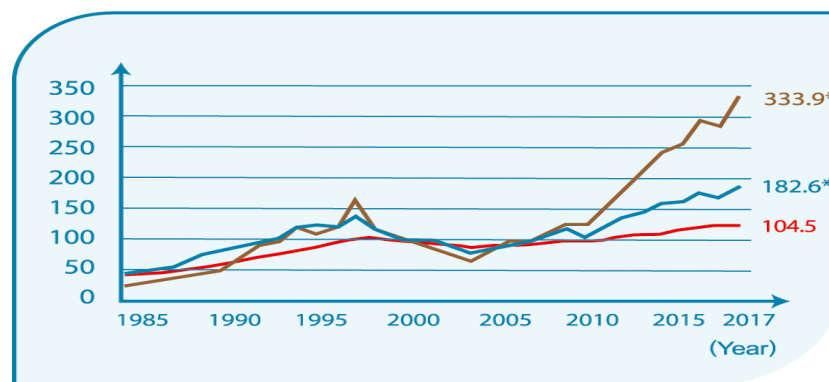
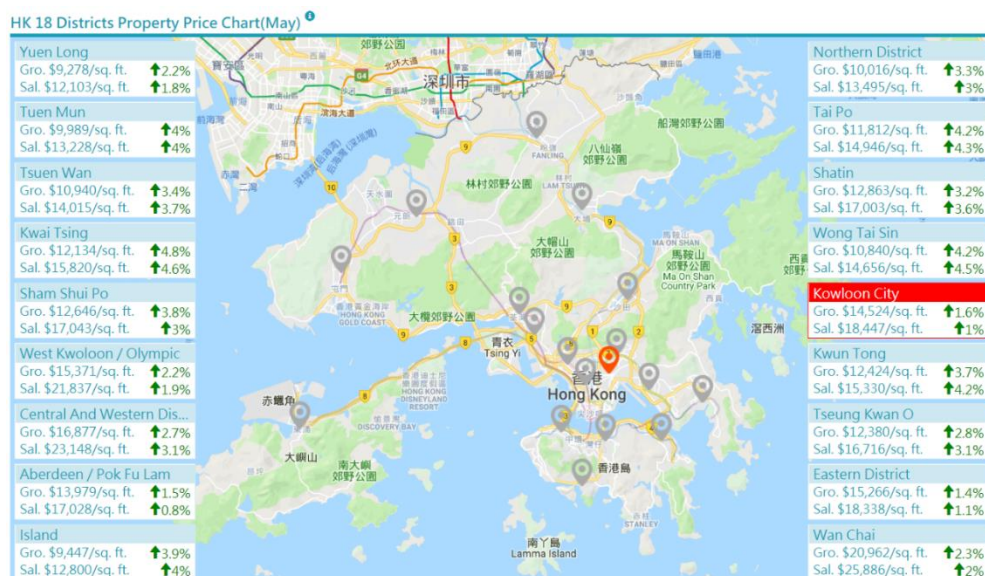


# Coursera Capstone – ‘The Battle of the Neighborhood’

By: LIANG Jingyuan

## Problem and background:

Hong Kong has retained its ranking as the least affordable city in the world to buy a home. Hong Kong has a mountainous topography. Of the total land area of 1,111 km<sup>2</sup>, 24.3% (270 km<sup>2</sup>) is built-up area, with the remaining 75.7% (841 km<sup>2</sup>) being not-for-development or non-built-up area consisting mainly of country parks, wetland, reservoirs, fishponds, etc. For housing, the insufficient land supply has directly led to a shortage of housing land; as a result, housing completion, whether public or private, have dropped dramatically. Given the drop in housing completion, property rents and prices have seen substantial growth in the past few years.



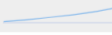

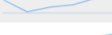

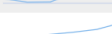




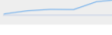
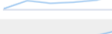
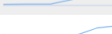
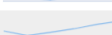



— Rental Indices — Price Indices  
— Composite Consumer Price Indices

\*Provisional figures announced in March 2018

However, for young people who want to get married and start a family, it is better for them to buy their first flat. Let's assume a young couple are going to get marry soon and now they are seeking the right place to buy the flat with affordable price.

