

THE BATTLE OF NEIGHBORHOODS IN HONG-KONG

Where to open a French Pastry Shop in Hong-Kong?

Introduction & Business Problem

- Offering every kind of culinary treats from around the world, from cheap eats and street food to Michelin-starred restaurants, Hong Kong has a well-deserved reputation as a culinary paradise.
- As a French expat living in this urban jungle, I realize how much I was missing good French pastry in Hong Kong.
- I saw it as a potential opportunity for me to launch my own company to bring something new and fresh to the French pastry scene in Hong Kong.
- **Where to set up this new French pastry shop?**

Data Acquisition and Cleaning

- List of **districts and neighborhoods in Hong Kong** from [Wikipedia](#)
- [Coordinate's](#) data of neighborhoods
- **Foursquare data** to get the most common venues of a given neighborhood
- **Only Hong Kong Island and Kowloon data (inhabited part of HK)** are used
- After scraping and cleaning, our main data is composed of 9 districts and 60 neighborhoods

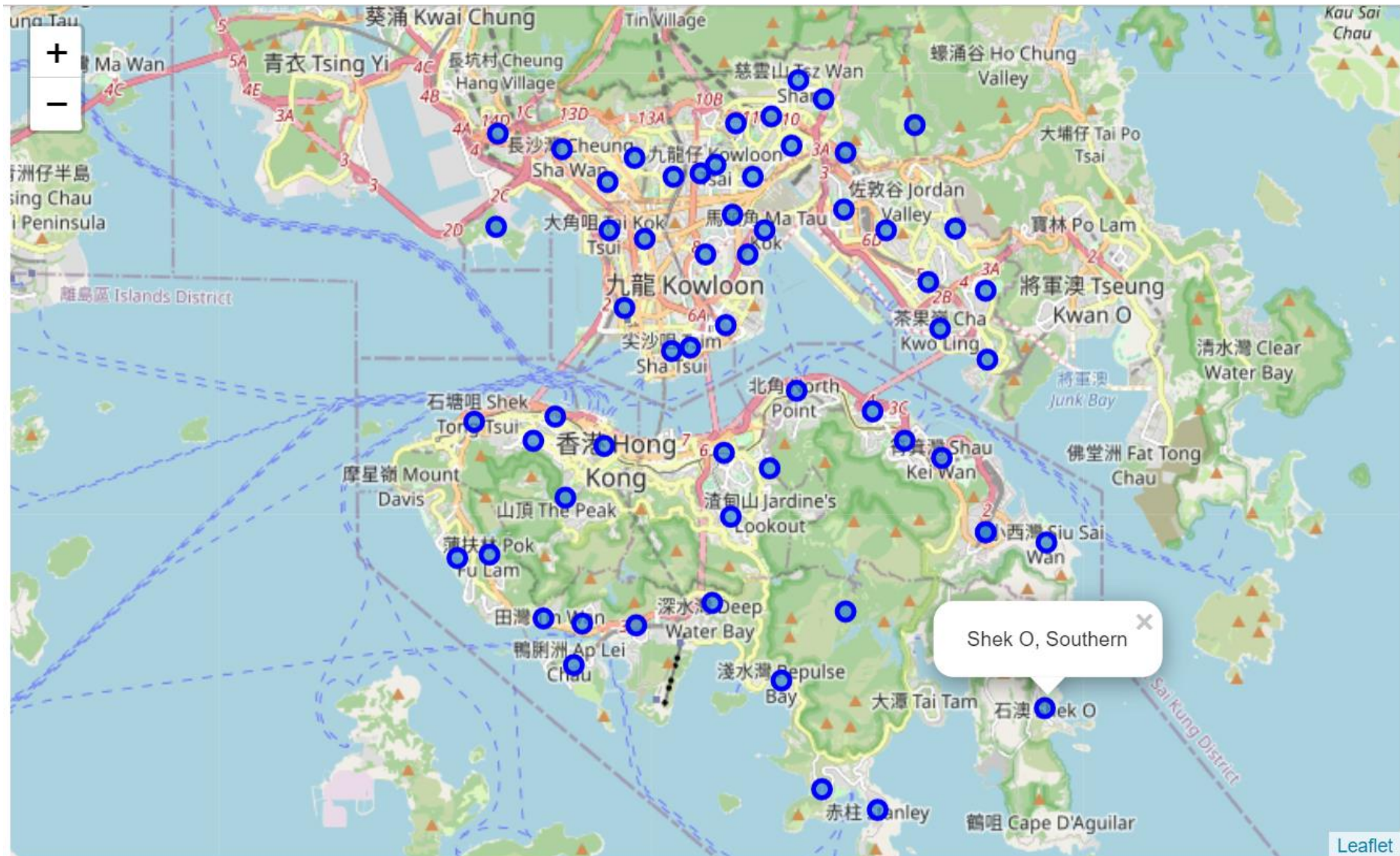
| | District | Neighborhood | Latitude | Longitude |
|---|-------------------|------------------|-----------|------------|
| 0 | Central & Western | Central District | 22.281322 | 114.160258 |
| 1 | Central & Western | Mid-Levels | 22.282405 | 114.145809 |
| 2 | Central & Western | The Peak | 22.272003 | 114.152417 |
| 3 | Central & Western | Sai Wan | 22.285838 | 114.134023 |
| 4 | Central & Western | Sheung Wan | 22.286870 | 114.150267 |



