

IT8701 – Introduction to Programming for Data Science

ASSIGNMENT PRESENTATION

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Presented By:

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Agenda

- **Dataset**
 - ☐ Source
 - ☐ Nature
- **Analysis Process**
 - ☐ Resale Flat Prices
 - ☐ Rental Flat Prices
 - ☐ HDB Units Completion Status
- **Insights**
- **Recommendations and Conclusions**

Dataset - Sources

☐ Resale Flat Prices

- <https://data.gov.sg/dataset/resale-flat-prices>

☐ Rental Flat Prices

- <https://data.gov.sg/dataset/median-rent-by-town-and-flat-type>

☐ HDB Units Completion Status

- <https://data.gov.sg/dataset/number-of-units-of-hdb-developments-by-status>

Dataset –Resale Flat Prices

❑ Resale Flat Prices

- Dataset consists of 793,596 records with 10 fields as follows:

Data fields from RFP:

```
('month', 'town', 'flat_type', 'block', 'street_name', 'storey_range', 'floor_area_sqm', 'flat_model', 'lease_commence_date', 'resale_price')
```

- Sample record from the dataset is as follows:

Sample Data from RFP:

```
[('1990-01', 'ANG MO KIO', '1 ROOM', '309', 'ANG MO KIO AVE 1', '10 TO 12', 31.0, 'IMPROVED', '1977', 9000)]
```

- Dataset consists of resale flat transactions spanning from January 1990 to March 2019 with resale flat prices ranging from \$178,000 to \$375,000 for 1-room to multi-generation flat types

Dataset – Rental Flat Prices

❑ Rental Flat Prices

- Dataset consists of 8,781 records with 4 fields as follows:

```
Data fields from MRTF:  
( 'quarter', 'town', 'flat_type', 'median_rent' )
```

- Sample record from the dataset is as follows:

```
Sample Data from MRTF:  
[( '2005-Q2', 'ANG MO KIO', '1-RM', 0 )]
```

- Dataset contains the quarterly median rental prices by flat type for the various town estates.

Dataset – HDB Units Completion Status

❑ HDB Units Completion Status

- Dataset consists of 884 records with 5 fields as follows:

Data fields from UCS:

```
('financial_year', 'town_or_estate', 'hdb_or_dbss', 'status', 'no_of_units')
```

- Sample record from the dataset is as follows:

Sample Data from UCS:

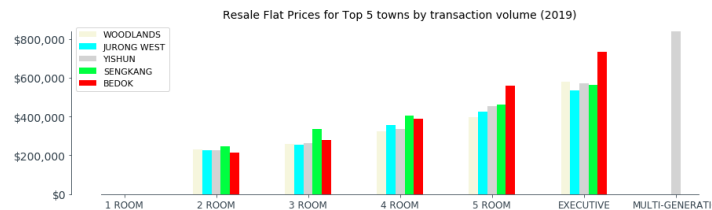
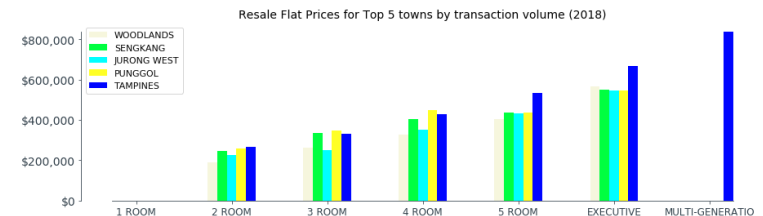
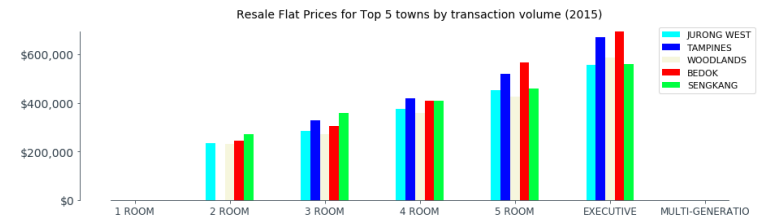
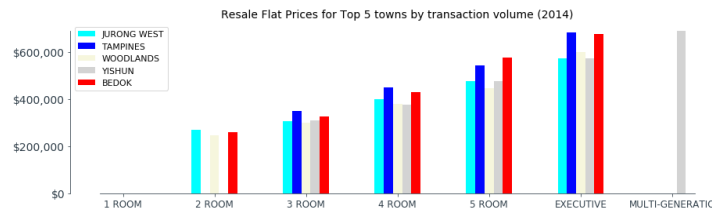
```
[('2008', 'Ang Mo Kio', 'HDB', 'Under Cons', 1221)]
```

- Dataset contains information tracking the completion status of HDB residential units by town estate from 2008 till the 2017.

