The Right Move

“What makes for a profitable property”

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Advisor: Professor Douglas Rolph

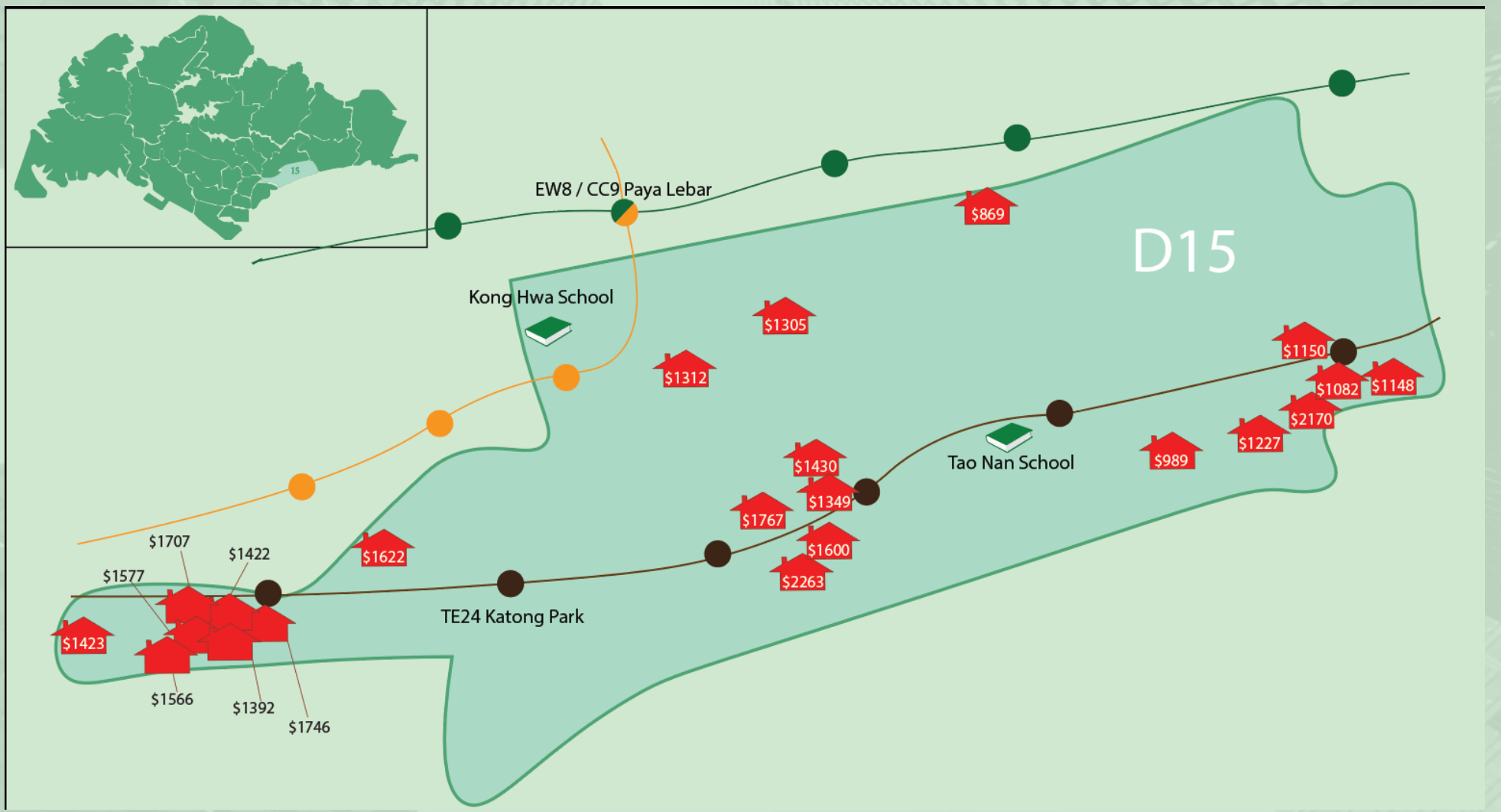
Recap

What is our project about?

What did we do for Mid-term presentation?

Client

- Real estate consultancy
  - Data driven decisions
  - 13 years of combined experience
  - $200M worth of properties sold
- Forecasting prices
  - Which condo should I buy, condo A or condo B?
  - How much will this property cost in 3 /5/10 years time?


