



SCTP Capstone:
"Turning Data into Dream Homes"

AGENDA

- About myself
- Introduction to Dataset
- General Observations
- Preparation
- Data Cleaning
- Dashboard
- Recommendation
- Challenges and Discoveries

About myself

Name	Manimekalai Karthikeyan
Role	Data Analyst
Company Name	Home Konnect
Goal	To empower the sales team with insightful, data-driven recommendations tailored to client needs , enhancing customer interactions and driving business success .

Introduction to Dataset

Origin of Data	data.gov.sg	Housing-Resale Flat Prices
Dataset Shape	(197820, 11)	(37153, 11)
Format	.CSV	.CSV
Content	1Resale flat prices based on registration date from Jan-2017 onwards	2resale-flat-prices-based-on-registration-date-from-jan-2015-to-dec-2016_C
Tools and Resources	Python – data info Excel – Append 2 files Power BI – cleaning, Transformation and Dashboard	

General Observations - Python – HDB1.info() & HDB2.info()

1Resale flat prices based on registration date from Jan-2017 onwards (HDB1)

2resale-flat-prices-based-on-registration-date-from-jan-2015-to-dec-2016_C(HDB2)

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 197820 entries, 0 to 197819
Data columns (total 11 columns):
#   Column                Non-Null Count  Dtype
---  -
0   month                 197820 non-null object
1   town                  197820 non-null object
2   flat_type             197820 non-null object
3   block                 197820 non-null object
4   street_name           197820 non-null object
5   storey_range          197820 non-null object
6   floor_area_sqm        197820 non-null float64
7   flat_model            197820 non-null object
8   lease_commence_date   197820 non-null int64
9   remaining_lease       197820 non-null object
10  resale_price           197820 non-null float64
dtypes: float64(2), int64(1), object(8)
memory usage: 16.6+ MB
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 37153 entries, 0 to 37152
Data columns (total 11 columns):
#   Column                Non-Null Count  Dtype
---  -
0   month                 37153 non-null object
1   town                  37153 non-null object
2   flat_type             37153 non-null object
3   block                 37153 non-null object
4   street_name           37153 non-null object
5   storey_range          37153 non-null object
6   floor_area_sqm        37153 non-null float64
7   flat_model            37153 non-null object
8   lease_commence_date   37153 non-null int64
9   remaining_lease       37153 non-null int64
10  resale_price           37153 non-null float64
dtypes: float64(2), int64(2), object(7)
memory usage: 3.1+ MB
```


Preparation – Excel - Join both tables into a single table for further analysis

- Both file has the same number of columns and heading
- Imported both files using **Excel**. Using Append combined the files.
- In **Power Query Editor**, Append1 file is renamed as Resale_Flat_Jan2015-Jan2025. Saved as Excel worksheet.

Append

Concatenate rows from two tables into a single table.

☒ Two tables ☐ Three or more tables

First table

1Resale flat prices based on registrat...



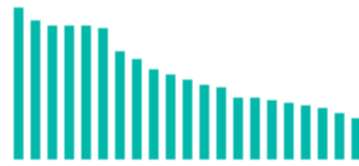
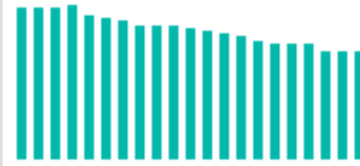
Second table

2resale-flat-prices-based-on-registra...

