

PriceLah

Prepared for:

Red Dot Home Realtors

Top 5 Property Agency in Singapore



Introducing the Presenters



CTO
Chung Yau



CDSO
Jayme



CIO
Wee
Zheng



Agenda



01 Existing Challenges

02 Introducing:
PriceLah

03 Data in Action
04 PriceLah in Action

05 PriceLah 2.0



Over 1 million HDB flats across Singapore



90% Singaporeans own their homes



50,000+ Resale Transaction Annually

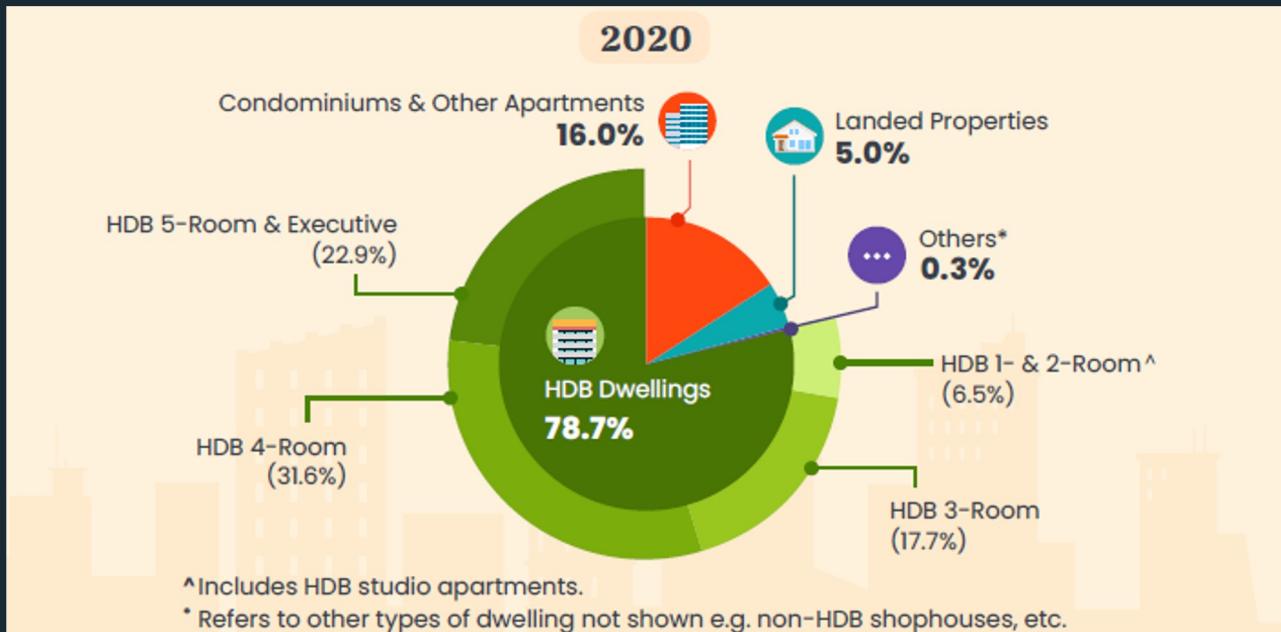


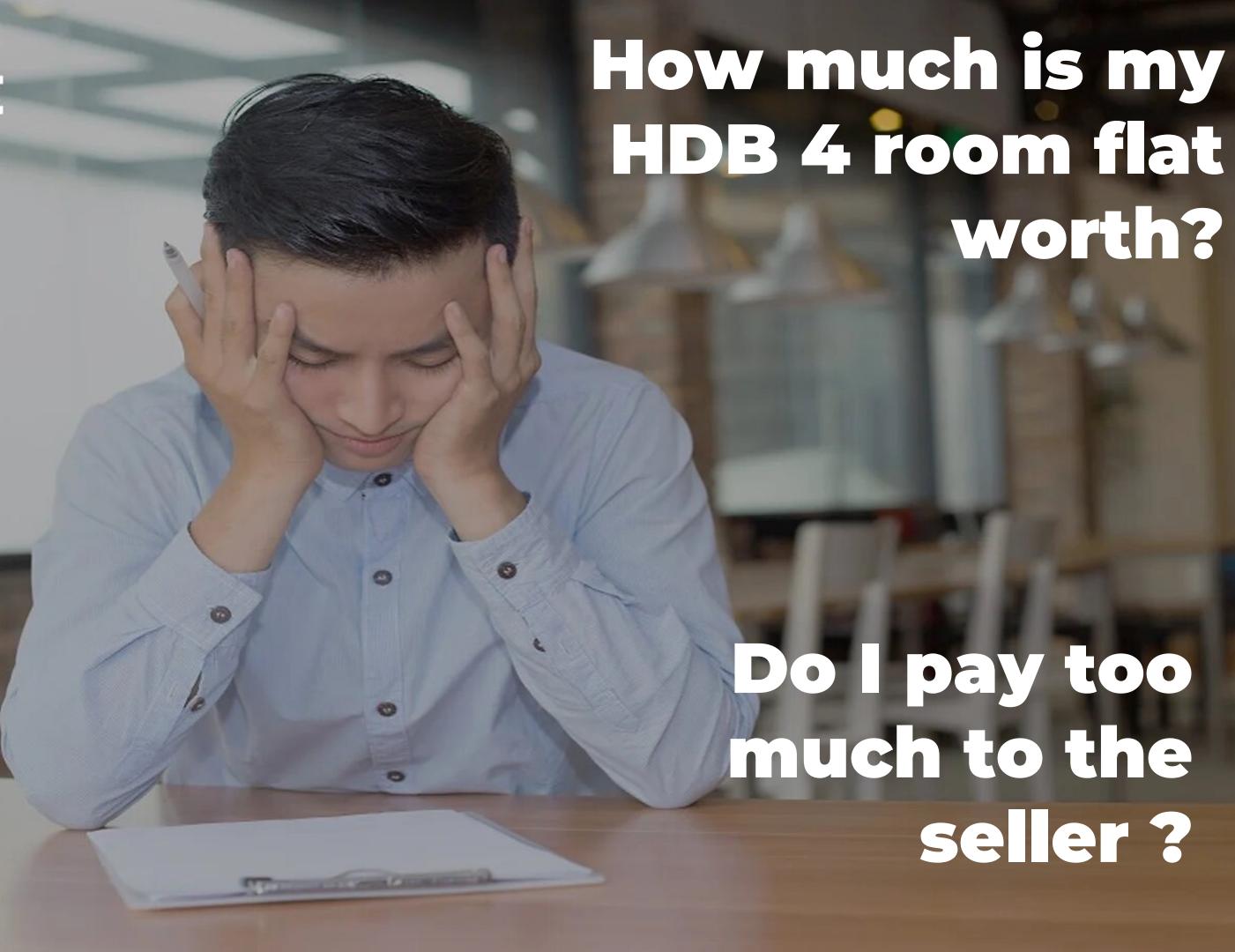
Average household size 3.2 persons



Close to 80% population lives in HDB flats

HDB - A Home for All



A photograph of a young man with dark hair, wearing a light blue button-down shirt. He is sitting at a wooden desk, looking down with his hands resting on his head in a gesture of stress or despair. In front of him on the desk is a white clipboard with some papers and a pen. The background is slightly blurred, showing what appears to be an office or study environment.

How much is my HDB 4 room flat worth?

**Do I pay too
much to the
seller ?**



- Overabundance transaction records
- Scatter of information
- Varying market conditions
- Personal experience

Unveiling the Challenge



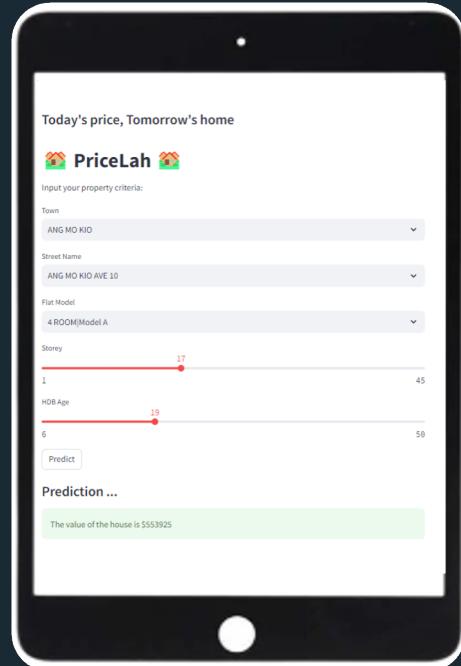
Leveraging a data-driven formula for reliable prediction of HDB housing prices



PriceLah

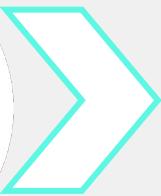
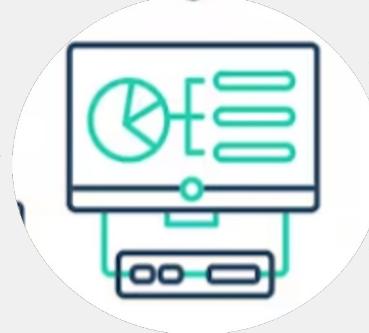
Data-driven Price Estimator

Data-driven cloud solutions
for swift and accurate HDB
property price predictions
in real time .