Methodology

- **Python Pandas library:** data pre-processing and exploratory data analysis
- **Python Folium library:** visualization of the geographical location and its neighborhoods
- **Foursquare API:** get the most common venues by neighborhoods and understanding the pastry scene in HK
- **Machine learning:** K-Mean algorithm for clustering the neighborhoods according to their similarities

Visualizing the neighborhoods using Folium



Exploring and Segmenting the Neighborhoods using Foursquare API

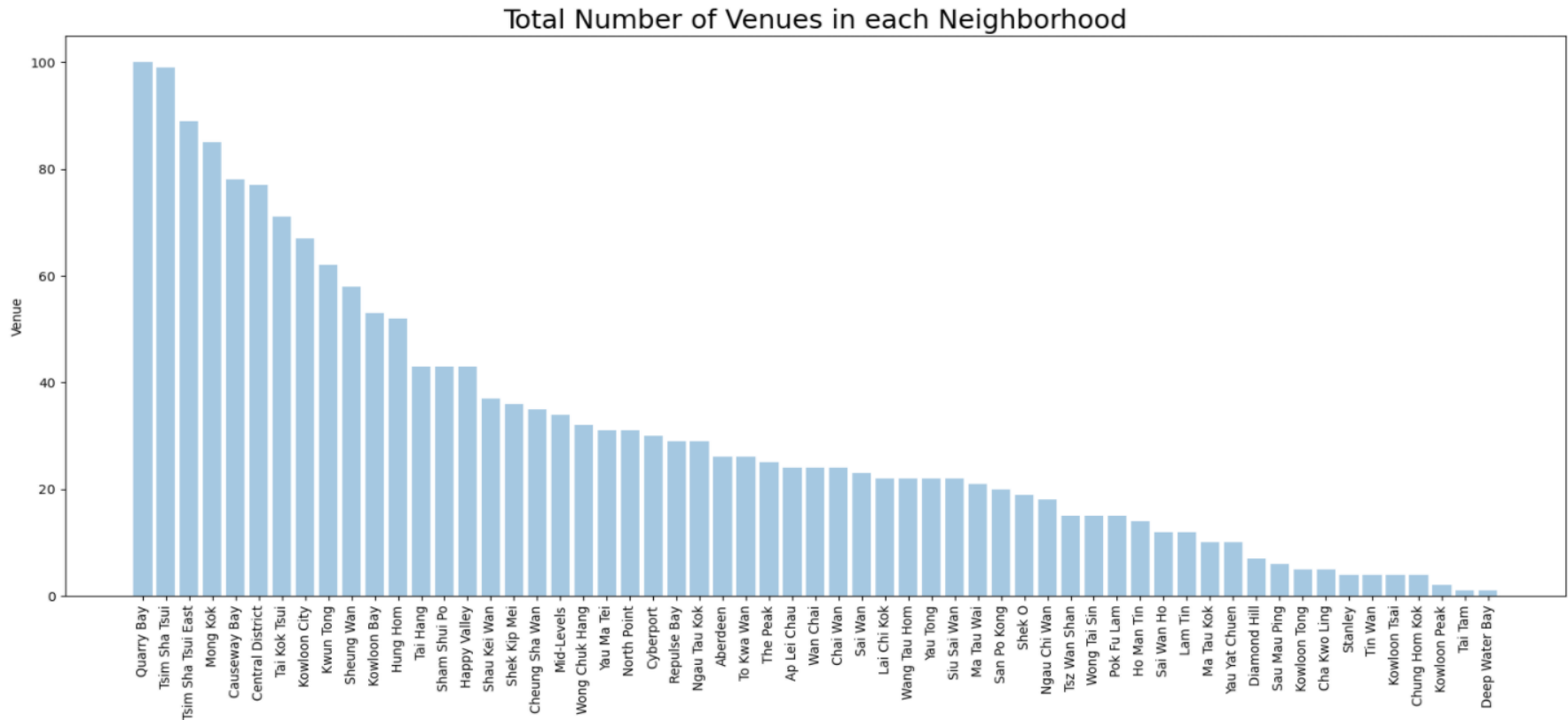
- Limit set to 100 venues within a radius of 500 meters for each neighborhood
- 1827 venues returned by Foursquare for HK

