

# School of InfoComm Technology

**Data Discovery & Visualization**

October 2021 Semester

**ASSIGNMENT 1**

**(Individual Assignment)**

**Submission Deadline:**

**19 Dec 2021 2359hr**

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| **Student Name** | **:** | Lim Wee Liang Kelven |
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| **Video submission link** | **:** | <https://connectnpedu.sharepoint.com/:v:/s/myself697/EeHP0fSEPoVNjKj5DtMYc7sBcC4xXzjPm1nFlnYL-N-XIQ?e=56ef75>  or  https://web.microsoftstream.com/video/af8168ae-cc03-42b9-ac61-e03135b8e093 |

**Penalty for late submission:**

10% of the marks will be deducted every calendar day after the deadline.

**NO** submission will be accepted after 24 Dec 2021 12:00 Noon

**Project Objectives**

Some questions which I find a regular Singaporean resident should care about are:

* How have the prices for each flat type changed over the years?
* How much should I sell my flat for?
* What are the average prices and remaining leases for each flat type across Singapore and in each town?
* Does remaining lease affect the price?
* Does floor area affect the price?
* Which town has the best price per area ($/m2) ratio?
* Does the town location affect the price?
* How many flats are offered in each town?

Nobody can deny that housing prices have increased since the 1990s. However, there is a plethora of information sites across the internet, and it may be difficult to find accurate and current information. This makes it arduous to find the best housing deals across Singapore. The flat type plays a pivotal role in Singaporeans’ purchasing decisions as it is correlated to the flat’s price.

For young couples that are getting married and settling down, they would naturally want to purchase a house and live together. They may also want to purchase a bigger house if they are starting a family. Couples may also take in their aging parents to live together.

For single adults, they may want to purchase a house to live alone or to live with their parents.

Regardless, couples and single adults alike would want to purchase a reasonably priced flat with a long lease life as it means that they would not have to move out to a new apartment partway.

For parents whose children have gone to live on their own, or for the elderly, they may consider down-sizing to a smaller HDB unit and may want to know the flat prices in their area.

Flats are usually evaluated by HDB before being sold. But with the introduction of e-commerce platforms like Carousell, sellers have tried selling flats or looking for renters. Hence, these sellers should know how to price their flat reasonably.

**Data Preparation**

When I imported all the workbook files, I noticed that there were values “Multi-Generation” and “Multi Generation”. As I was making my charts, I often got 2 separate figures for these values instead of one. As such, I replaced the values within the workbooks themselves using Excel’s built-in “Find and Replace” function before uploading them again into Tableau, but I later realised that I could have created a new field Replace([flat\_type], '-', ' ').

The same problem was noticed in “flat\_model”, where some values were duplicated, some were capitalised while some were not. To solve this, I created a new calculated field called “Flat Model (edit)” where I used IF and ELSEIF statements combined with REPLACE() statements to edit the values.

I also renamed the “month” data to “Year”.

I was troubled as to how I was supposed to link them all together. And then I remembered about the Union function. I added all the workbook files into a union and changed some of the data types to fit my question (i.e., string to date, whole numbers to decimal numbers).

By having all the workbooks in a union, the “remaining\_lease” column was affected. This was because it was not present in all the workbook files. To solve this, I made a new calculated field, YEAR(DATE(NOW())) - YEAR([lease\_commence\_date]), called Remaining\_Lease.

For “towns”, I wanted to use it in a map to represent locations, so I added a Geographic Role, “State/Province”

**Exploratory Data Analysis and Visualisations**

Q1: How have the prices for each flat type changed over the years?

Appendix 1

Chart, line chart

Description automatically generated

Appendix 1 shows the change in average resale price from 1990 to 2021. The different coloured lines represent the different flat types. From this, we can see that the resale prices of all flat types are increasing and decreasing at a similar rate.

Q2: How much should I sell my flat for?

Appendix 2

Graphical user interface, application

Description automatically generatedIn Appendix 1, you can see the average resale price has an increasing trend. Appendix 2 shows the average resale price and remaining lease of flat types. Without any filters, both columns are calculating values from 1990 to 2021. To solve this, you can select one or more years through the filter and select which flat type you want to focus on to get a more accurate average value. From here, you can base your selling price based on the new average resale price and remaining lease.

Q3: What are the average prices and remaining leases for each flat type across Singapore and in each town?

Appendix 3

Map

Description automatically generated

Appendix 4

Chart, line chart

Description automatically generated

Appendix 3 shows the average resale prices of flats in each town. The darker the colour of the town, the more expensive it is. Appendix 4 shows the average resale price and remaining lease of flats. The blue line represents the resale price, and the orange line represents the remaining lease. You can improve the readability by selecting which year flat type you want to see.

Q4: Does remaining lease affect the price?

Appendix 4 also serves to identify any trends or relationships between resale price and remaining lease.

Q5: Does floor area affect the price?

Appendix 5

Chart, line chart

Description automatically generated

Appendix 5 shows the average floor area and resale price of flats in each town. The orange line represents the average floor area, and the blue line represents the average resale price. You can select which flat type you want to see, and the lines will update. From here, you can try to identify any trends or relationships between the lines.

Q6: Which town has the best price per area ($/m2) ratio?

Appendix 6

Chart, bar chart, histogram

Description automatically generated

Appendix 6 shows the price per floor area ratio of each flat type in each town. You can select which flat type you would like to see by clicking on the filter. From there, you can compare the flat type’s price per floor area ratio in each town and see and average (as represented with the average line).

Q7: Does the town location affect the price?

Appendix 7

Chart

Description automatically generated

Appendix 7 shows the average resale price of flats in each town. By selecting which flat type to focus on by selecting the filter, you can see the prices of flats of a certain flat type across Singapore. From there, the average line will update, and you can compare from there.

Q8: How many flats are offered in each town?

With Appendix 7, you can choose a town by selecting the filter and the total number of flats in that town will appear. You can also include the flat type filter to see how many flats of a certain type are in the town.

**Dashboard**

Dashboard 1

Chart

Description automatically generated

Dashboard 1 serves to answer Q1 and Q2

Dashboard 2

Diagram

Description automatically generated with low confidence

Dashboard 2 serves to answer Q3 and Q4.

Dashboard 3

Chart, histogram

Description automatically generated

Dashboard 3 serves to answer Q5 and Q6.

Dashboard 4

A picture containing diagram

Description automatically generated

Dashboard 4 serves to answer Q7 and Q8.