## Data Overview and Methodology

100 Hot Estate Price Chart(May)<sup>①</sup>

| <div> <div>All</div> <div>HK</div> <div>KLN</div> <div>NT</div> </div> |          |                              |                           |                                           |                                                                                       |
|------------------------------------------------------------------------|----------|------------------------------|---------------------------|-------------------------------------------|---------------------------------------------------------------------------------------|
| Estate                                                                 | Quantity | Avg price / sq ft (Saleable) | Avg price / sq ft (Gross) | Price change - Saleable Area (last month) | Avg. price trends (6 months)                                                          |
| Kingswood Villas                                                       | 60       | \$11,207                     | \$8,643                   | ↑5.5%                                     |    |
| City One Shatin                                                        | 56       | \$17,082                     | \$13,353                  | ↑1.2%                                     |    |
| Discovery Bay                                                          | 51       | \$12,229                     | \$10,323                  | ↑0.9%                                     |    |
| Mei Foo Sun Chuen                                                      | 48       | \$13,923                     | \$10,485                  | ↑2.4%                                     |    |
| Taikoo Shing                                                           | 42       | \$20,609                     | \$18,023                  | ↑5.2%                                     |    |
| Laguna City                                                            | 31       | \$14,829                     | \$11,880                  | ↑6.2%                                     |    |
| South Horizons                                                         | 30       | \$18,055                     | \$14,430                  | ↑3.9%                                     |    |
| Heng Fa Chuen                                                          | 28       | \$17,103                     | \$14,205                  | ↑2%                                       |   |
| Belvedere Garden                                                       | 25       | \$12,741                     | \$10,710                  | ↑7.1%                                     |  |
| The Reach                                                              | 25       | \$13,209                     | \$9,702                   | ↑4.5%                                     |  |
| Whampoa Garden                                                         | 25       | \$17,772                     | \$15,277                  | ↑2.3%                                     |  |
| Kornhill                                                               | 23       | \$18,357                     | \$14,862                  | ↑4.4%                                     |  |
| Festival City                                                          | 23       | \$18,479                     | \$13,981                  | ↑6.1%                                     |  |
| Richland Gardens                                                       | 22       | \$13,598                     | \$11,713                  | ↑1.7%                                     |  |
| Park Central                                                           | 22       | \$17,502                     | \$13,082                  | ↑3.4%                                     |  |
| Ocean Shores                                                           | 21       | \$16,982                     | \$12,545                  | ↑1.6%                                     |  |

The mission of this project is to use Foursquare location data and regional clustering of venue information to determine which estate is the 'best' location in Hong Kong to buy their first flat. Also, we can find the average price of feet in different estate of Hong Kong from <https://en.midland.com.hk/>.

Therefore, my objective is to have a location that is within one of the reasonable prices per average feet, which is under 14000 HKD per feet, but also close to working place (Mostly Central) which is below 15km. Besides, the location should have some basic living elements around, better to have some schools for the kids.

Elements to consider:

1. Avg price per square feet of a state.
2. Close to work place. (Mostly the distance to Central)
3. Living environment of the house. (restaurant, supermarket, mall etc.)
4. Schools.

## Data Exploration

The data we will use for analysis is a excel file that consist average price of feet, distance to Central, latitude and longitude of each target estate and the location/venue information in foursquare.