Data in Action



Data Processing

Data Cleaning,
Transform, Feature
Engineering

Data Modeling

Training, Tuning

PriceLah

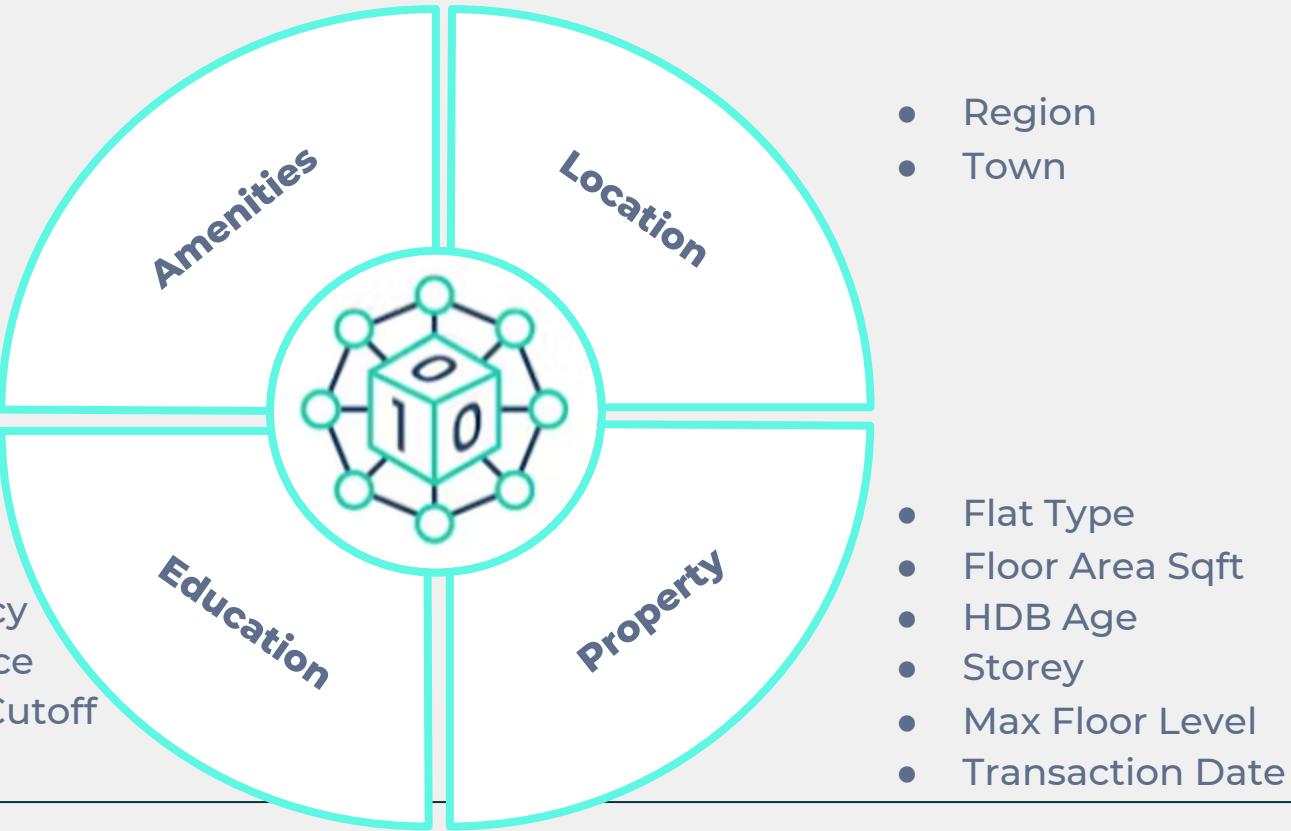
Data-driven price
estimator





Extent of Data

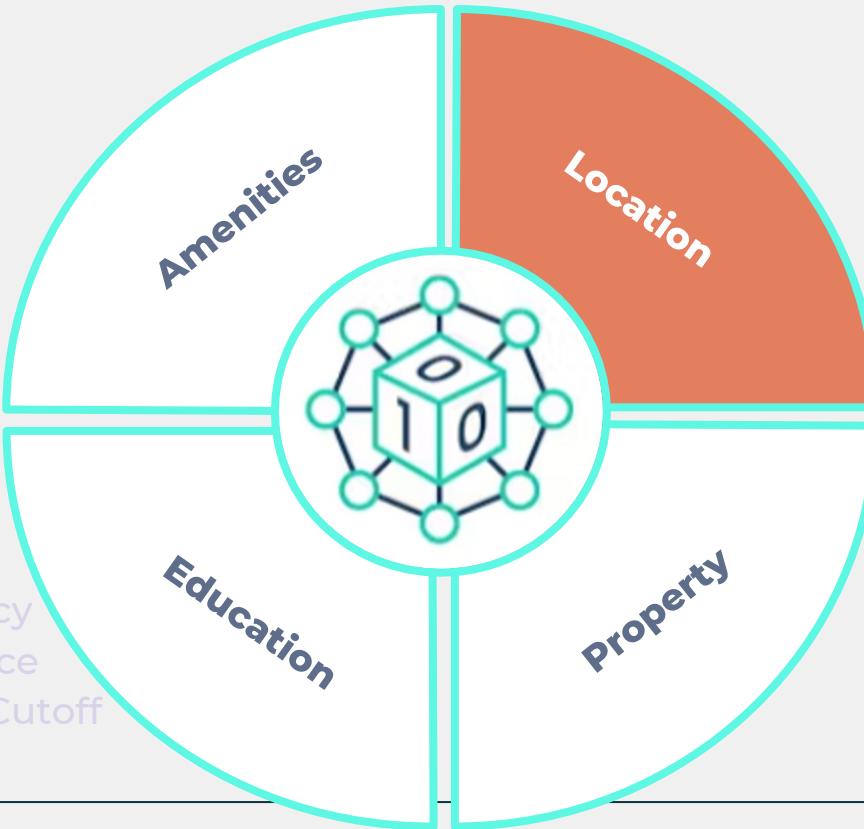
- Proximity to Nearest Mall
- Proximity to Nearest Hawker
- Public Transport Interchange Nearby





Extent of Data

- Proximity to Nearest Mall
- Proximity to Nearest Hawker
- Public Transport Interchange Nearby



- Primary School Distance
- Primary School P1 Vacancy
- Secondary School Distance
- Secondary School Entry Cutoff Points

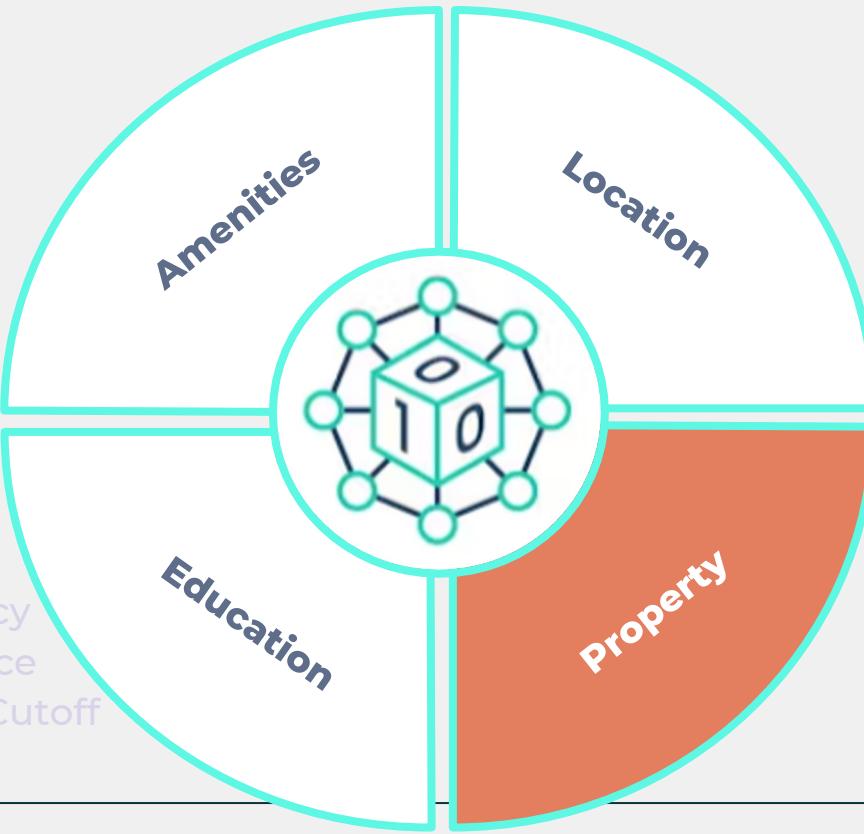
- Region
- Town
- Flat Type
- Floor Area Sqft
- HDB Age
- Storey
- Max Floor Level
- Transaction Date





Extent of Data

- Proximity to Nearest Mall
 - Proximity to Nearest Hawker
 - Public Transport Interchange Nearby
-
- Primary School Distance
 - Primary School P1 Vacancy
 - Secondary School Distance
 - Secondary School Entry Cutoff Points