Analysis Process – Resale Flat Prices (1)

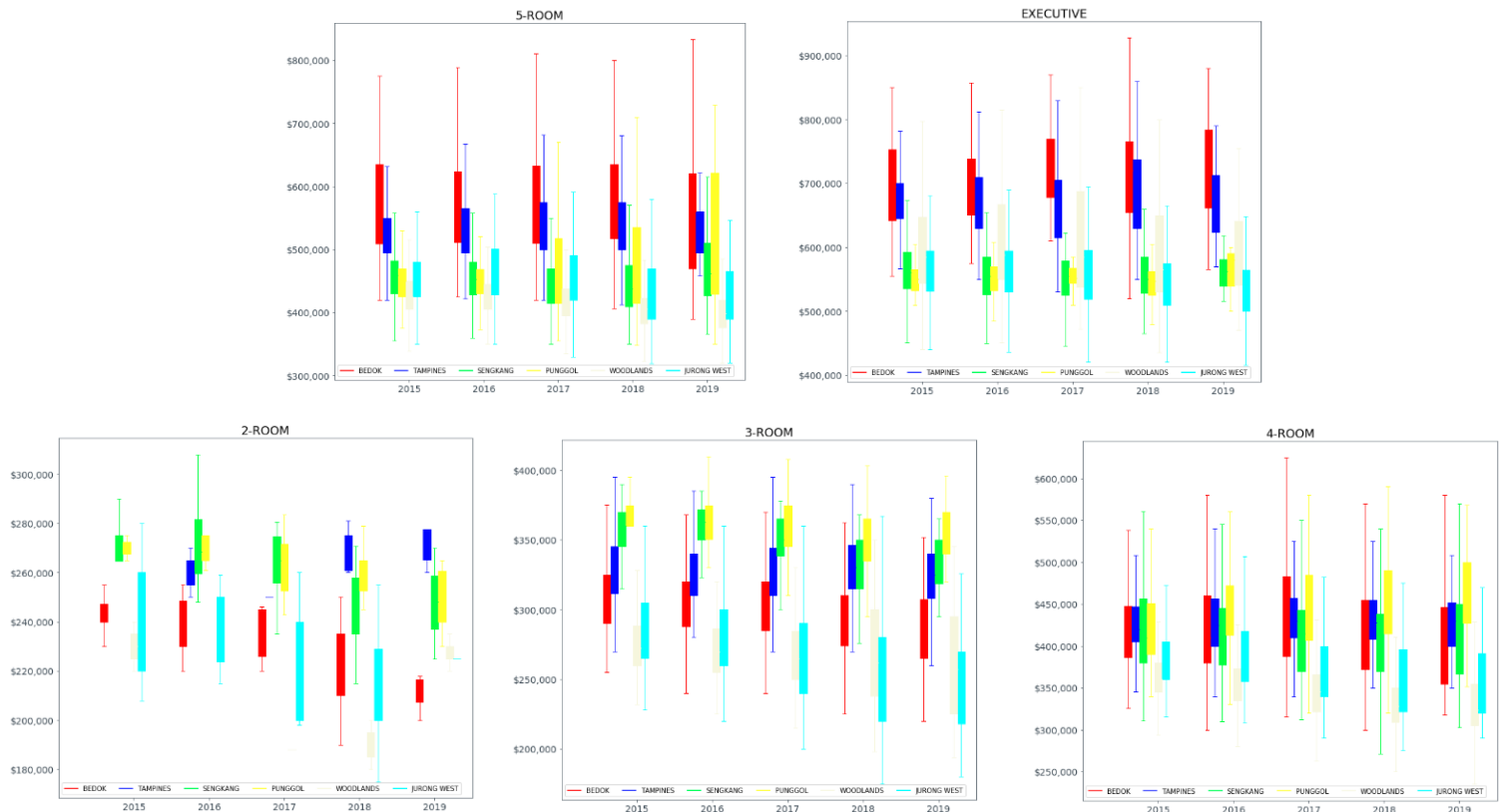
❑ Median Resale Flat Prices by town estate/ flat type for top town estates by transaction volume