	month	town	flat_type	block	street_name
1	01-Jan-17	ANG MO KIO	2 ROOM	406	ANG MO KIO AVE 10
2	01-Jan-17	ANG MO KIO	3 ROOM	108	ANG MO KIO AVE 4
3	01-Jan-17	ANG MO KIO	3 ROOM	602	ANG MO KIO AVE 5

Data Cleaning & Transformation– Power Bi

- Get data - Resale_Flat_Jan2015-Jan2025.xlsx
- Renamed Queries - Resale_2025
- Changed column type - resale_price “\$”
- Created New Column – Year , price per sqm
- Filtered Rows – to see the data

ABC flat_type	\$ price per sqm	ABC town	\$ resale_price	ABC Year
<div><div>Valid 100%</div><div>Error 0%</div><div>Empty 0%</div></div> <div></div> <div>7 distinct, 0 unique</div>	<div><div>Valid 100%</div><div>Error 0%</div><div>Empty 0%</div></div> <div></div> <div>33192 distinct, 16692 unique</div>	<div><div>Valid 100%</div><div>Error 0%</div><div>Empty 0%</div></div> <div></div> <div>26 distinct, 0 unique</div>	<div><div>Valid 100%</div><div>Error 0%</div><div>Empty 0%</div></div> <div></div> <div>4450 distinct, 1987 unique</div>	<div><div>Valid 100%</div><div>Error 0%</div><div>Empty 0%</div></div> <div></div> <div></div>
2 ROOM	7,227.27	ANG MO KIO	318,000.00	2025