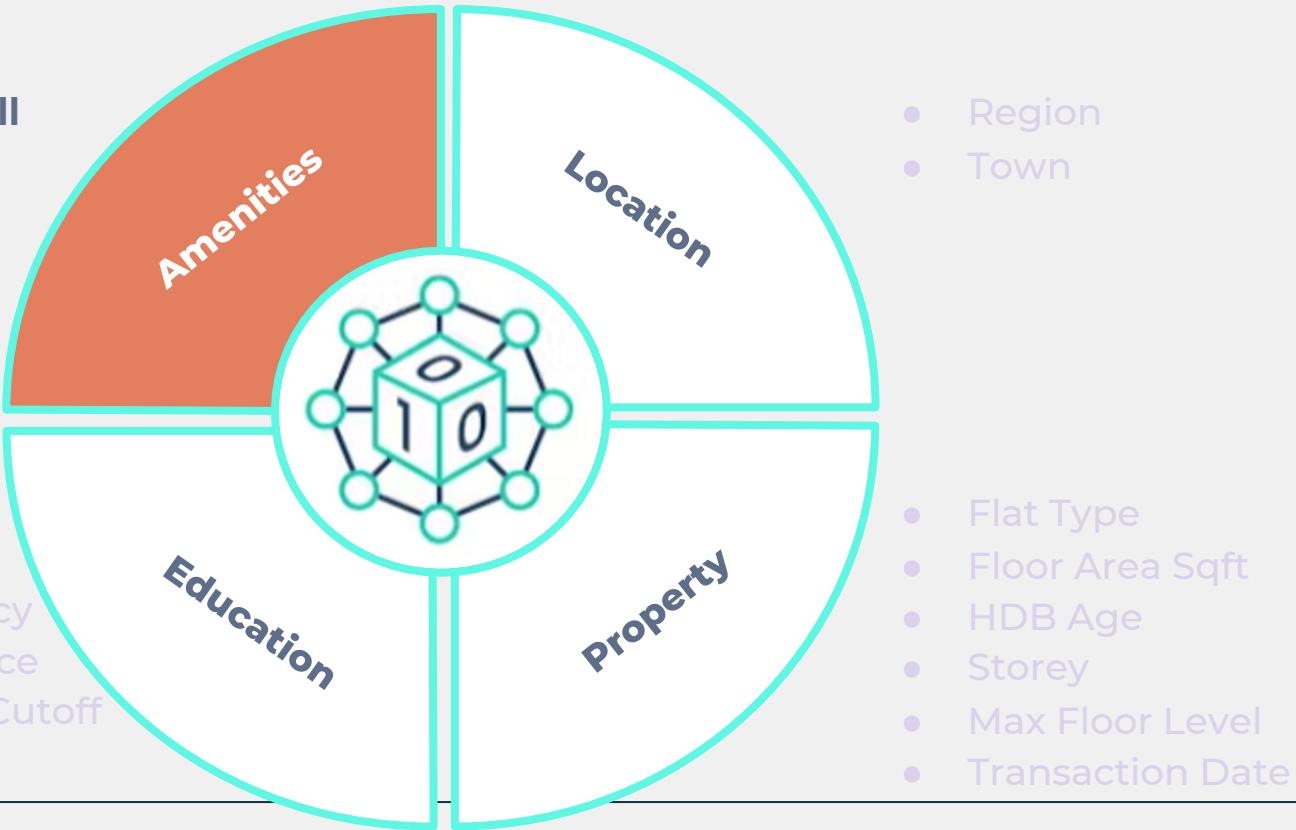


- Region
 - Town
-
- Flat Type
 - Floor Area Sqft
 - HDB Age
 - Storey
 - Max Floor Level
 - Transaction Date



Extent of Data

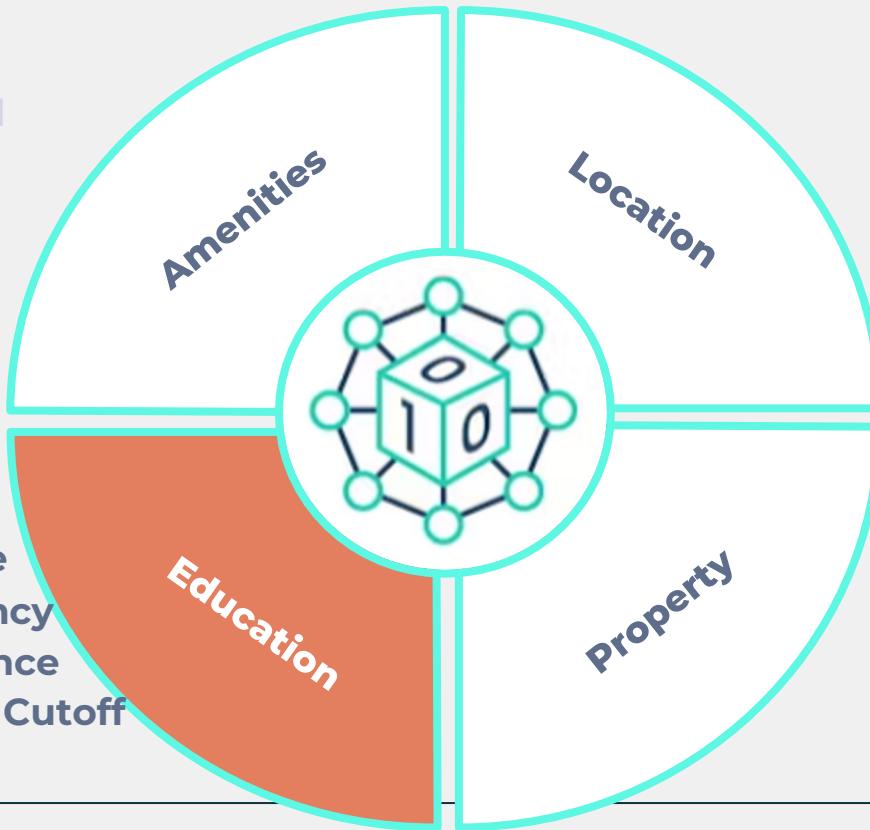
- Proximity to Nearest Mall
- Proximity to Nearest Hawker
- Public Transport Interchange Nearby





Extent of Data

- Proximity to Nearest Mall
- Proximity to Nearest Hawker
- Public Transport Interchange Nearby



- Region
- Town
- Flat Type
- Floor Area Sqft
- HDB Age
- Storey
- Max Floor Level
- Transaction Date