| | Neighborhood | Neighborhood Latitude | Neighborhood Longitude | Venue | Venue Latitude | Venue Longitude | Venue Category |
|---|------------------|-----------------------|------------------------|--|----------------|-----------------|--------------------|
| 0 | Central District | 22.281322 | 114.160258 | Mandarin Grill + Bar (文華扒房 + 酒吧) | 22.281928 | 114.159408 | Steakhouse |
| 1 | Central District | 22.281322 | 114.160258 | Mandarin Oriental Hong Kong (香港文華東方酒店) | 22.281857 | 114.159382 | Hotel |
| 2 | Central District | 22.281322 | 114.160258 | Mott 32 (卅二公館) | 22.280286 | 114.159080 | Dim Sum Restaurant |
| 3 | Central District | 22.281322 | 114.160258 | 8½ Otto e Mezzo Bombana | 22.281726 | 114.158767 | Italian Restaurant |
| 4 | Central District | 22.281322 | 114.160258 | The Mandarin Cake Shop | 22.281959 | 114.159416 | Bakery |

- Top 5 Neighborhoods in terms of venues

| | Neighborhood | Count |
|---|--------------------|-------|
| 0 | Quarry Bay | 100 |
| 1 | Tsim Sha Tsui | 99 |
| 2 | Tsim Sha Tsui East | 89 |
| 3 | Mong Kok | 85 |
| 4 | Causeway Bay | 78 |

Numbers of Venues for Each Neighborhood



- The 1827 venues fall into one of the 221 unique venues categories (Steakhouse, Hotel, Dim Sum Restaurant, Bakery, Dessert Shop, Pastry...)

Exploring the pastry scene

- The pastry scene is comprised of 65 shops (bakery, pastry, dessert and cake shops)