3 ROOM	9,285.71	ANG MO KIO	650,000.00	2025
3 ROOM	6,029.41	ANG MO KIO	410,000.00	2025
3 ROOM	6,136.99	ANG MO KIO	448,000.00	2025
3 ROOM	6,102.94	ANG MO KIO	415,000.00	2025
3 ROOM	6,341.46	ANG MO KIO	520,000.00	2025

Data Cleaning & Transformation– Power Bi

Table view : Created measures to add it get the different insights

Age

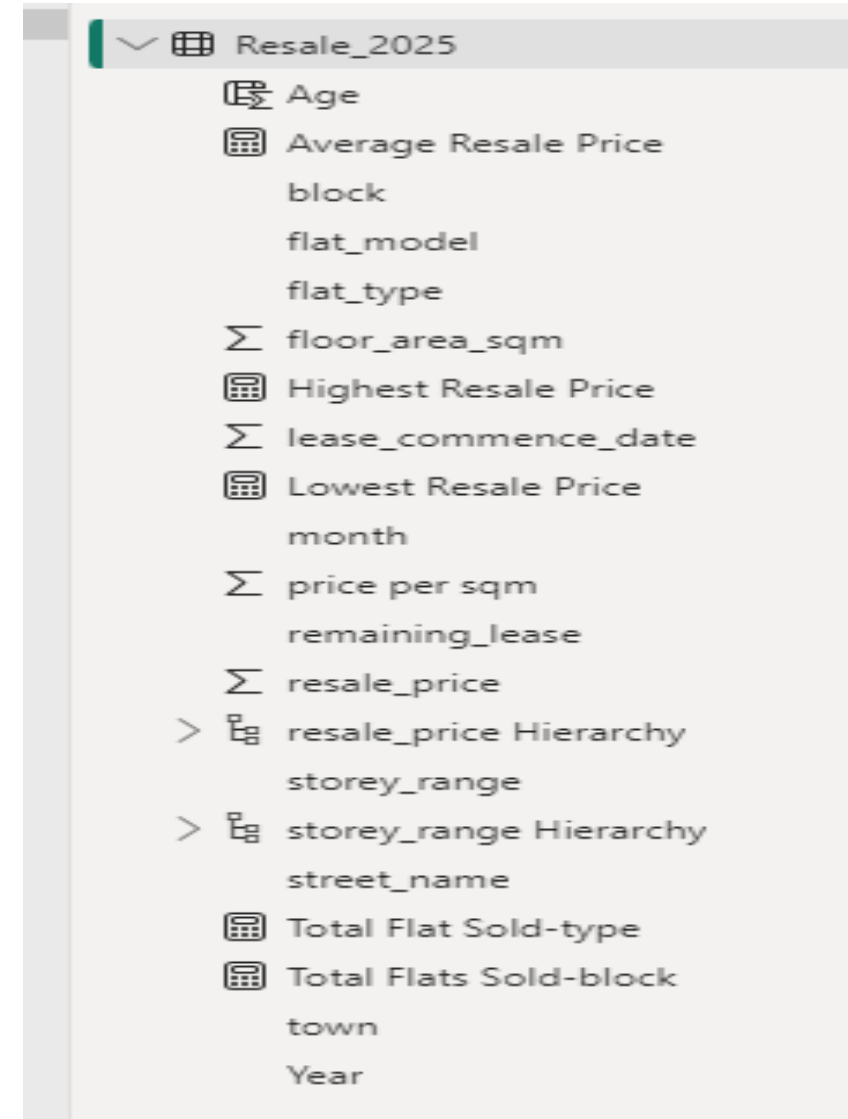
Average Resale Price

Highest Resale Price

Lowest Resale Price

Total Flat Sold-type

Total Flat Sold-block



Resale Flat Prices in Singapore (Jan 2015 – Jan 2025)

Expert Advice on How to Buy or Sell a Home

Highest Resale Price

\$1.588M

Lowest Resale Price

\$140K

Average Resale Price

\$497K

Total Flats Sold

234K

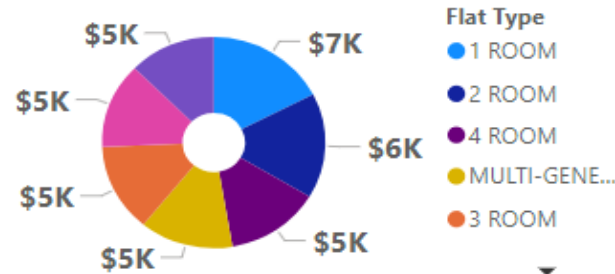
Average House Age

30

Year

2015	2017	2019	2021	2023
2016	2018	2020	2022	2024

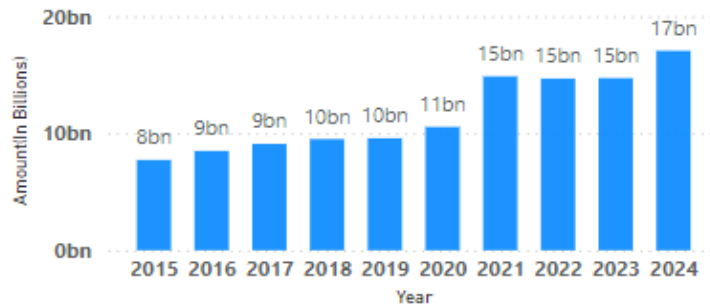
House Price per sm (Ave)



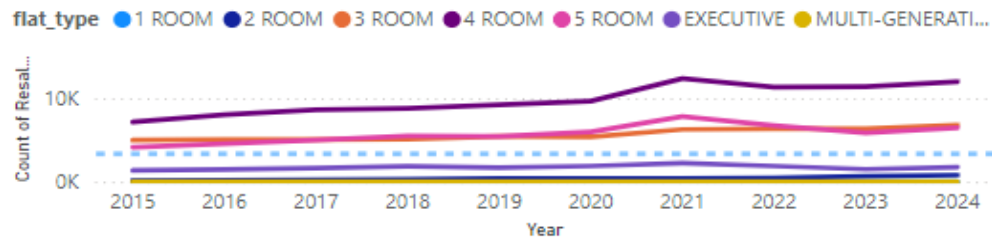
Town

BUKIT ...	KALL...	T...	P...	C...	S...	...
BISHAN	PASI...	523K	520K	519K	500K	491K
CENTR...	MAR...	GEYL...	C...	J...	B...	
BUKIT ...	SERA...	BUKI...	461K	455K	454K	
QUEE...	TAM...	SEM...	AN...	
			WO...	44...	42...	