EW8 / CC9 Paya Lebar
D15
Kong Hwa School
Tao Nan School
TE24 Katong Park
$869
$1305
$1312
$1150
$1082
$1148
$2170
$1227
$989
$1430
$1349
$1767
$1600
$2263
$1622
$1707
$1422
$1577
$1423
$1566
$1392
$1746

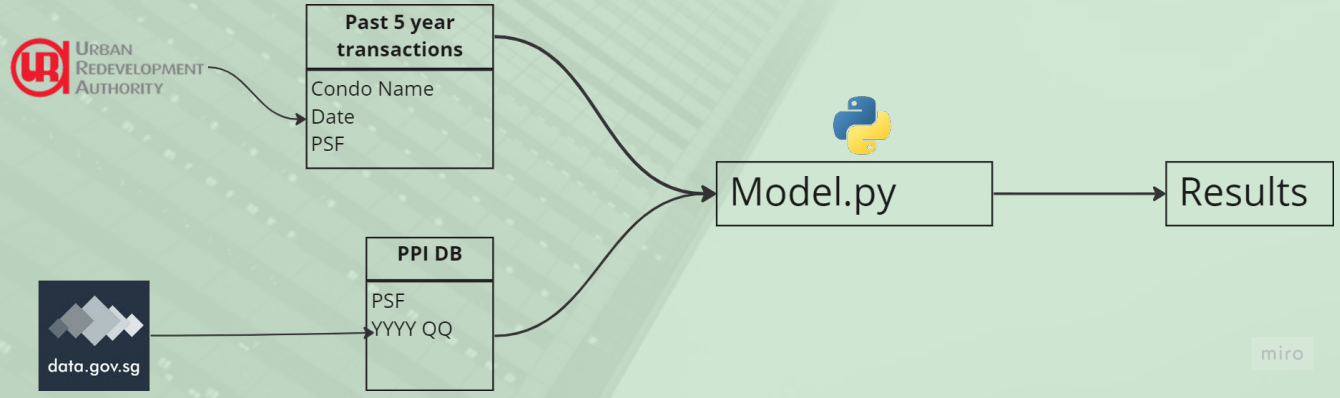
District 15

Mid-terms:

URA data

- Past 5 years resale transactions

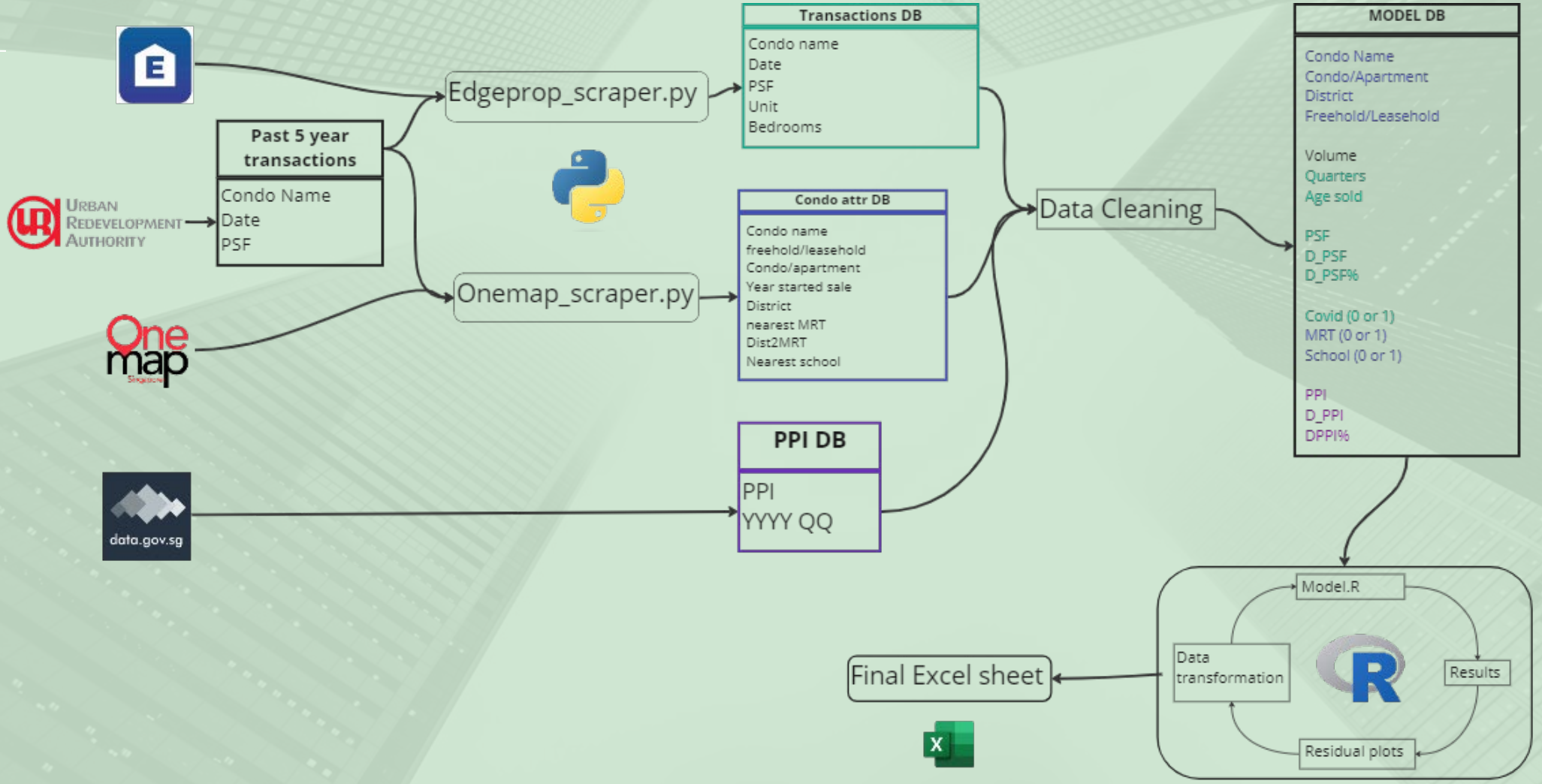
delta PSF vs delta PPI

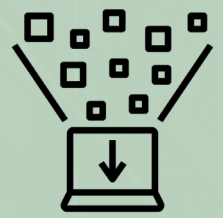


Post Mid-terms:

- Web scrape
- Identify more variables
  - MRT
  - Schools
  - Covid
  - Number of bedrooms
  - Floor

Pipeline


Past 5 year transactions
Condo Name
Date
PSF
URBAN REDEVELOPMENT AUTHORITY
Edgeprop_scraper.py
Onemap_scraper.py
Transactions DB
Condo name
Date
PSF
Unit
Bedrooms
Condo attr DB
Condo name
freehold/leasehold
Condo/apartment
Year started sale
District
nearest MRT
Dist2MRT
Nearest school
PPI DB
PPI
YYYY QQ
data.gov.sg
Data Cleaning
MODEL DB
Condo Name
Condo/Apartment
District
Freehold/Leasehold
Volume
Quarters
Age sold
PSF
D_PSF
D_PSF%
Covid (0 or 1)
MRT (0 or 1)
School (0 or 1)
PPI
D_PPI
DPPI%
Model.R
Data transformation
Results
Residual plots
Final Excel sheet