- The resale flat price information were grouped by town estate/ Flat Type and bar charts were used to compare the prices for the top 5 town estates by transaction volume for the past 5 years



Analysis Process – Resale Flat Prices (2)

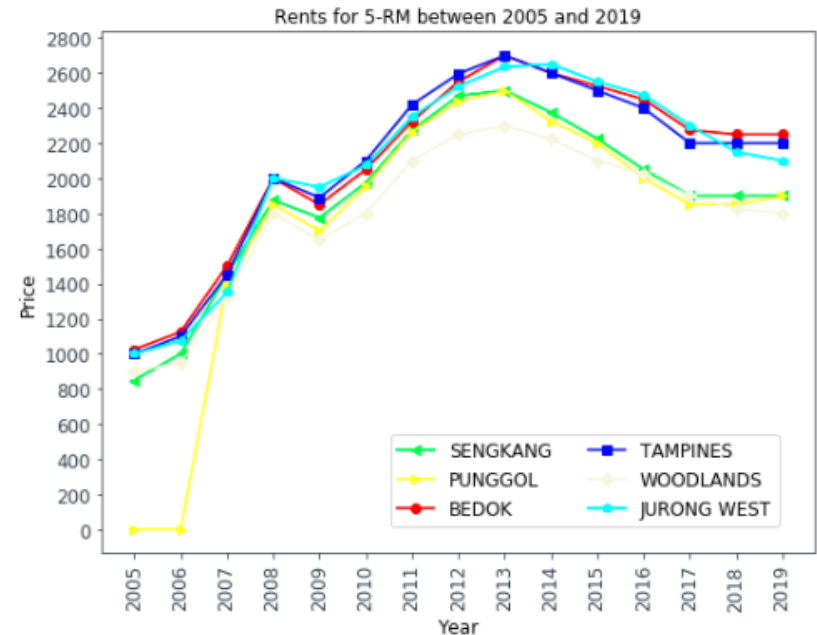
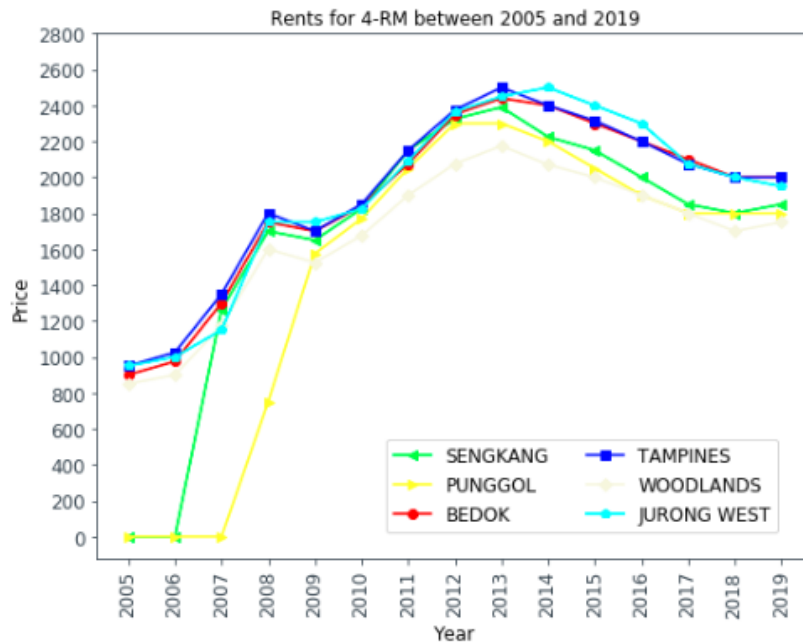
- ❑ Flat type median resale price distribution analysis for top 4 town estates by transaction volume
 - Boxplots were used to compare the resale flat price distribution by flat type for flats in the top 6 town estates by transaction volume (SengKang, Punggol, Bedok, Tampines, Woodlands, Jurong West).