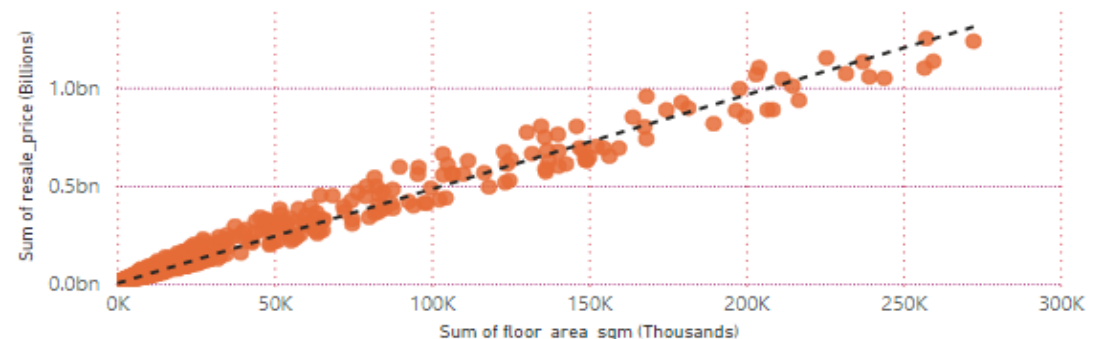
Total Sum Of Resale Amount



Count of Resale Price by Year and Flat_type



Floor Area sqm and Resale Price



Filters

Storey Range			
Select all	01 TO 03	04 TO 06	07 TO 09
10 TO 12	13 TO 15	16 TO 18	19 TO 21
22 TO 24	25 TO 27	28 TO 30	31 TO 33
34 TO 36	37 TO 39	40 TO 42	43 TO 45
46 TO 48	49 TO 51		

Flat Type			
Select all	1 ROOM	2 ROOM	3 ROOM
4 ROOM	5 ROOM	EXECUTIVE	MULTI-GENERATION

Year										
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	

Flat Model						
Select all	2-room	3Gen	Adjoined flat	Apartment	DBSS	Improved
Improved-Maisonette	Maisonette	Model A	Model A2	Model A-Maisonette	Multi Generation	New Generation
Premium Apartment	Premium Apartment...	Premium Maisonette	Simplified	Standard	Terrace	Type S1

Town						
Select all	ANG MO KIO	BEDOK	BISHAN	BUKIT BATOK	BUKIT MERAH	BUKIT PANJANG
BUKIT TIMAH	CENTRAL AREA	CHOA CHU KANG	CLEMENTI	GEYLANG	HOUGANG	JURONG EAST
JURONG WEST	KALLANG/WHAMPOA	MARINE PARADE	PASIR RIS	PUNGGOL	QUEENSTOWN	SEMBAWANG
SENGKANG	SERANGOON	TAMPINES	TOA PAYOH	WOODLANDS	YISHUN	

Filters

Search

Filters on this visual

flat_type is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

storey_range is (All)

town is (All)

Year is not 2025

Add data fields here

Sync slicers

Add and sync with all pages, or select specific pages:

Page name		
Dashboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Filters	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Resale Price By Year	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No of Flats Sold By...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flat Sold-Type By T...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Resale Price Trends...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Max of Age by town	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Age vs resale price	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q&A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Key Influencer on ...	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Advanced options

Enter a group name to sync selection to any other visuals with that group name

flat_type

☒ Sync field changes to other slicers

☒ Sync filter changes to other slicers

Storey – Flat Type - Town

Storey Range			
Select all	01 TO 03	04 TO 06	07 TO 09
10 TO 12	13 TO 15	16 TO 18	19 TO 21
22 TO 24	25 TO 27		

Flat Type			
Select all	2 ROOM	3 ROOM	4 ROOM
5 ROOM	EXECUTIVE		

Year									
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

Flat Model			
Select all	3Gen	Improved	Premium Apartment

Town						
Select all	ANG MO KIO	BEDOK	BISHAN	BUKIT BATOK	BUKIT MERAH	BUKIT PANJANG
BUKIT TIMAH	CENTRAL AREA	CHOA CHU KANG	CLEMENTI	GEYLANG	HOUGANG	JURONG EAST
JURONG WEST	KALLANG/WHAMPOA	MARINE PARADE	PASIR RIS	PUNGGOL	QUEENSTOWN	SEMPAWANG
SENGKANG	SERANGOON	TAMPINES	TOA PAYOH	WOODLANDS	YISHUN	

Resale Flat Prices in Singapore (Jan 2015 – Jan 2025)

Expert Advice on How to Buy or Sell a Home

Highest Resale Price

\$1.05M

Lowest Resale Price

\$368K

Average Resale Price

\$554K

Total Flats Sold

1K

Average House Age

20

Year