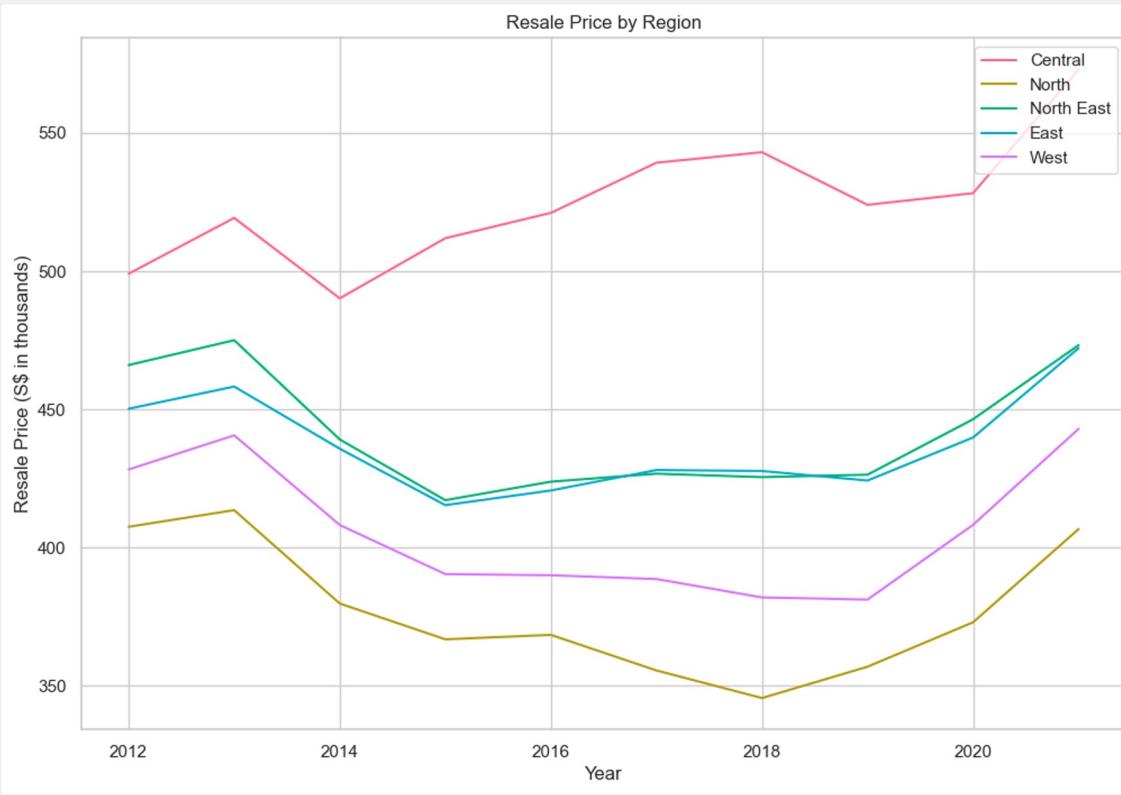




Region/ Town

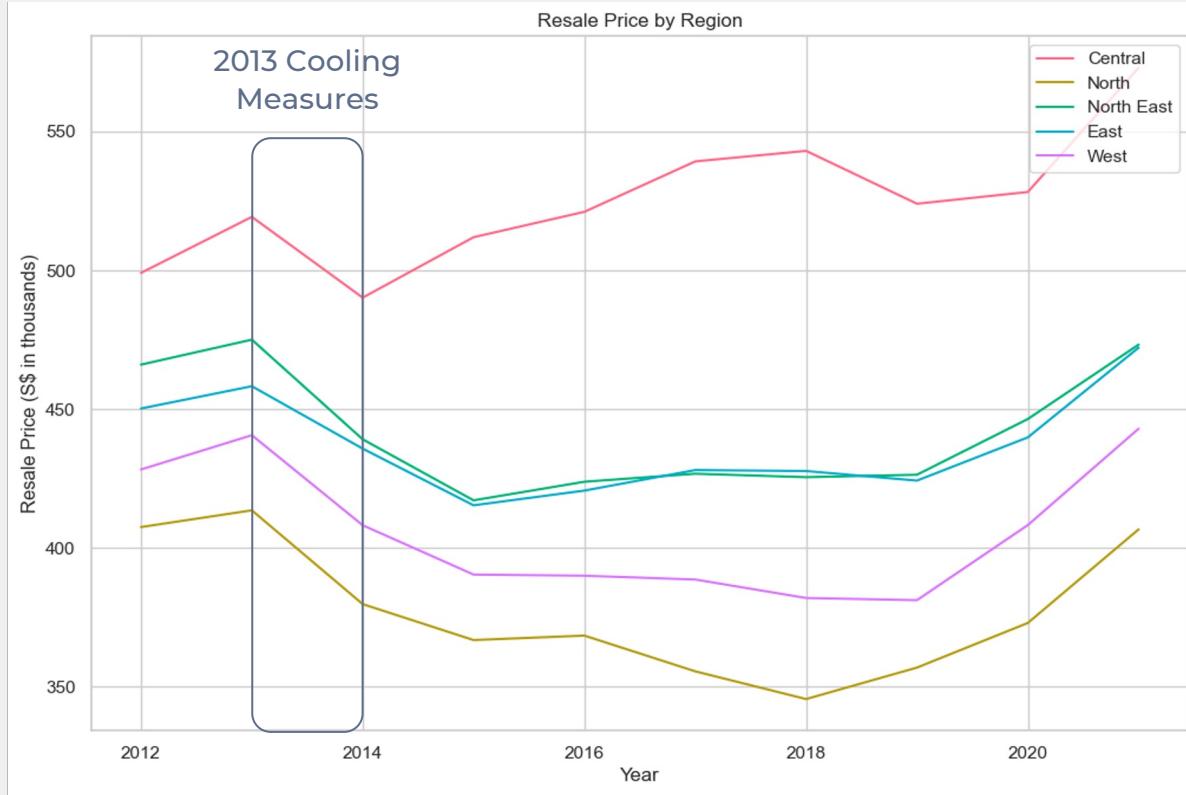


Region/ Town





Region/ Town



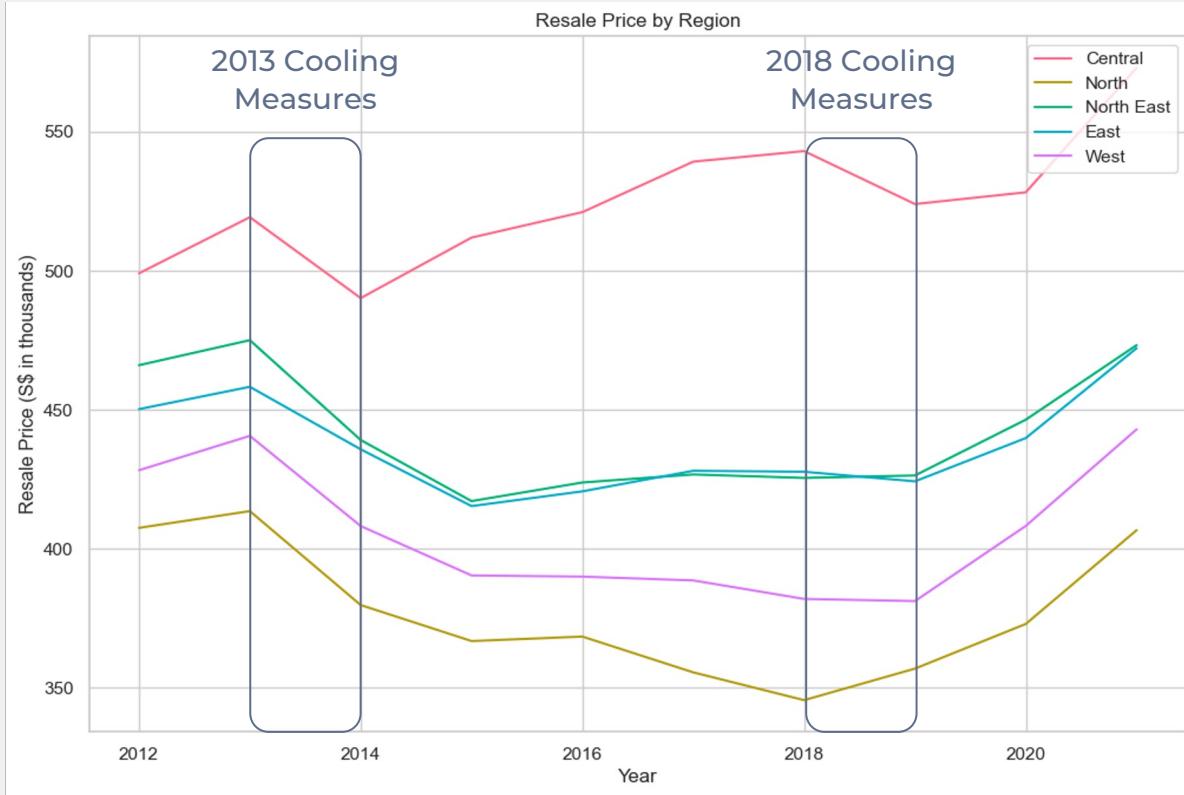
2013 Cooling Measures:

- ABSD for Singaporeans buying 2nd property
- ABSD for PRs buying 1st property
- More downpayment required from buyers





Region/ Town



2013 Cooling Measures:

- ABSD for Singaporeans buying 2nd property
- ABSD for PRs buying 1st property
- More downpayment required from buyers

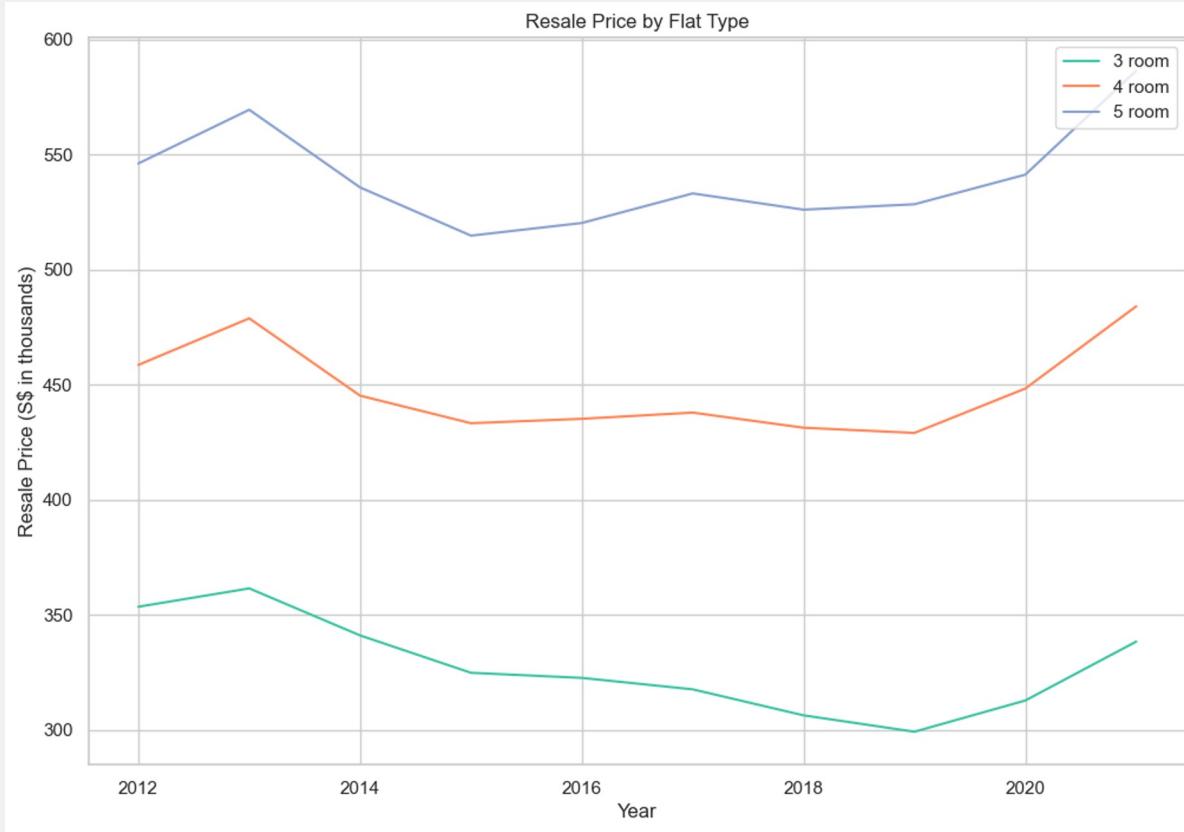
2018 Cooling Measures:

- ABSD increased by 5% for 2nd property onwards





Flat Type



- Price trend move in similar fashion



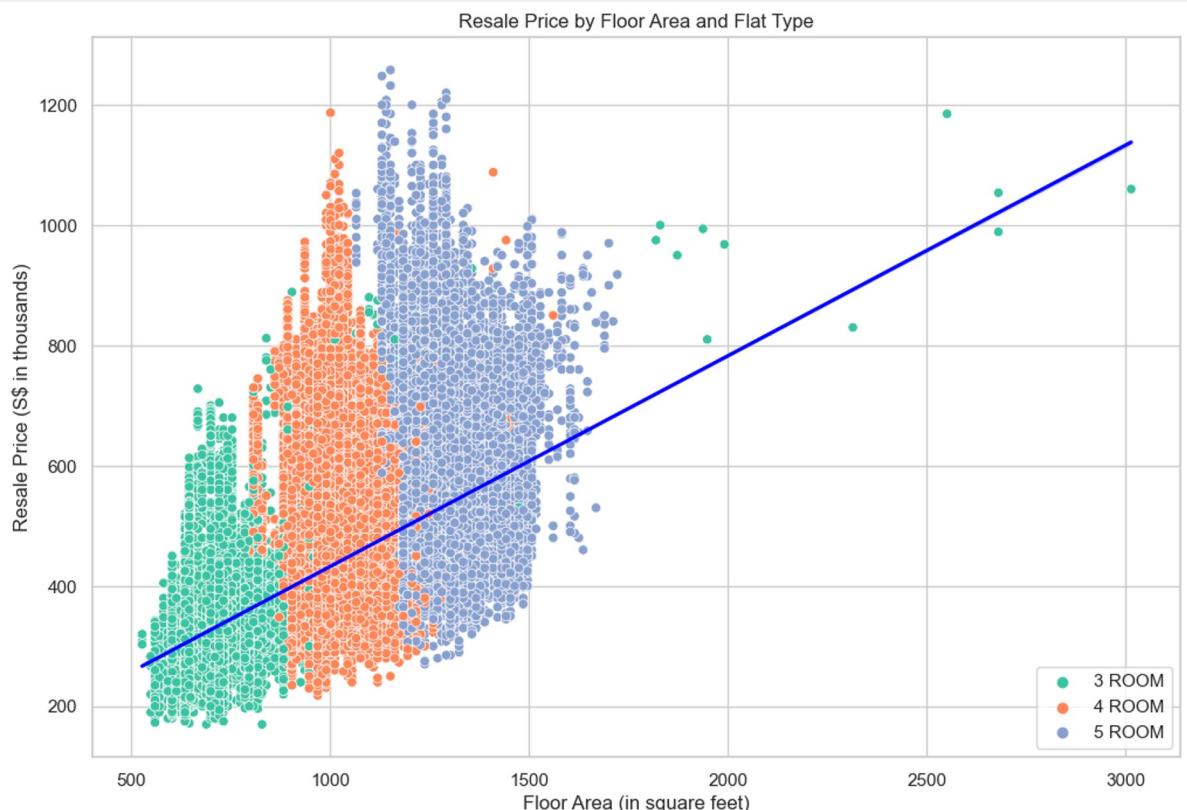
Floor Area



- Each dot represents a single transaction



Floor Area



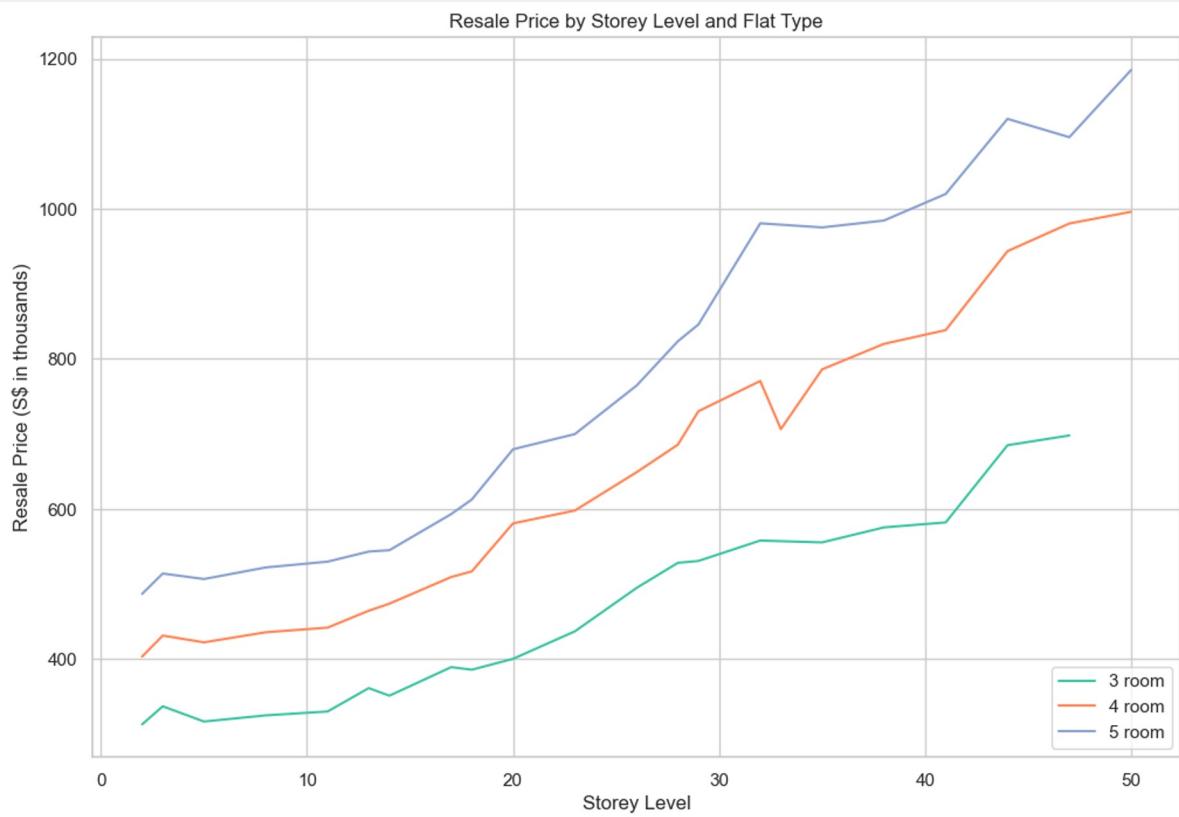
- Each dot represents a single transaction
- HDB terrace houses; under 300 units available