Analysis Process – Rental Flat Prices

❑ Median Rents

- Line plots were used to compare the median rental flat prices for 4- and 5-room flats in the top 6 town estates by transaction volume

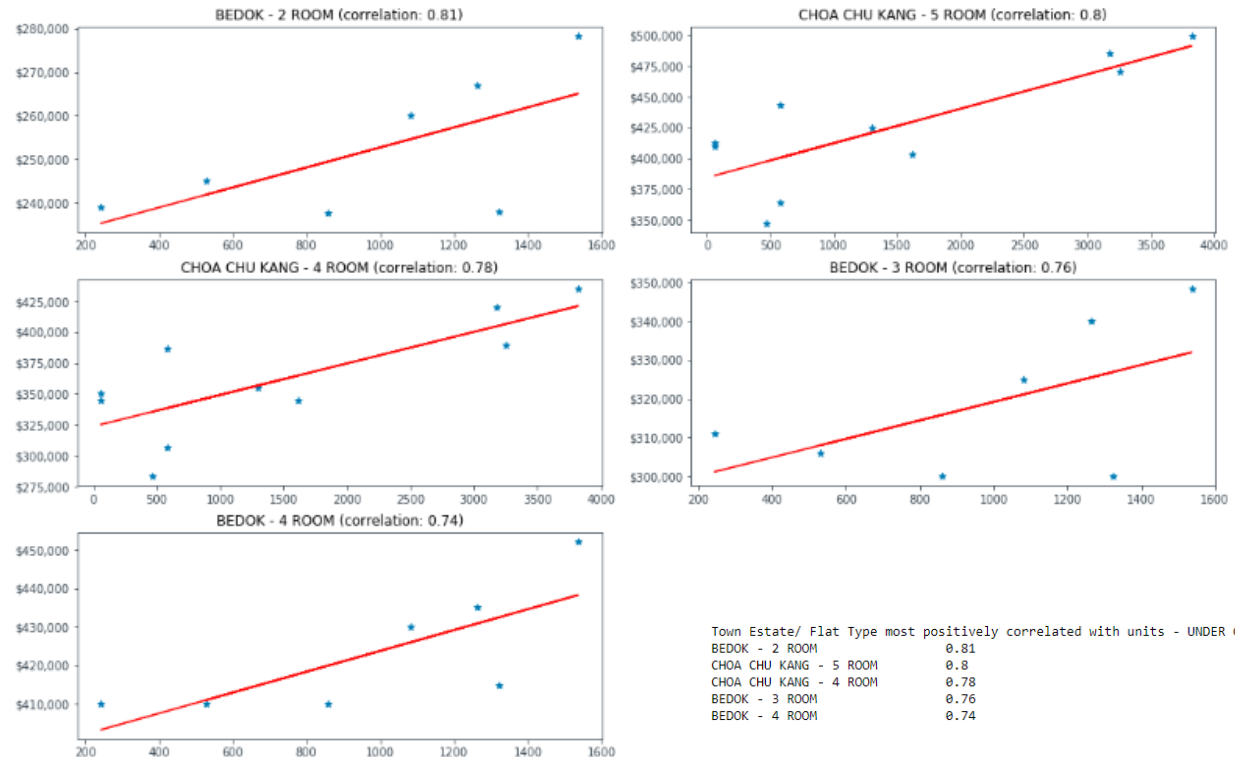


Analysis – HDB Units Completion Status (1)

❑ Correlation analysis between town estate/flat type and number of units under construction

