop their business in that District.

However, the company is not familiar with how the other Korean restaurant are running in Hong Kong, therefore the objective of this project would be understanding the neighborhood of existing Korean restaurant in other districts of Hong Kong.

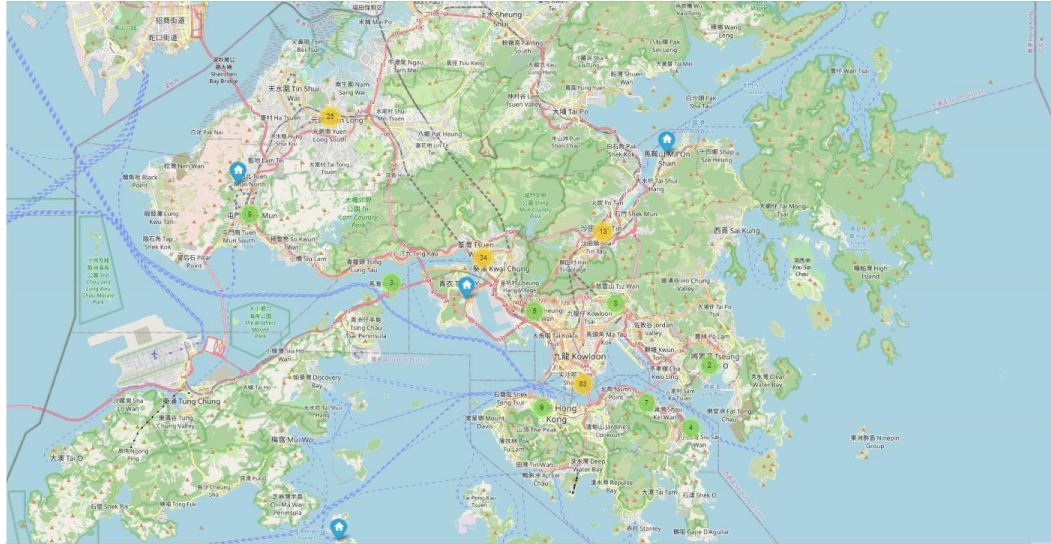
#### **2. Data**

There are 18 districts in Hong Kong, and the project would focus on understanding neighborhood of existing Korean restaurant in 17 districts of Hong Kong, excluding Kwun Tong District, where the place that the company targeted.

Data would be collected by using Foursquare API, including existing Korean restaurants in Hong Kong and neighborhood of where they located.

### 3. Methodology

First thing is to collect the existing Korean restaurant in Hong Kong using Foursquare API. The following map of Hong Kong showing the location of existing Hong Kong restaurants.