Storey Level

Resale Price by Storey Level and Flat Type



Clementi Towers, 40 storeys

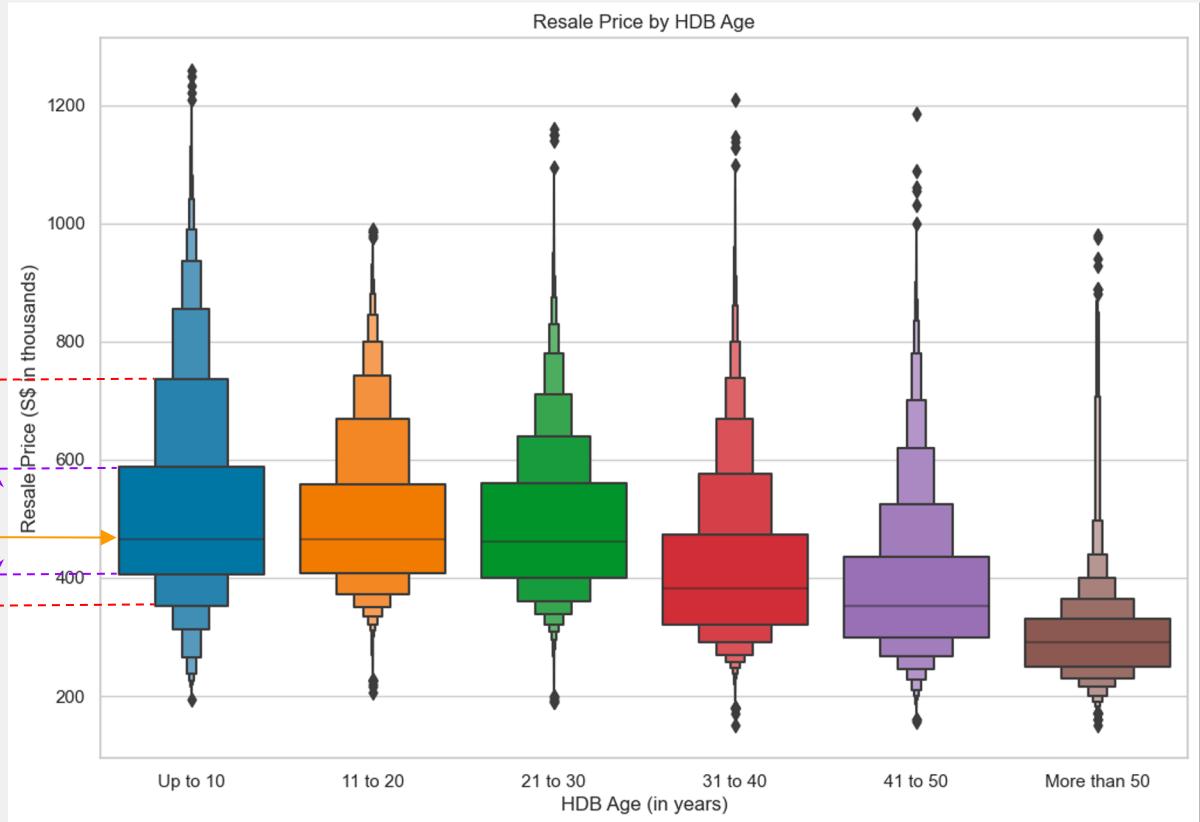


Marsiling Greenview, 32 storeys





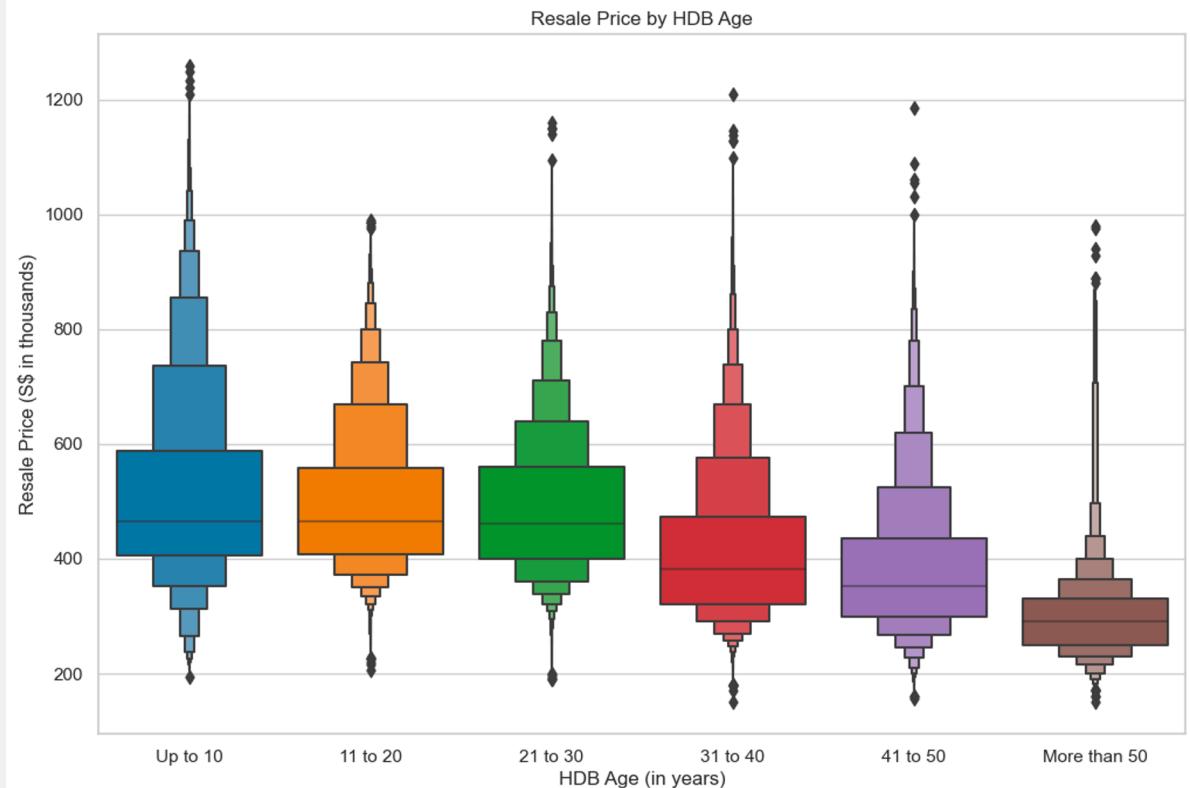
HDB Age





HDB Age

- HDB lease: 99 years
- Minimum Occupancy
Period: 5 years
- Median price has a
general downward
trend