▪ Top 5 positive correlation

Top Positive Correlated resale flat price/ units under construction



Town Estate/ Flat Type most positively correlated with units - UNDER CONS

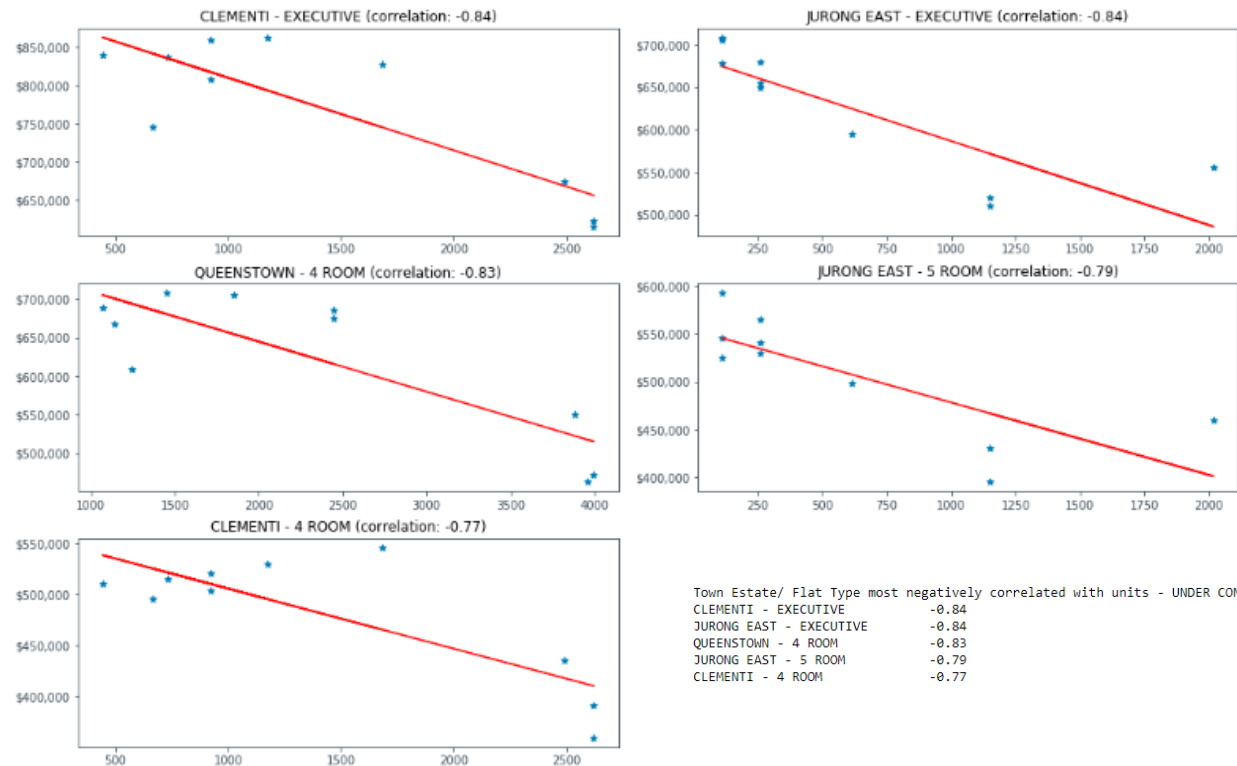
BEDOK - 2 ROOM	0.81
CHOA CHU KANG - 5 ROOM	0.8
CHOA CHU KANG - 4 ROOM	0.78
BEDOK - 3 ROOM	0.76
BEDOK - 4 ROOM	0.74

Analysis – HDB Units Completion Status (2)

❑ Correlation analysis between town estate/flat type and number of units under construction

- Top 5 negative correlation

Top Negative Correlated resale flat price/ units under construction



Insights

❑ Resale Flat Price

- From the bar charts, flats in **Bedok, Tampines, Sengkang, Punggol, Woodlands and Jurong West** were the top few town estates by transaction volume for the past 5 years
- From the boxplots of median resale flat prices for past 5 years:
 - **5-room and Executive** flats in **Bedok and Tampines** have higher resale prices
 - **3-room** flats in **Sengkang and Punggol** have higher resale prices

❑ Rental flat Price

- From the line plots, rental prices for **4- and 5-room** flats have been declining from its peak in 2013 but seemed to have bottomed in 2018.
- In addition, rental prices for **4- and 5-room** flats in **Sengkang, Punggol and Woodlands** are comparable

❑ HDB Units Completion Status

- From the scatter plots, median resale flat prices for **2-, 3- and 4-room flats in Bedok** and **4- and 5-room flats in Choa Chu Kang** are positively correlated with the number of units under construction.
- Also, **5-room and Executive flats in Jurong East** and **4-room and Executive flats in Clementi** are negatively correlated with the number of units under construction.

Recommendations and Conclusion

- For property buyers looking for larger sized (**5-room and Executive**) flats with higher resale values, **Bedok and Tampines** are town estates to look into.
- For 3-room flats, **Sengkang and Punggol** are the town estates to look for higher resale values.
- As rental prices for **4- and 5-room** flats in **Sengkang, Punggol and Woodlands** are comparable, thus, on a price-to-size basis, 5-room flats provide a better value for money than 4-room flats in these town estates.
- Higher number of units under construction **in Bedok** have a **positive** impact on median resale prices for **2-, 3- and 4-room flats** in this area. This also applies for **4- and 5-room flats** in **Choa Chu Kang**.
- Conversely, higher number of units under construction in **Jurong** and **Clementi** seem to have a **negative** impact on larger-sized flats in these areas.