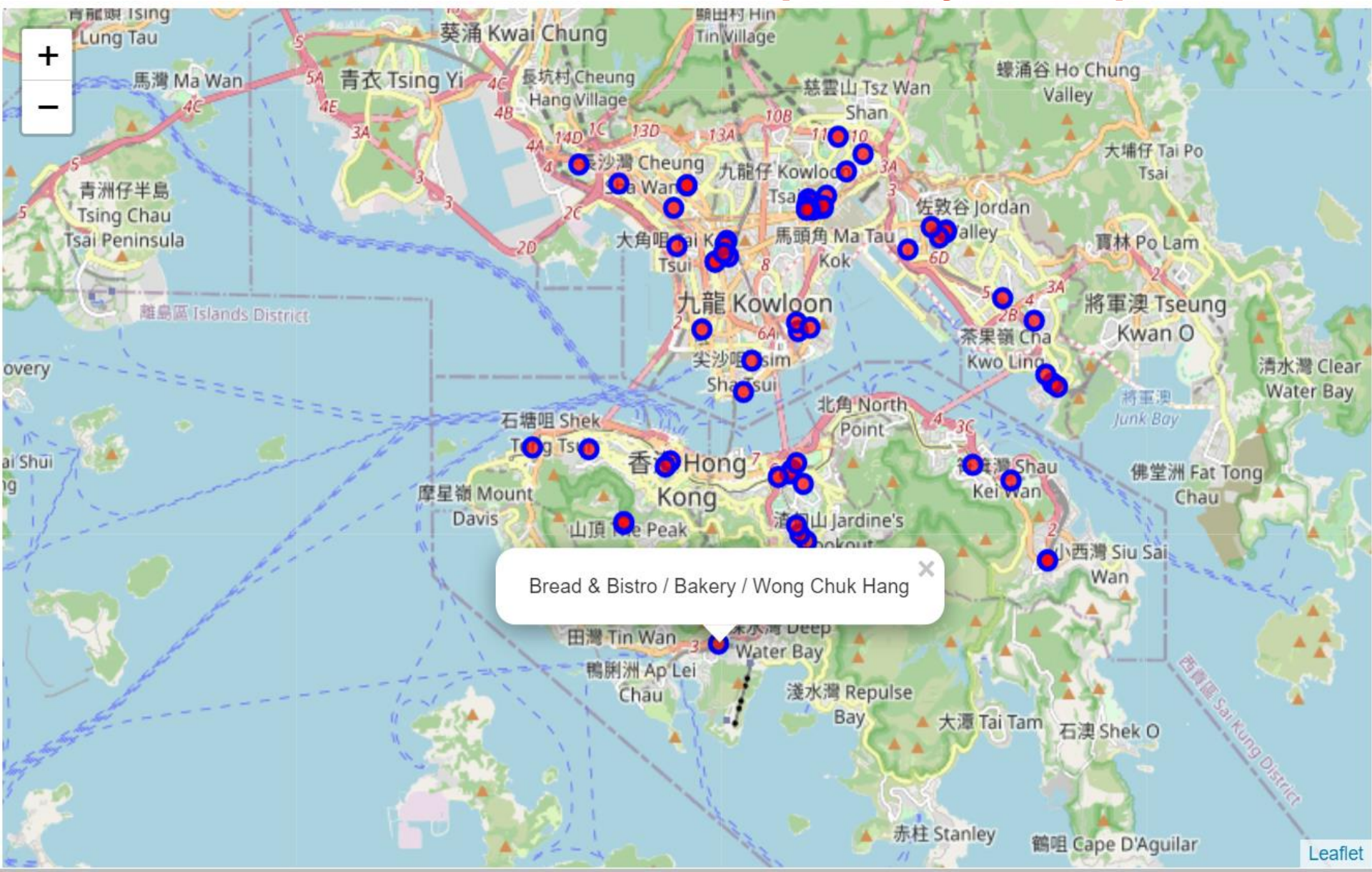
| | Neighborhood | Neighborhood Latitude | Neighborhood Longitude | Venue | Venue Latitude | Venue Longitude | Category |
|---|------------------|-----------------------|------------------------|-----------------------------|----------------|-----------------|--------------|
| 0 | Central District | 22.281322 | 114.160258 | The Mandarin Cake Shop | 22.281959 | 114.159416 | Bakery |
| 1 | Central District | 22.281322 | 114.160258 | Urban Bakery Works | 22.281240 | 114.158146 | Bakery |
| 2 | Mid-Levels | 22.282405 | 114.145809 | Sweeties' Dessert 糖痴豆 (糖痴豆) | 22.284321 | 114.142419 | Dessert Shop |
| 3 | The Peak | 22.272003 | 114.152417 | Tai Cheong Bakery (泰昌餅家) | 22.270565 | 114.149801 | Bakery |
| 4 | The Peak | 22.272003 | 114.152417 | The Sweet Dynasty (糖朝) | 22.270996 | 114.149834 | Dessert Shop |

- Out of 65, HK has only 5 French pastry shops

| | Neighborhood | Neighborhood Latitude | Neighborhood Longitude | Venue | Venue Latitude | Venue Longitude | Venue Category |
|---|---------------|-----------------------|------------------------|--|----------------|-----------------|----------------|
| 0 | Happy Valley | 22.268464 | 114.186029 | Maison Eric Kayser | 22.270354 | 114.185429 | Bakery |
| 1 | Kowloon City | 22.331013 | 114.190366 | Ceres Boulangerie et Patisserie | 22.328188 | 114.187598 | Bakery |
| 2 | Ma Tau Wai | 22.324115 | 114.186379 | Ceres Boulangerie et Patisserie | 22.328188 | 114.187598 | Bakery |
| 3 | Mong Kok | 22.319685 | 114.168397 | Passion by Gérard Dubois | 22.318521 | 114.168517 | Bakery |
| 4 | Tsim Sha Tsui | 22.298872 | 114.174118 | Maison Eric Kayser | 22.296739 | 114.173747 | Coffee Shop |
| 5 | Tsim Sha Tsui | 22.298872 | 114.174118 | Gontran Cherrier Artisan Boulanger Paris | 22.294884 | 114.174504 | Bakery |

