The Battle of Neighborhoods – Taipei City

Introduction

Being suffered from a combination of political and social issues over past few years, Hong Kong is no longer a place that has a bright future to many. An increasing number of Hong Kong people therefore plan to leave once their beloved home to other places. One of the hottest places is Taipei city, the capital of Taiwan where shares many similarities with Hong Kong (e.g. culture, language and standard of living, etc.) and has a well-established democracy.

Taipei City is a big city and has a lot to offer. It can be daunting to pick where to settle in. In an attempt to provide some useful insights, I am going to explore the neighbourhoods within the city and try to group them according to their characteristics and make suggestions

Data

- **Foursquare** - I will use the Foursquare API to explore neighborhoods in Taipei City. I will use the **explore** function to get the most common venue categories in each neighborhood, and then use this feature to group the neighborhoods into clusters
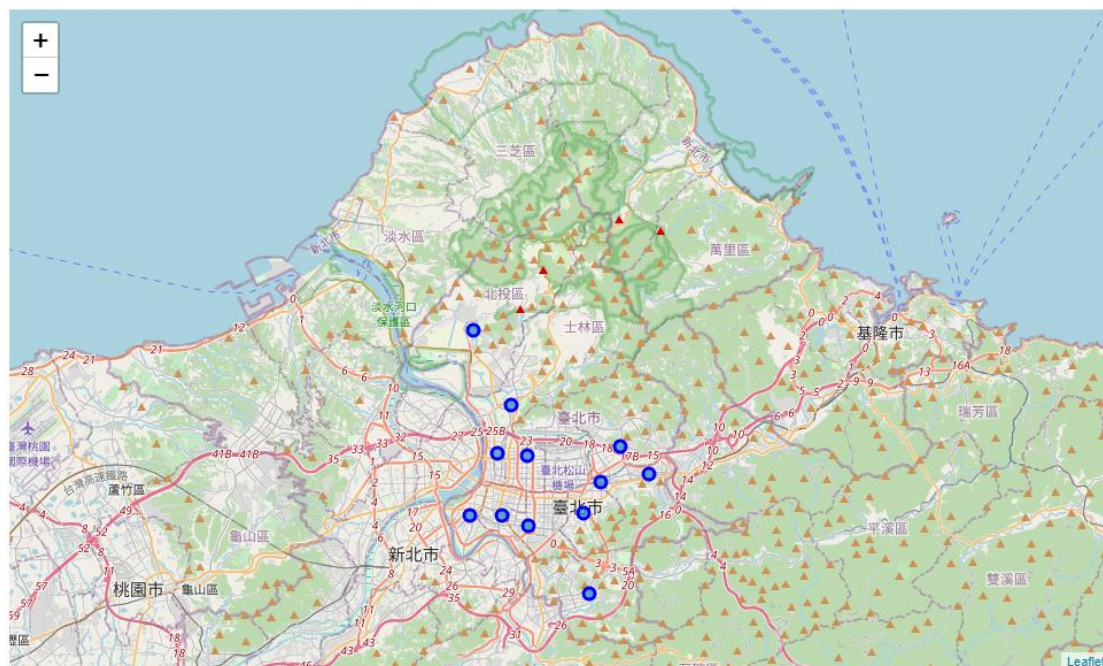- **Wikipedia** - [List of neighbourhoods of Taipei](#)

Methodology

- Use Nominatim library to find the latitude and longitude values of neighbourhoods of Taipei City
- Use the **explore** function provided by Foursquare to get the most common venue categories for each neighorhood

- Use k-means clustering to group the neighborhoods into clusters by the features. This is a very fast and efficient algorithm to perform clustering on unlabeled data.
- Use Folium library to visualize the neighborhoods in Taipei City and their clusters

Create a map of Taipei with neighborhoods

	Neighborhood	Latitude	Longitude
0	Beitou	25.132419	121.501379
1	Daan	25.026515	121.534395
2	Datong	25.065986	121.515514
3	Nangang	25.054578	121.606600
4	Neihu	25.069664	121.588998
5	Shilin	25.091840	121.524207
6	Songshan	25.049885	121.577272
7	Wanhua	25.031933	121.499332
8	Wenshan	24.989786	121.570458
9	Xinyi	25.033345	121.566896
10	Zhongshan	25.064361	121.533468
11	Zhongzheng	25.032361	121.518267