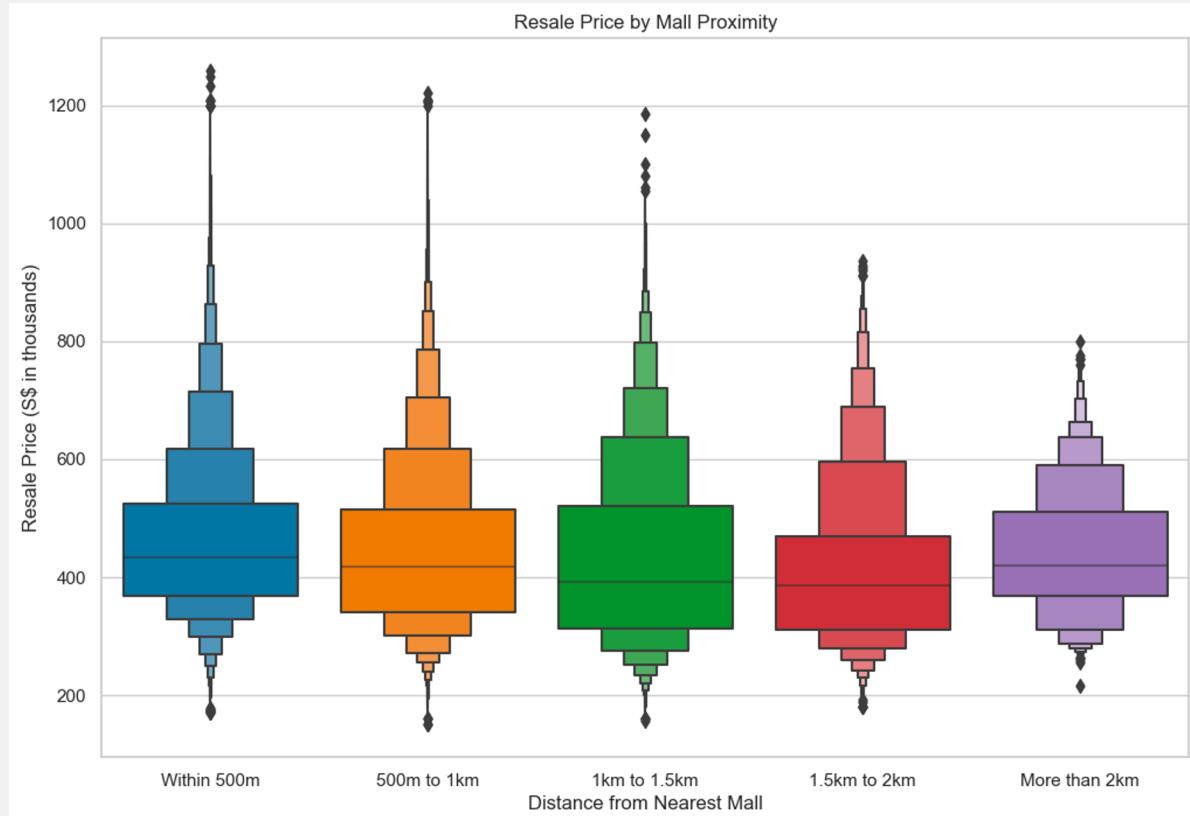
Mall Proximity



Gek Poh Shopping Centre



Tampines Mall





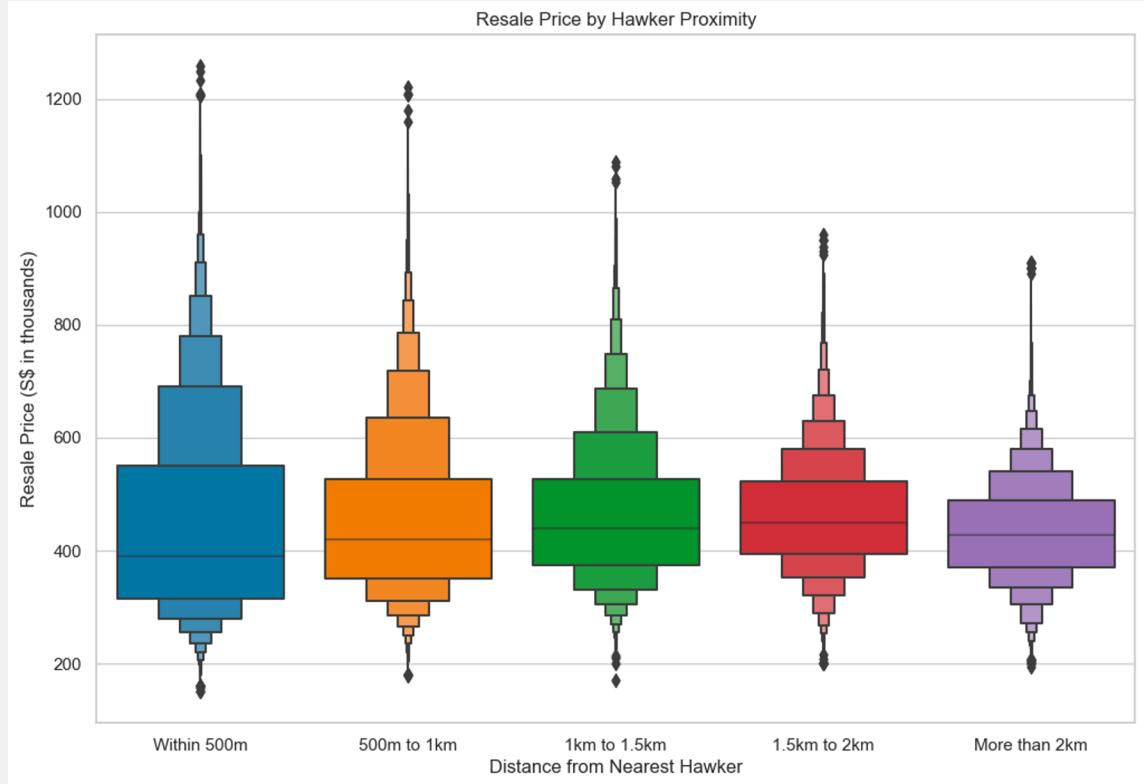
Hawker Proximity



Senja Hawker Centre



Amoy Street Food Centre





MRT Proximity



Best News Website or Mobile Service • Digital Media Awards Worldwide 2022

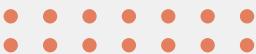
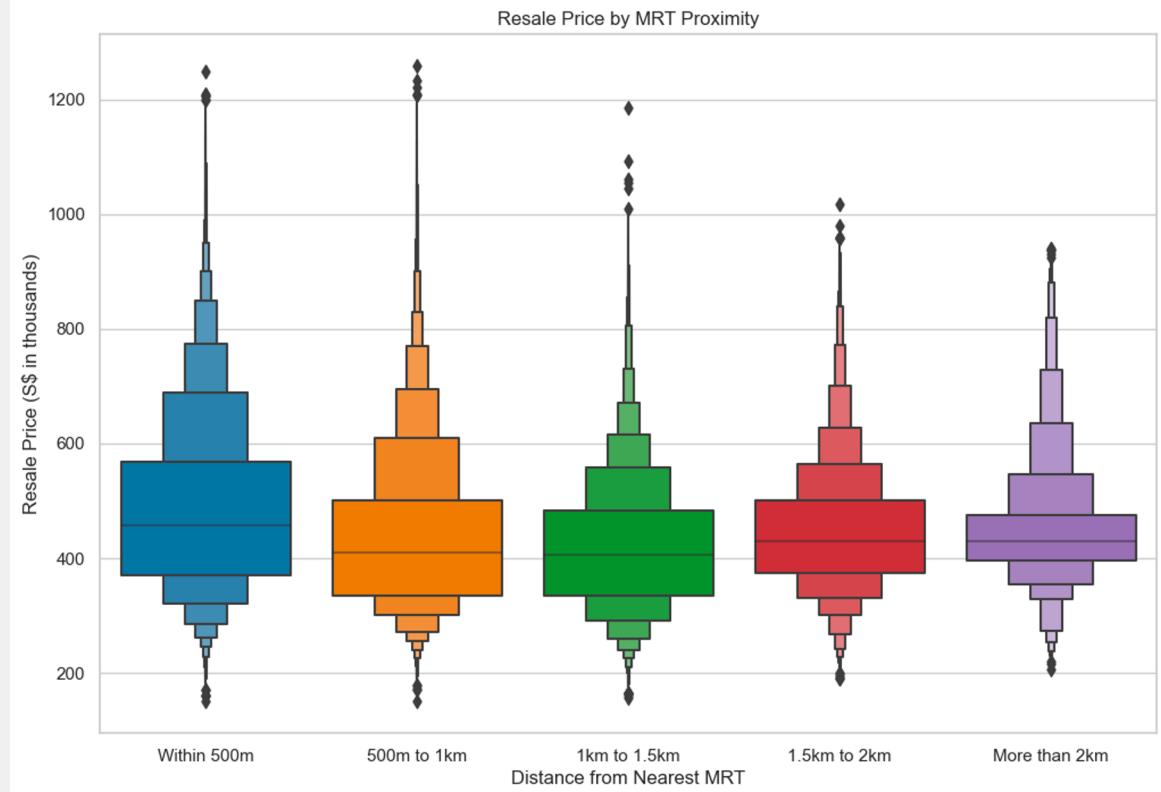
Top Stories Latest News Discover Singapore A

Singapore

Singapore's MRT network: How has it evolved and what will it look like by 2030?

Singapore's MRT network will have eight rail lines when Phase 1 of the Cross Island Line opens in 2030.

Once fully operational, about eight in 10 households are expected to be within a 10-minute walk of a train station, Transport Minister S Iswaran said.





Primary School Proximity



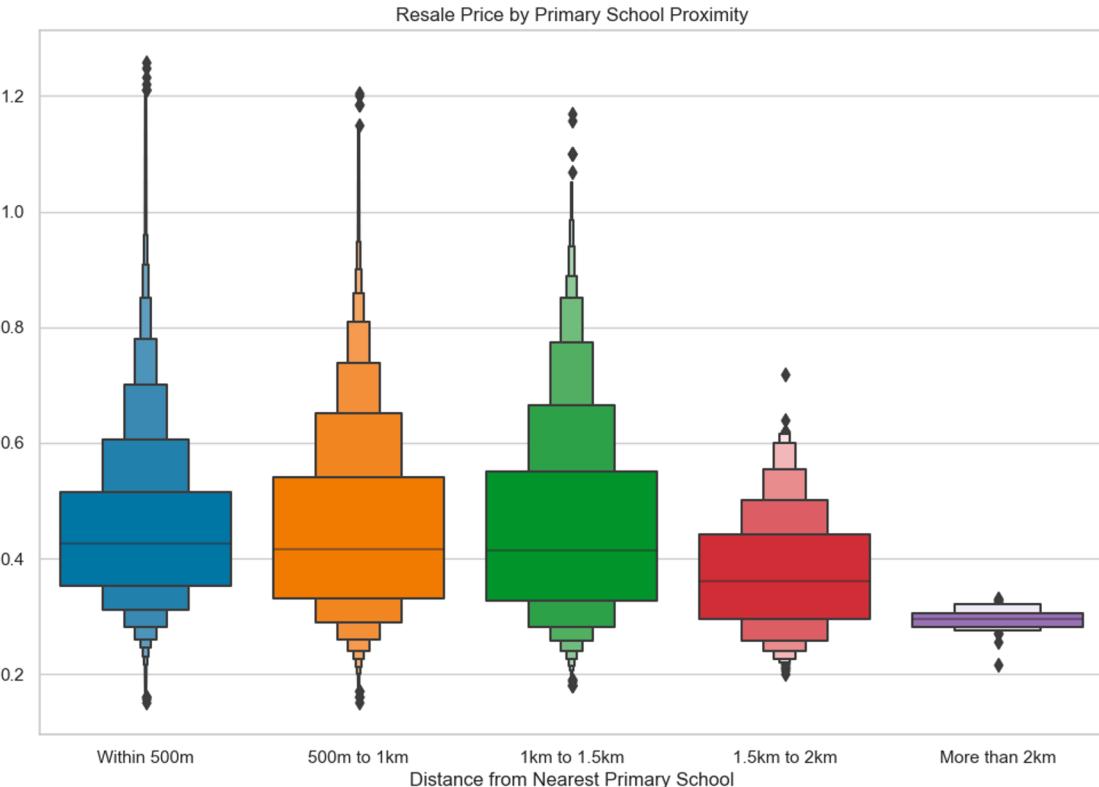
◀ PRIMARY 1 (P1) REGISTRATION

How distance affects priority admission

Priority admission is given in this order:

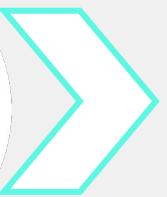
Priority Citizens who live school with how it works

1. Singapore Citizens (SC) living within 1km of the school.
2. SCs living between 1km and 2km of the school.
3. SCs living outside 2km of the school.
4. Permanent Residents (PR) living within 1km of the school.
5. PRs living between 1km and 2km of the school.
6. PRs living outside 2km of the school.





Data in Action



Data Processing

Data Cleaning,
Transform, Feature
Engineering

Data Modeling

Training, Tuning

PriceLah

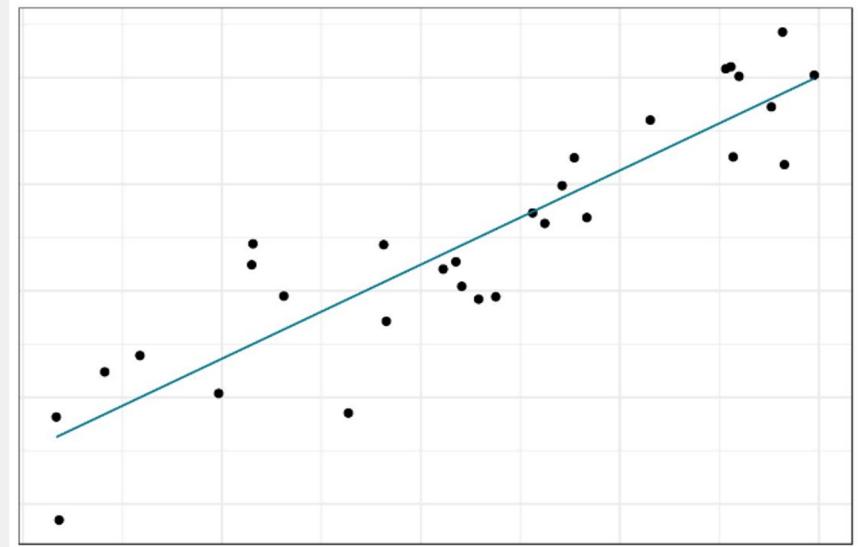
Data-driven price
estimator





Linear Regression

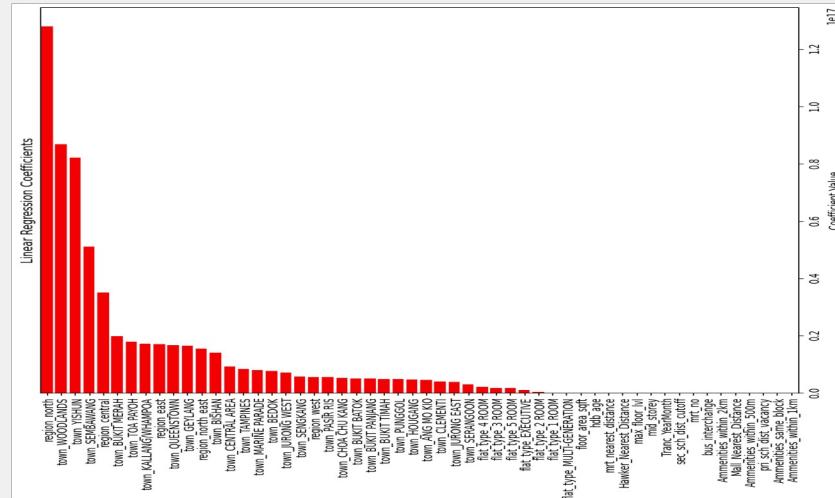
$$y = \beta_0 + \beta_1 x_1$$





Features

1. Region
2. Building Specifics
3. Flat Type
4. Floor Area Sqft
5. HDB Age
6. Mid Storey
7. Max Floor Level
8. Amenities
9. Transaction Date
10. Public Transport
11. School



$$y = \beta_0 + \beta_1 x_1$$

OVERFITTING?