There is only 1 Ceres Boulangerie et Patisserie (same venue latitude and longitude, but the shop have been referenced twice because of the neighborhood name: Ma Tau Wai is the Chinese name of the Kowloon City)

Location of the 65 pastry shops



Leaflet

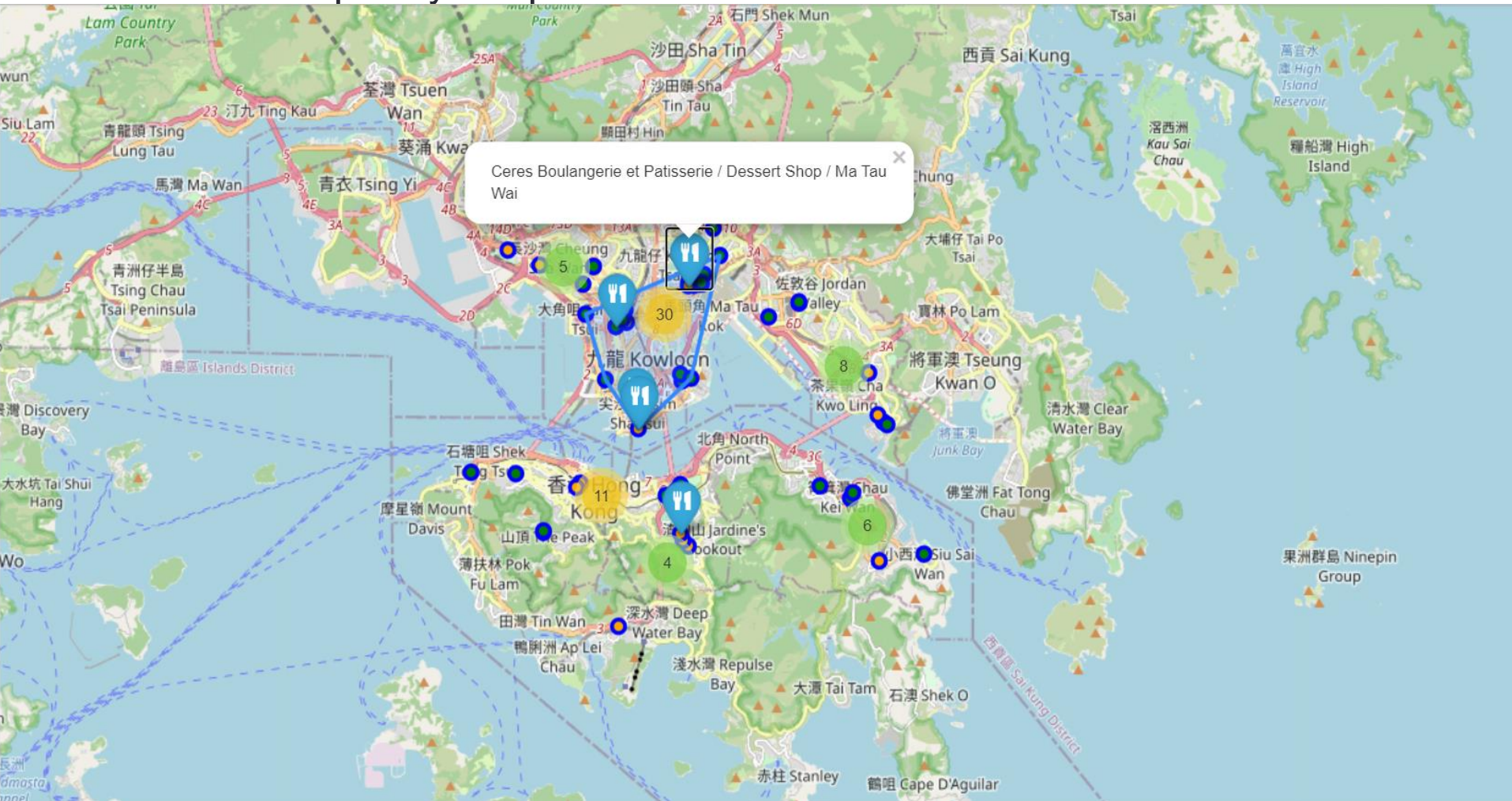
The 65 shops according to their category