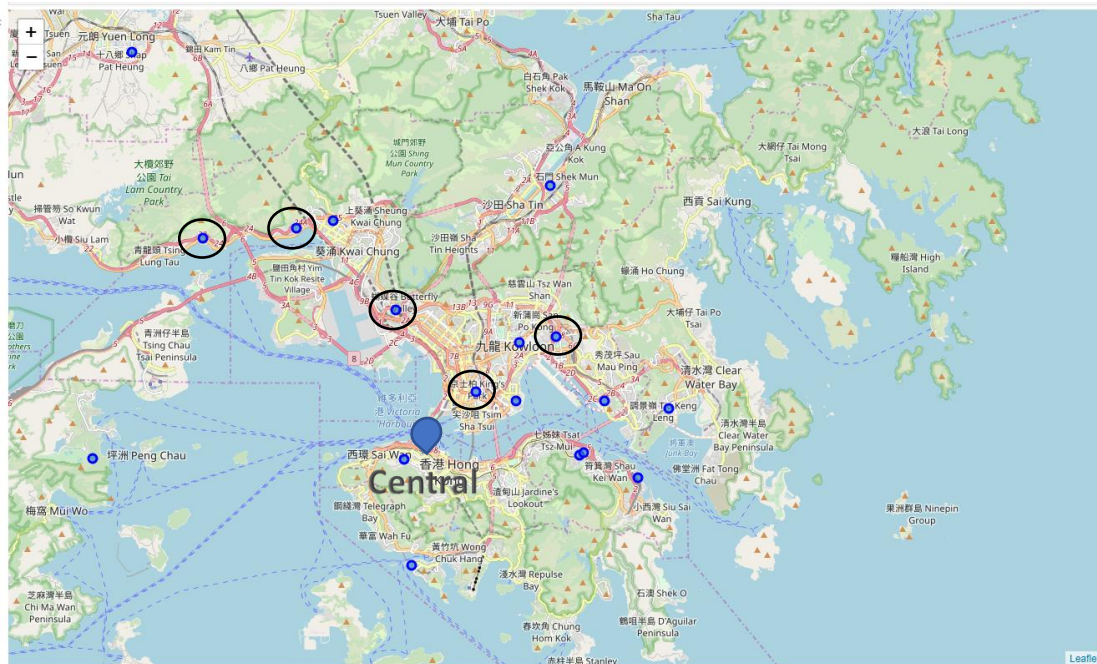
### Source 1: Esatete-prie.xlsx

We have some target estate data from <https://en.midland.com.hk/>. Firstly, we will look into the average price per feet, we hope will can determine the estate to choose is based on reasonable average price per feet. So, we sorted the data by avg price / sq ft after we imported the data as dataframe. Secondly, we will choose the estate that has the distance to Central is less than 15 km.

|                   | Quantity | Avg price / sq ft (Saleable) | Avg price / sq ft (Gross) | Price change - Saleable Area | dis(km) | Latitude  | Longitude  |
|-------------------|----------|------------------------------|---------------------------|------------------------------|---------|-----------|------------|
| Estate            |          |                              |                           |                              |         |           |            |
| Discovery Bay     | 51       | 12229                        | 10323                     | 0.009                        | 16.18   | 22.284116 | 114.016245 |
| Belvedere Garden  | 25       | 12741                        | 10710                     | 0.071                        | 11.79   | 22.371577 | 114.099922 |
| Park Island       | 20       | 12876                        | 9877                      | 0.062                        | 12.74   | 22.309540 | 114.173700 |
| The Reach         | 25       | 13209                        | 9702                      | 0.045                        | 21.78   | 22.438541 | 114.032234 |
| Bellagio          | 21       | 13312                        | 10083                     | 0.019                        | 13.79   | 22.282150 | 114.156890 |
| Richland Gardens  | 22       | 13598                        | 11713                     | 0.017                        | 7.34    | 22.330310 | 114.206700 |
| Mei Foo Sun Chuen | 48       | 13923                        | 10485                     | 0.024                        | 6.87    | 22.340455 | 114.140623 |
| Tsuen Wan Centre  | 21       | 14016                        | 10722                     | 0.064                        | 11.93   | 22.374630 | 114.115100 |
| Laguna City       | 31       | 14829                        | 11880                     | 0.062                        | 7.60    | 22.306050 | 114.226710 |
| Ocean Shores      | 21       | 16982                        | 12545                     | 0.016                        | 10.18   | 22.302988 | 114.252907 |
| City One Shatin   | 56       | 17082                        | 13353                     | 0.012                        | 12.57   | 22.387974 | 114.204203 |
| Heng Fa Chuen     | 28       | 17103                        | 14205                     | 0.020                        | 4.17    | 22.276739 | 114.240280 |
| Park Central      | 22       | 17502                        | 13082                     | 0.034                        | 10.55   | 22.283750 | 114.144110 |
| Whampoa Garden    | 25       | 17772                        | 15277                     | 0.023                        | 4.17    | 22.305840 | 114.190070 |
| South Horizons    | 30       | 18055                        | 14430                     | 0.039                        | 4.17    | 22.243200 | 114.147217 |
| Kornhill          | 23       | 18357                        | 14862                     | 0.044                        | 6.03    | 22.285260 | 114.216310 |
| Festival City     | 23       | 18479                        | 13981                     | 0.061                        | 10.07   | 22.328291 | 114.191490 |
| Taikoo Shing      | 42       | 20609                        | 18023                     | 0.052                        | 5.92    | 22.286190 | 114.218147 |