Don't Worry

-
1. Ridge Regression
 - a. Sum of Square of Weights

 1. Lasso Regression
 - a. Absolute Value of Weights





Behind the Scenes

Split and Scale

Train and Test

Evaluate

1. 5 folds Cross Validation
2. Standard Scaler

1. Train and test on each fold
2. Iterative process
3. Average of accuracies

1. RMSE
 - a. Lower
2. R²
3. Higher





Scores

	Linear Regression	Ridge Regression	Lasso Regression
RMSE	52497.81	52499.17	52505.08
R ²	0.86534	0.86531	0.86527
Processing time	1.7s	12.1s	58.5s

*R²: HIGHER is better

*RMSE: LOWER is better





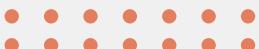
Data in Action



Data Processing
Data Cleaning,
Transform, Feature
Engineering

Data Modeling
Training, Tuning

PriceLah
Data-driven price
estimator



Today's price, Tomorrow's home

 PriceLah 

Deploy 

Town

Street Name

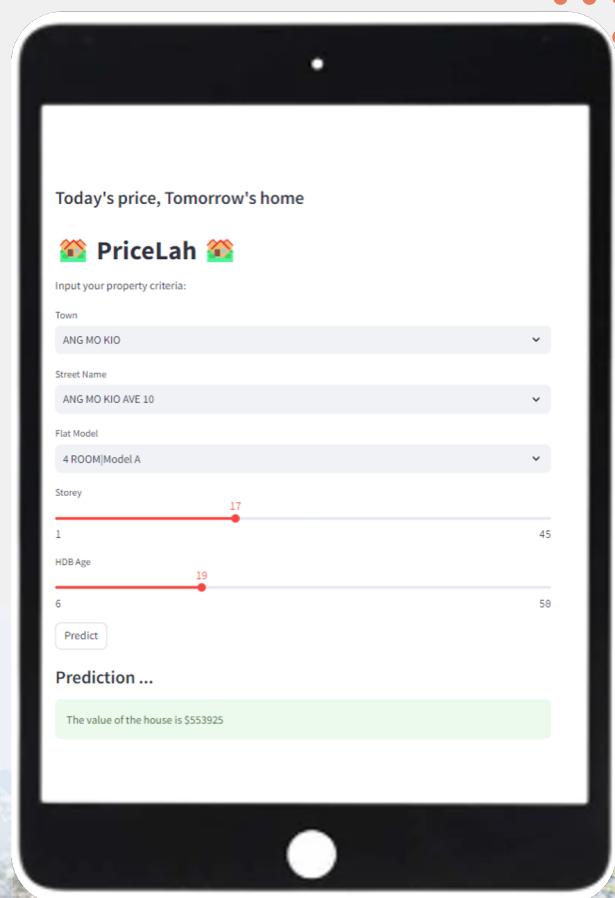
Flat Model

Storey

HDB Age

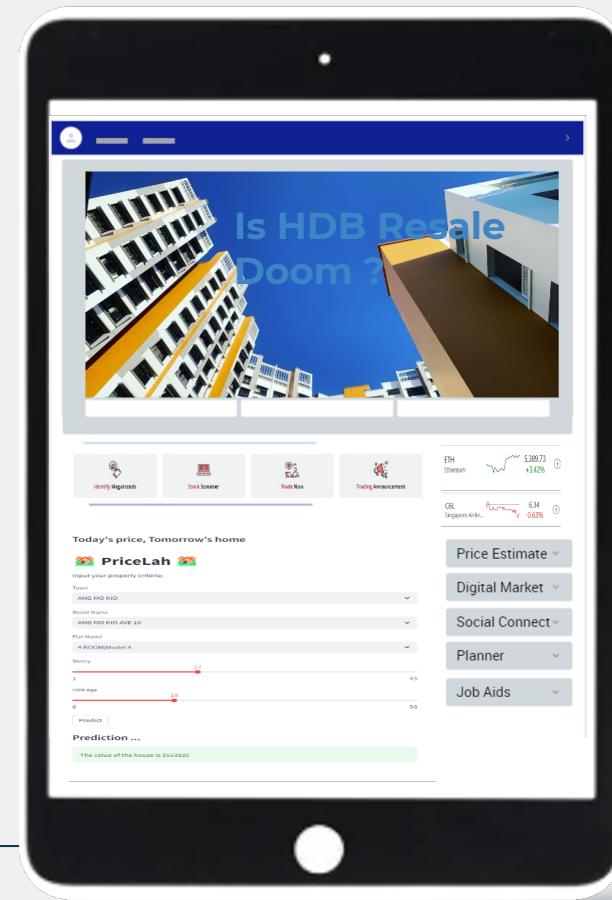
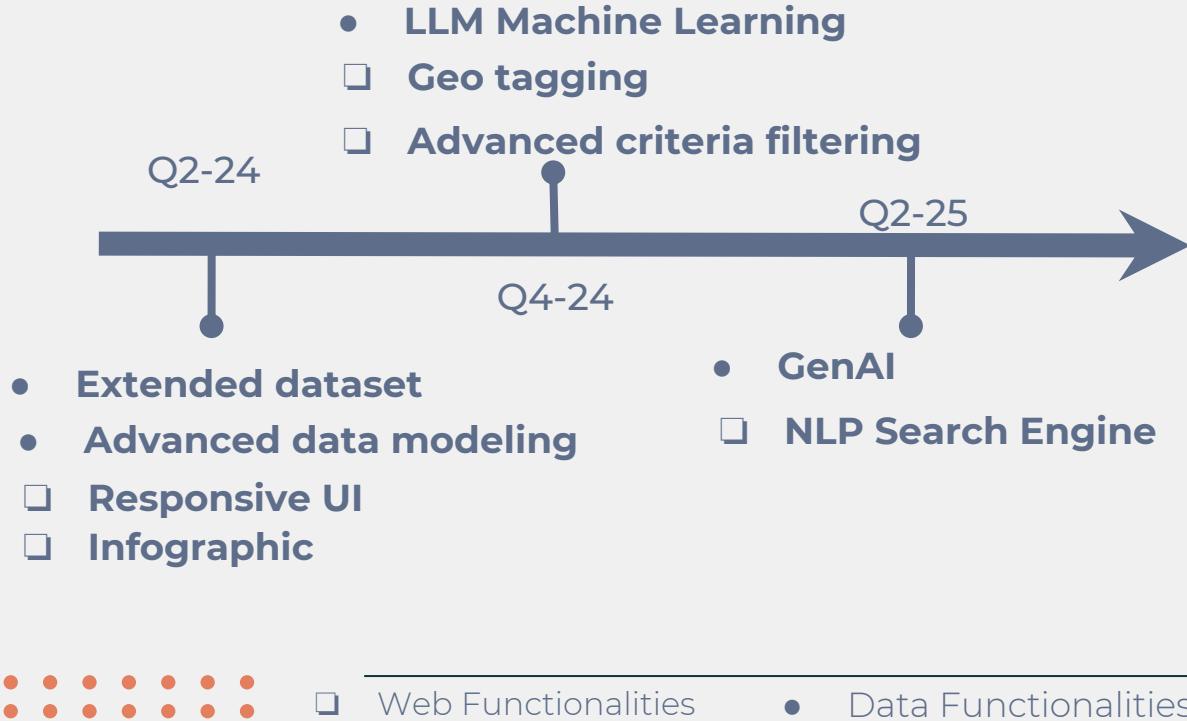
Prediction ...

The value of the house is \$327434



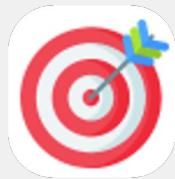


PriceLah 2.0 Roadmap



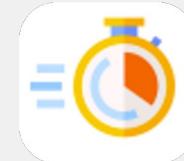


Summary/ Key Takeaways

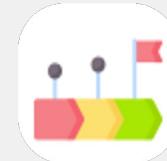


- Achieved **87% score*** in the linear regression model with the feature set

- Identified key correlations with HDB resale price, with top coefficients from **Floor Area**, **HDB Age** and **MRT Nearest Distance**



- Empowered agents to confidently benchmark HDB house prices
- To explore advanced data modelling and machine learning techniques



★ *R² score - 87% of the variability in house price is accounted for by the model*

THANK YOU

Ready to PriceLah !



+65 9042 4242



sales@pricelah.com.sg



twitter.com/pricelah



linkedin.com/pricelah