- Bakery marked in Orange, Dessert Shops in Green, others in Yellow.
- French pastry shops marked with blue markers



1 map to understand the pastry scene in HK

- Superimposing on 1 map: the clusters, the category of the shops and the French pastry shops



Analyzing Each Neighborhood

- Top 10 venues for each neighborhood

| | Neighborhood | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue | 4th Most Common Venue | 5th Most Common Venue | 6th Most Common Venue | 7th Most Common Venue | 8th Most Common Venue | 9th Most Common Venue | 10th Most Common Venue |
|---|------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
| 0 | Aberdeen | Boat or Ferry | Fast Food Restaurant | Sushi Restaurant | Taiwanese Restaurant | Athletics & Sports | Park | Supermarket | Bus Station | Market | Shopping Mall |
| 1 | Ap Lei Chau | Fast Food Restaurant | Chinese Restaurant | Shopping Mall | Seafood Restaurant | Park | Pet Store | Bus Station | Mountain | Café | Furniture / Home Store |
| 2 | Causeway Bay | Sushi Restaurant | Chinese Restaurant | Coffee Shop | Japanese Restaurant | Clothing Store | Hotel | Dessert Shop | Noodle House | Pizza Place | Seafood Restaurant |
| 3 | Central District | Steakhouse | Social Club | Hotel | Gym / Fitness Center | Italian Restaurant | Japanese Restaurant | Lounge | Cocktail Bar | Shopping Mall | Café |
| 4 | Cha Kwo Ling | Hong Kong Restaurant | Convenience Store | Fast Food Restaurant | Shopping Mall | Soccer Field | Dessert Shop | Electronics Store | French Restaurant | Food Court | Flea Market |
| 5 | Chai Wan | Chinese Restaurant | Fast Food Restaurant | Coffee Shop | Bus Stop | Multiplex | Cha Chaan Teng | Market | Park | Athletics & Sports | Seafood Restaurant |

Clustering using K-mean algorithm

- I choose 6 clusters given that we have 60 neighborhoods, and that we want get the finest possible analysis of the neighborhoods of HK and understand what characterized them the most

After analysis, we can label the clusters:

- Cluster 1 (red): Restaurants, Cafés and Coffee Shops
- Cluster 2 (purple): Park
- Cluster 3 (dark blue): Health Food Store
- Cluster 4 (turquoise): Campground
- Cluster 5 (light green): Chinese Restaurants and Fast-Food
- Cluster 6 (orange): Scenic Lookout