## Source 2: Venue data via Foursquare:

Let's have a first look at all the target Estate via Foursquare:



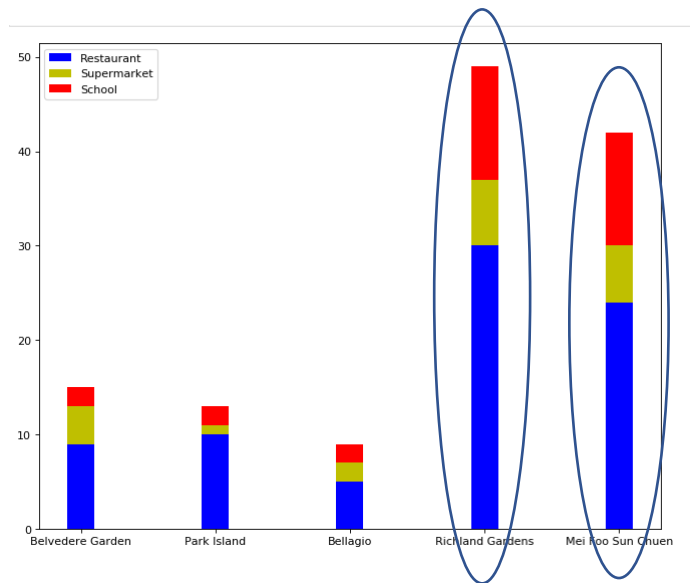
Therefore, further analysis will focus on 5 neighborhoods: Belvedere Garden, Park Island, Bellagio, Richland Gardens and Mei Foo Sun Chuen.

Each is within 15 km distance to Central and in the middle of the range of reasonable average price per feet.

So next step for us to determine which estate is the best to buy is to find the elements surrounding the estate. Firstly, we analysis the restaurant numbers in each neighborhood. Also, we will find out the number of schools in each neighborhood. Data collect via FourSquare helped us to get the number of Restaurant, Supermarket and School around the living zone.

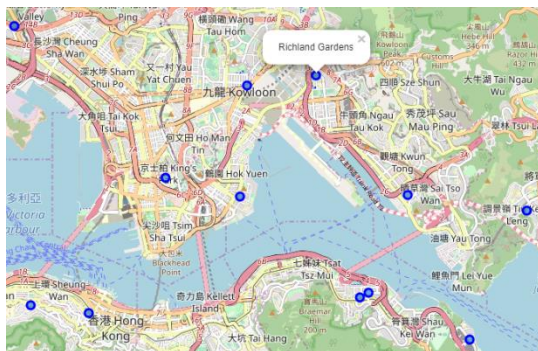
| [234]: |                   |            |             |        |
|--------|-------------------|------------|-------------|--------|
|        | Estate            | Restaurant | Supermarket | School |
| 0      | Belvedere Garden  | 9          | 4           | 2      |
| 1      | Park Island       | 6          | 1           | 2      |
| 2      | Bellagio          | 5          | 2           | 2      |
| 3      | Richland Gardens  | 30         | 7           | 12     |
| 4      | Mei Foo Sun Chuen | 24         | 6           | 12     |

So, we can visualize the data and check the different between our target Estate.



From the bar chart, we can conclude that the living environment is good for a family is either Richland Gardens or Mei Foo Sun Chuen. Both neighborhoods have enough restaurants, supermarkets and schools.

So we may consider the other factor – price per feet. The price of Richland Gardens is HKD 13598 per feet which is slightly less than Mei Foo Sun Chuen. Therefore, Richland Garden seems preferable due to its relatively cheaper price but better living environment for a new family.



## Conclusion:

In the end, Richland Garden would be the best choice considering all the factors: average price per feet, living environment such as number of restaurants, supermarkets and school, distance to workplace. It is at the reasonable price range and in a better living environments neighborhood. Others like Mei Foo Sun Chuen may consider as a good choice too but the average price per feet is slightly higher.