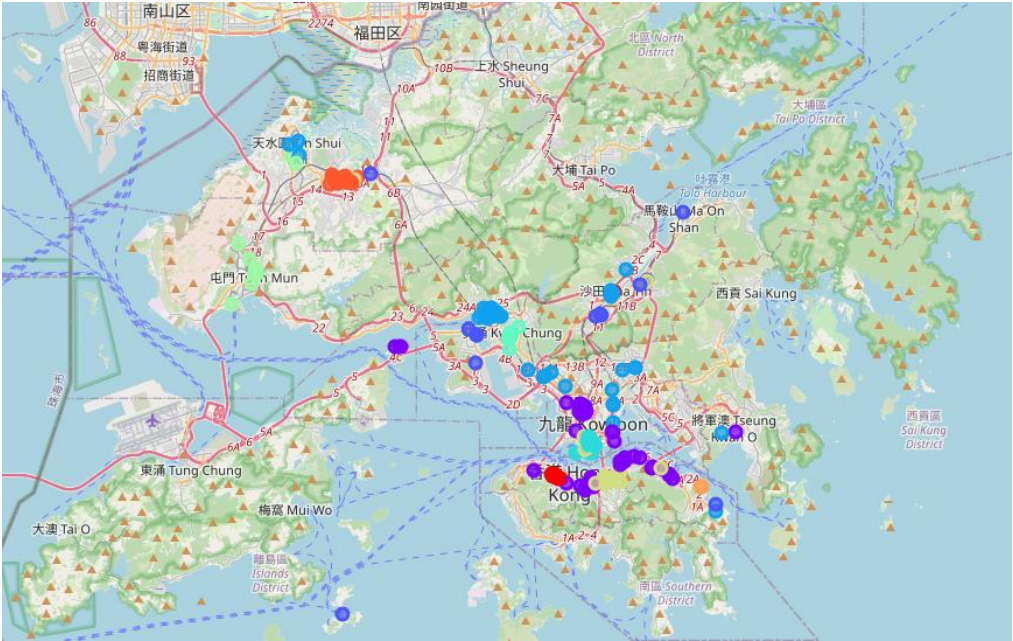


The Korean restaurant mainly located in the major areas in Hong Kong, e.g. Tsim Sha Tsui, Causeway Bay, Tsuen Wan, etc. Major areas mainly are the place that a lot of people are living and also working.

The neighborhood of each Korean restaurant is collected using Foursquare API and stored in Padas Dataframe for further processing later.

	Name	Latitude	Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Won Pung Won (元豐園)	22.298585	114.175014	Hyatt Regency Hong Kong Tsim Sha Tsui (香港尖沙咀凱悅酒店)	22.297452	114.173917	Hotel
1	Won Pung Won (元豐園)	22.298585	114.175014	Kowloon Shangri-La (九龍香格里拉大酒店)	22.297371	114.176921	Hotel
2	Won Pung Won (元豐園)	22.298585	114.175014	Sangeetha	22.296518	114.176478	South Indian Restaurant
3	Won Pung Won (元豐園)	22.298585	114.175014	Empire International Tailors	22.297744	114.177171	Tailor Shop
4	Won Pung Won (元豐園)	22.298585	114.175014	Japanese Restaurant Doraya (定食Doraya)	22.299643	114.174290	Japanese Restaurant

The data are then grouped by the restaurant name and K-mean clustering is used to see how the Korean restaurant is clustered. Understanding for major clusters would be helpful to answer the question concerned. 10 clusters are used and the below table and map shows how the restaurant is clustered.



Number of Restaurant	
Cluster Labels	
3	46
1	42
7	27
4	26
9	16
2	14
6	12
5	8
0	8
8	2

The analysis would focus on the top 3 clusters containing more number of restaurant as we are focusing the neighborhoods of existing Korean restaurant in general

- a) Cluster 3: Korean restaurants in the cluster mainly surrounded by Shopping Malls, Chinese and Fast Food restaurants.
- b) Cluster 1: Korean restaurants in the cluster mainly surrounded by Hotels and Coffee Shops.
- c) Cluster 7: Korean restaurants in the cluster mainly surrounded by Hotels and Japanese restaurants.

Given the clustering result, the analysis also tried to some popular location in Kwun Tong District to see which cluster would be predicted if a new Korean restaurant is open on that place, for senior management reference.

Shopping malls like APM and Megabox predicted as Cluster 3 as expect. Lei Yue Mun predicted as Cluster 3 also as there are popular Chinese seafood restaurants. Kwun Tong Promenade is predicted as Cluster 1 as there are Hotels and Coffee Shops near the harbor.

#### 4. Results

The analysis on major cluster showing that Korean restaurants mainly located near the places attracting visitors and tourists, like shopping malls and hotels. In another dimension, Korean restaurant is also likely to be located near other Asian restaurants like Chinese and Japanese restaurants.

4 selected locations (APM, Megabox, Kwun Tong Promenade and Lei Yue Mun) seems also fit the general characteristics for Korean restaurant, in terms of characteristics of the neighborhood.

#### 5. Discussion

During the analysis, it is recommended to include more district information to decide the final location for a new restaurant, like demographic data, rental cost and targeted age group.

#### 6. Conclusion

Clustering allows this analysis to understanding where the existing Korean restaurants are located.

This analysis finds that Korean restaurants would generally locate in the place attracting visitors and tourists, like Shopping malls and Hotels, which would have potential high revenue as people would looking for restaurants after shopping and also where the tourists live. Korean restaurants would also likely locate near other Asian restaurant like Chinese and Japanese restaurants.