2015	2017	2019	2021	2023
2016	2018	2020	2022	2024

House Price per sm (Ave)



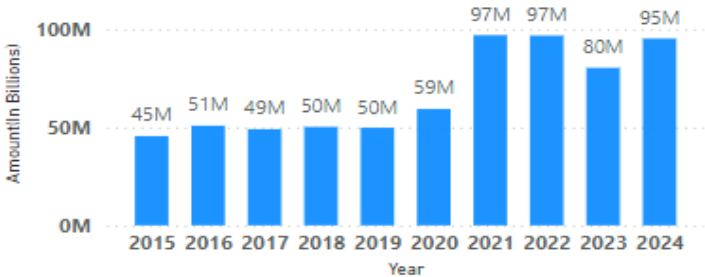
Flat Type
● 5 ROOM

Town

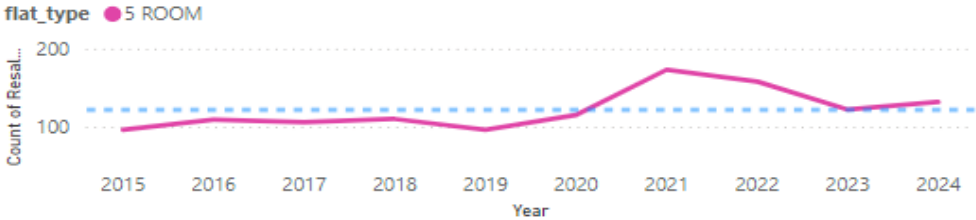
SENGKANG

554K

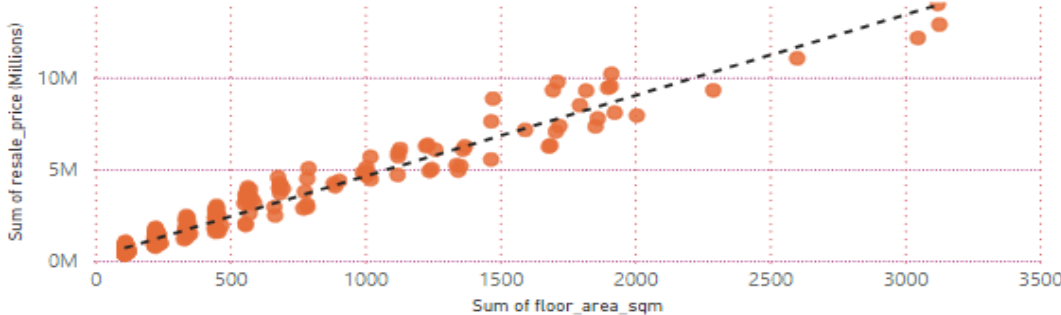
Total Sum Of Resale Amount



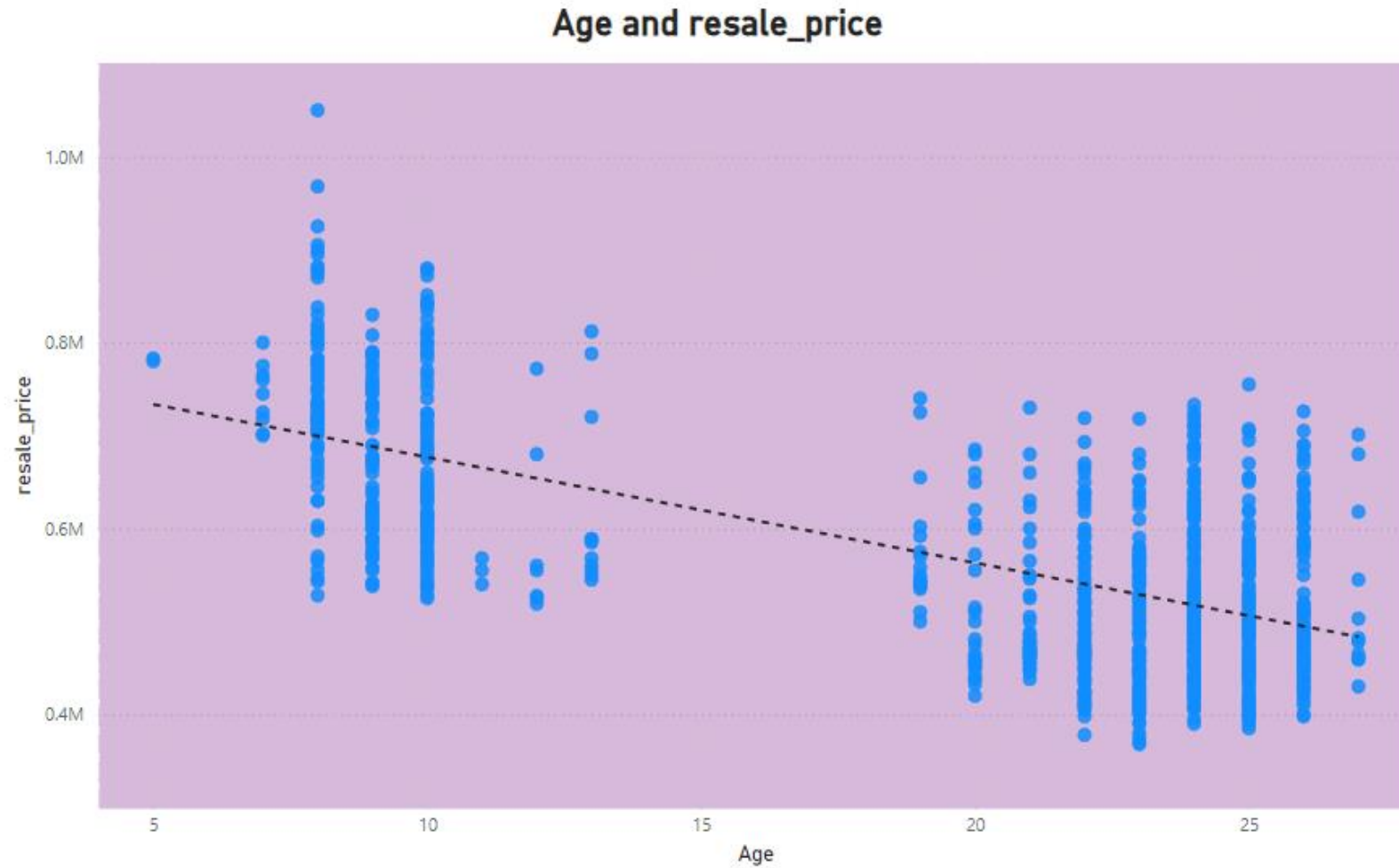
Count of Resale Price by Year and Flat_type



Floor Area sqm and Resale Price



Expert Advice on How to Buy or Sell a Home



Expert Advice on How to Buy or Sell a Home

Storey Range			
Select all	01 TO 03	04 TO 06	07 TO 09
10 TO 12	13 TO 15	16 TO 18	19 TO 21
22 TO 24	25 TO 27		

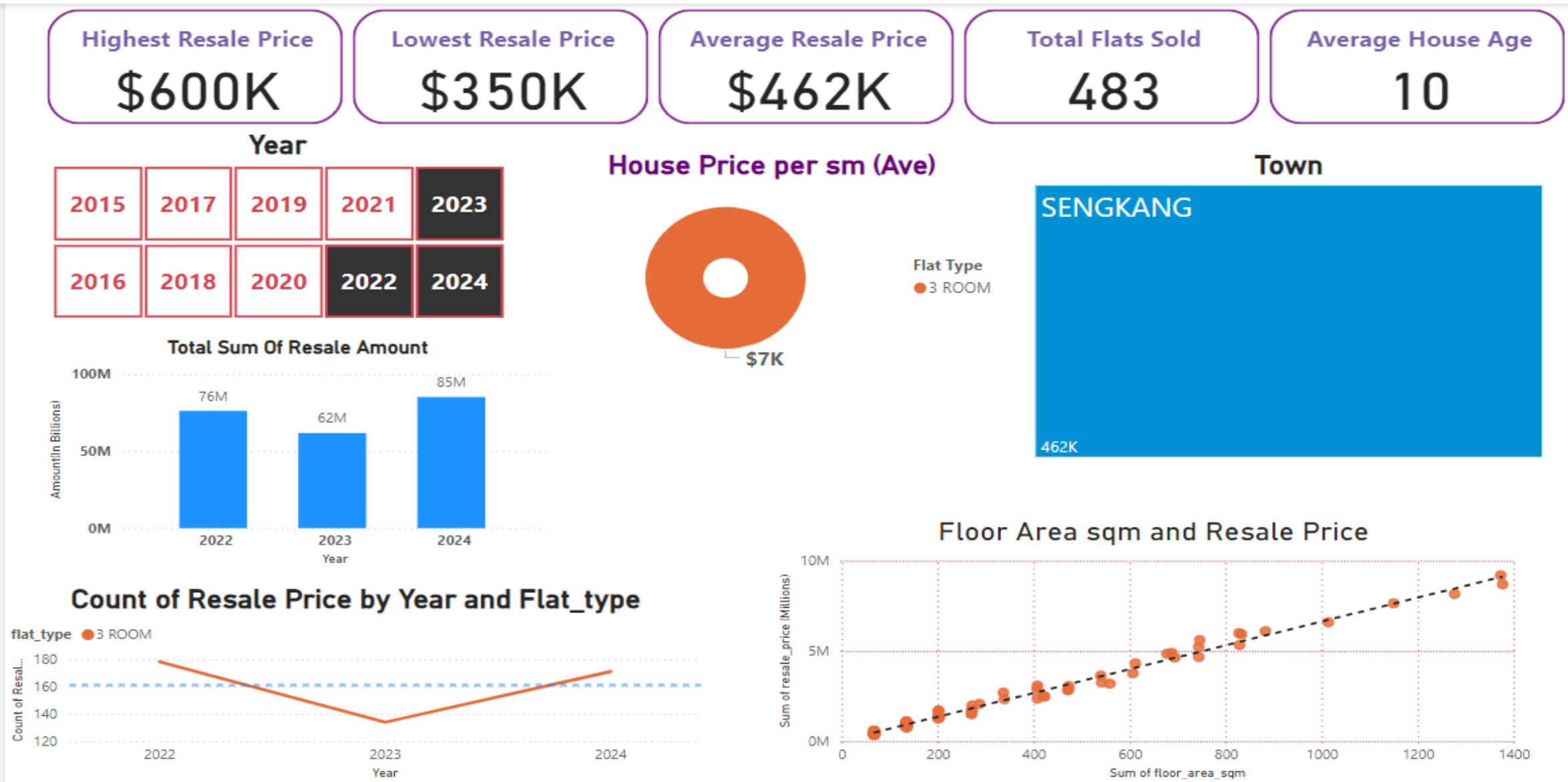
Flat Type			
Select all	2 ROOM	3 ROOM	4 ROOM
5 ROOM	EXECUTIVE		

Year									
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

Flat Model		
Select all	Model A	Premium Apartment

Town						
Select all	ANG MO KIO	BEDOK	BISHAN	BUKIT BATOK	BUKIT MERAH	BUKIT PANJANG
BUKIT TIMAH	CENTRAL AREA	CHOA CHU KANG	CLEMENTI	GEYLANG	HOUGANG	JURONG EAST
JURONG WEST	KALLANG/WHAMPOA	MARINE PARADE	PASIR RIS	PUNGGOL	QUEENSTOWN	SEMBAWANG
SENGKANG	SERANGOON	TAMPINES	TOA PAYOH	WOODLANDS	YISHUN	

Expert Advice on How to Buy or Sell a Home



Recommendation for the Sales Team

- **Highlight Price Trends:** Share insights on **price** fluctuations over **time** in specific **towns** and **flat types**
- **Identify High-Demand Areas:** Focusing on **locations** with consistent **price appreciation** or high **resale demand**(e.g., Sengkang, Queenstown)