Analyze 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	Beitou	Italian Restaurant	Noodle House	Dessert Shop	Tea Room	Chinese Restaurant	Café	American Restaurant	Shop & Service	Food Truck	Farmers Market
1	Daan	Café	Convenience Store	Park	Coffee Shop	Tea Room	Vietnamese Restaurant	Bakery	Chinese Restaurant	Food Stand	Food Court
2	Datong	Taiwanese Restaurant	Coffee Shop	Convenience Store	Café	Supermarket	Hotel	Night Market	Chinese Restaurant	Fried Chicken Joint	Dessert Shop
3	Nangang	Japanese Restaurant	Steakhouse	Train Station	Café	Bakery	Shopping Mall	Lounge	Platform	Clothing Store	Coffee Shop
4	Neihu	Department Store	Convenience Store	Coffee Shop	Basketball Court	Food Truck	Diner	Discount Store	Dumpling Restaurant	Electronics Store	Farmers Market
5	Shilin	Café	Taiwanese Restaurant	Ice Cream Shop	Breakfast Spot	Bubble Tea Shop	Japanese Restaurant	Fried Chicken Joint	Food Court	Steakhouse	Dessert Shop
6	Songshan	Convenience Store	Coffee Shop	Seafood Restaurant	Taiwanese Restaurant	Clothing Store	Chinese Restaurant	Café	Food Stand	Night Market	Korean Restaurant
7	Wanhua	Chinese Restaurant	Coffee Shop	Dessert Shop	Convenience Store	Bakery	Taiwanese Restaurant	Café	Metro Station	Hotel	Climbing Gym
8	Wenshan	Coffee Shop	Japanese Restaurant	Convenience Store	Chinese Restaurant	Ice Cream Shop	Snack Place	Italian Restaurant	Juice Bar	Fast Food Restaurant	Farmers Market
9	Xinyi	Department Store	Electronics Store	Lounge	Bar	Hotel	Taiwanese Restaurant	BBQ Joint	Toy / Game Store	Plaza	Nightclub
10	Zhongshan	Hotel	Sushi Restaurant	Convenience Store	Seafood Restaurant	Fish Market	Massage Studio	Taiwanese Restaurant	Ice Cream Shop	Breakfast Spot	Hotpot Restaurant
11	Zhongzheng	Café	History Museum	Theater	Noodle House	Monument / Landmark	Japanese Restaurant	Bakery	Bar	Snack Place	Dumpling Restaurant

Clustering neighborhoods

Cluster 1:

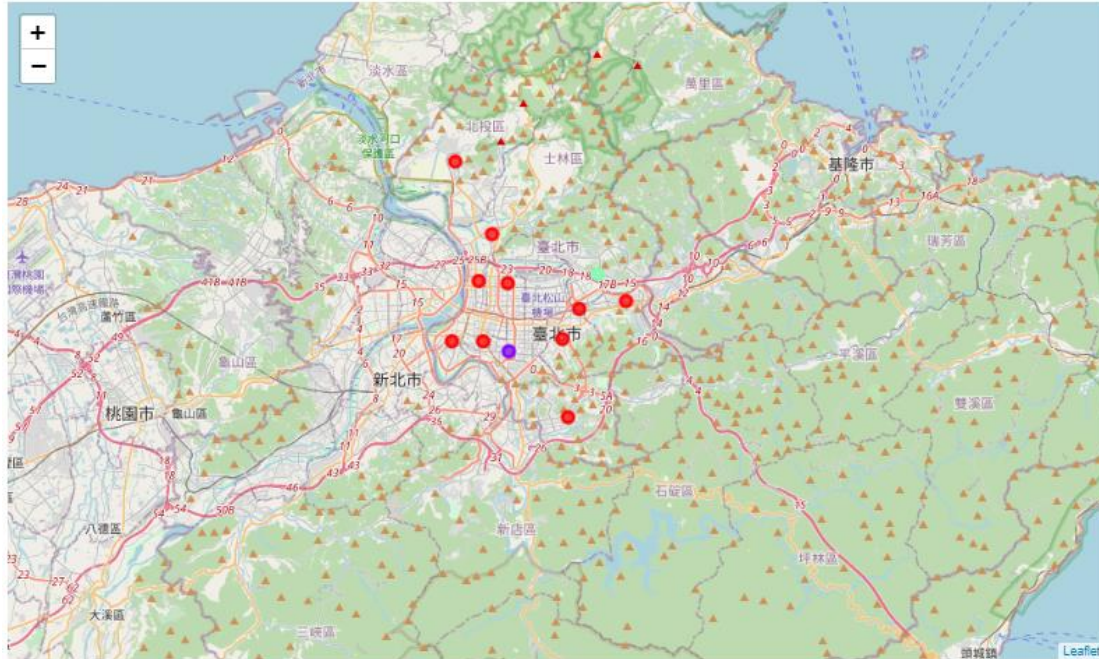|	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
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11	Zhongzheng	Café	History Museum	Theater	Noodle House	Monument / Landmark	Japanese Restaurant	Bakery	Bar	Snack Place	Dumpling Restaurant

Cluster 2:

	Neighborhood	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
1	Daan	Convenience Store	Park	Coffee Shop	Tea Room	Vietnamese Restaurant	Bakery	Chinese Restaurant	Food Stand	Food Court

Cluster 3:

	Neighborhood	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	Cluster Labels
4	Neihu	Convenience Store	Coffee Shop	Basketball Court	Food Truck	Diner	Discount Store	Dumpling Restaurant	Electronics Store	Farmers Market	2

A map of neighborhoods and their clusters

Results

There are three groups:

- Group 1: Featuring different kinds of resturants
- Group 2: Featuring parks
- Group 3: Featuring more diverified venues ranging from convenience store to baseketball to electronics store, etc.

Discussion

People can now easily choose the neighborhood that best fit their lifestyle. Group 1 is for those who love eating. Group 2 is for those who love outdoor activities like running, cycling, etc. Group 3 is for those who don't show strong preference to previous two groups.

Apart from knowning the nearby venues, there are other important aspects to consider like rent/housing price, accessiblibty, etc.

Conclusion

Moving to a new place can be very daunting with many uncertainties, however by knowning better about a place beforehand it can become a more confortable and even exciting experience.