Clusters map

Cluster 1 (red):
Restaurants, Cafés
and Coffee Shops

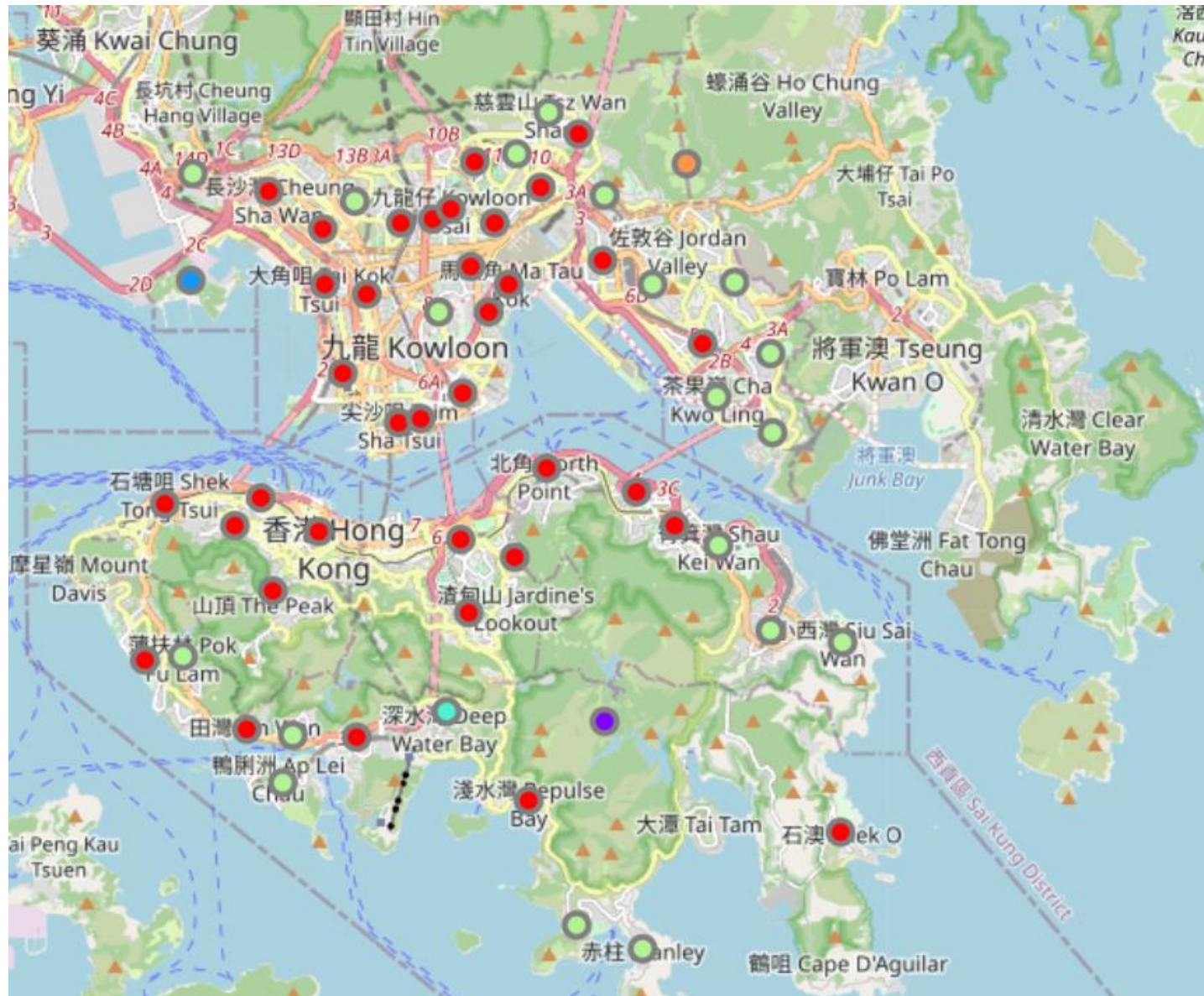
Cluster 2 (purple):
Park

Cluster 3 (dark blue):
Health Food Store

Cluster 4 (turquoise):
Campground

Cluster 5 (light green): Chinese
Restaurants and Fast-
Food

Cluster 6 (orange):
Scenic Lookout



Results

Understanding the pastry scene using *Foursquare API* and visualize it using *Folium*:

- HK has 65 popular pastry shops in the broadest sense (Bakery, Pastry, Dessert, Cake), of which just 5 are French (mainly located on the Kowloon Peninsula)

***K-Mean Clustering* and most common venues:**

- Only the **Cluster 1 in Red** regrouping a numbers of Restaurants from diverse nationality, Cafés and Coffee Shops appears relevant to set up our new business.
- **Cluster 1** also represents the tourist area of HK, with a numbers of hotels, restaurants, supermarkets...

Discussion

- **Cluster 1** seems ideal, but in which part of Hong-Kong to set up our business?
- In fact, **Cluster 1** is distributed on both side of HK: the Kowloon Peninsula at the top and Hong-Kong Island below.
- Rental price of commercial and retail spaces in HK by neighborhoods would have been helpful.
- ⇒ superimpose the choropleth map of rental prices on top of the cluster map to refine our study.
- Unfortunately, those data are not easily found online or are not available in English.
- Notwithstanding the lack of these data, it is commonly known that rents are much higher in the Hong-Kong Island side, especially in the Central District, which might explain why most of the popular French pastry shops are rather located on the Kowloon Peninsula.

Conclusion

- Where is the proper location to open a French pastry shop?
- **Cluster 1** will be the ideal location given the types of venues and profile of the potential clients in this area.

More specifically:

- The pastry shop will be on the Hong-Kong Island side if money is not a problem, and because expats and offices are concentrated on that part of HK. Besides, there is only 1 popular French pastry shop of that side (Maison Eric Kayser) vs. 4 on Kowloon.
- Otherwise, the Kowloon side still represents a good choice given that it is a very touristic area that concentrates the most numbers of venues by neighborhood and rents are cheaper.

Cluster 1 – The ideal neighborhoods to set up the French Pastry Shop