- **Target Buyer Profiles:** Identify buyer **demographics** like interested in **high-demand** flat types, 5 room flats or executive flats
- **Affordable Locations:** **Towns** with **lower resale prices**, such as Yishun, Woodlands, or Jurong West, for clients looking to **downgrade**.
- **Customer-Centric Strategies:** Equip the **team** with **interactive dashboards** and reports to **answer queries** effectively
- **Client Education:** Use data insights to **educate** clients on the benefits of **timing** their purchases or sales strategically

Challenges and Discoveries

Challenges Faced in the Project

Time Constraints: Balancing this project with other **commitments** made it challenging.

Data Import Issues: Encountered errors while **importing the folder** into Power BI, delaying the progress.

Rework Required: Deleting and **redoing files** consumed significant time and effort.

Future Enhancements for Deeper Insights

Incorporate Additional Data:

Zones: Analyze property trends by region or planning zones

Proximity to Amenities: Include MRT locations, malls, and schools to highlight **convenience** factors.

Loan Availability: Factor in **loan eligibility** to align with client **budgets**

Discoveries:

A new column was created in the **Table View**.

While it was **visible** in **Table View**, it was **not accessible** in **Power Query**. The column was successfully converted into a **measure**. Learned an **alternative method of creating measures** directly in Power BI.

Thank You

Connect with Me

Visit my LinkedIn profile: www.linkedin.com/in/manimekalai-karthikeyanr