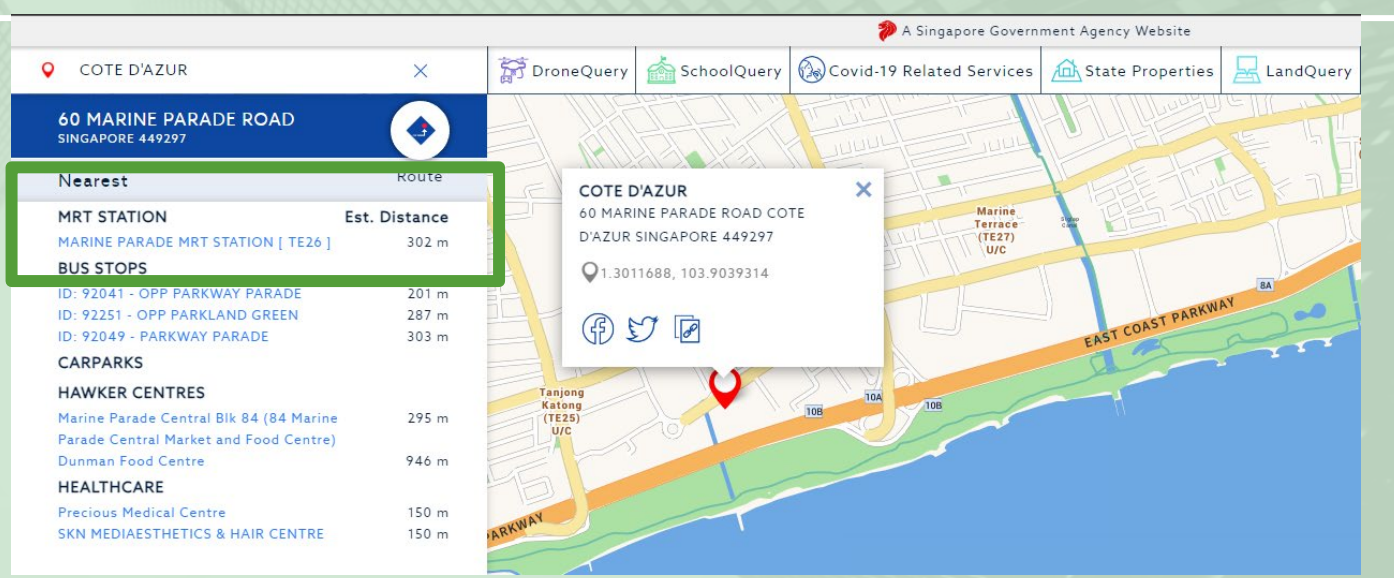


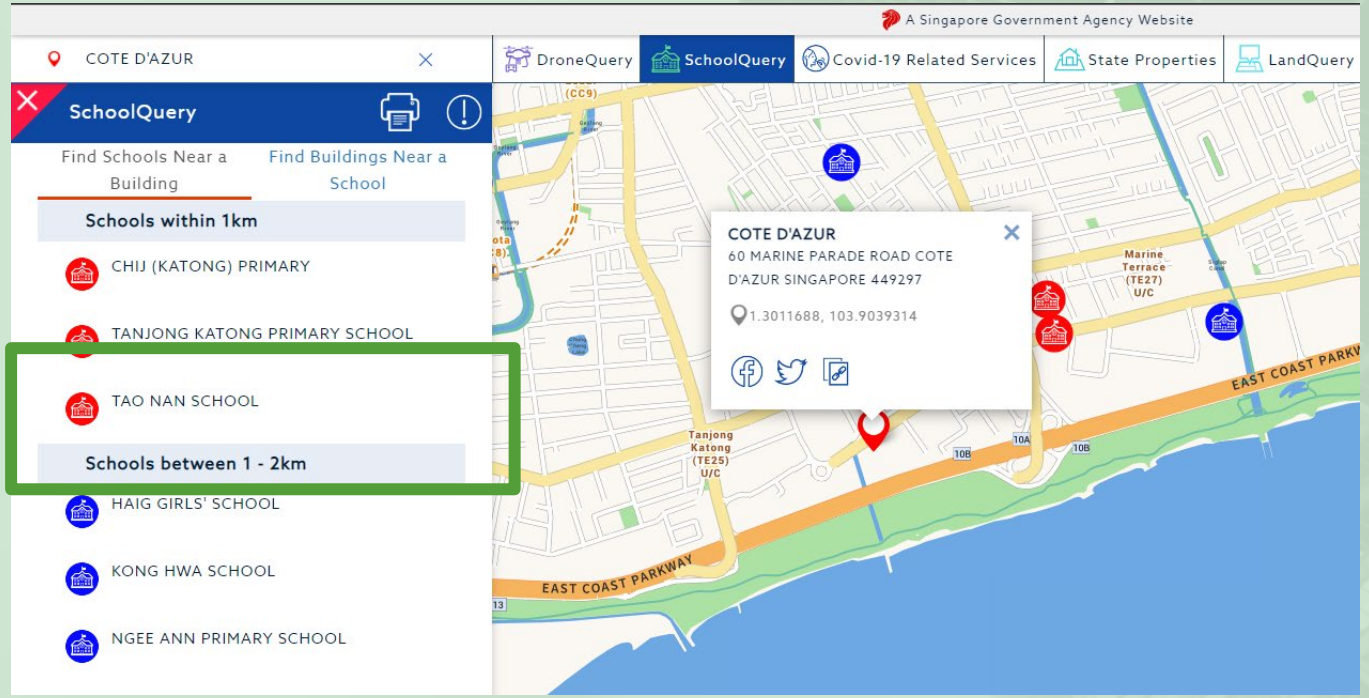
Data Collection

Web scrape results

Condo name	URA data (past 5 years)	Edgeprop data (> 5 year)
Costa Rhu	142	142
Mandarin Gardens	111	111
Sanctuary Green	107	107
Cote D'Azur	103	101
The Shore Residences	102	156
Villa Marina	96	96
Water Place	92	92
Pebble Bay	90	91
Silversea	87	131
Dunman View	42	191
Riveredge	42	134
Tanjong Ria Condominium	33	224
Casurina Cove	24	157
Legenda at Joo Chiat	24	127
Camelot By The Water	17	124
Katong Park Towers	1	207
Neptune Court		649
Laguna Park		417
Lagoon View		311
East Bay Gardens		56
Roxy Square		25
Seaside Residences		11
Seaside Park		9
The Red House		7

Property Attributes





Data Cleaning

Enbloc properties

Condo name	Edgeprop data (> 5 year)	1st transaction	Latest transaction
Costa Rhu	142	08/03/2018	10/02/2023
Mandarin Gardens	111	23/03/2018	03/03/2023
Sanctuary Green	107	06/04/2018	15/12/2022
Cote D'Azur	101	28/03/2018	08/03/2023
The Shore Residences	156	26/09/2014	11/01/2023
Villa Marina	96	29/03/2018	22/02/2023
Water Place	92	21/03/2018	31/01/2023
Pebble Bay	91	28/03/2018	24/02/2023
Silversea	131	23/07/2015	24/02/2023
Dunman View	191	21/03/2006	28/02/2023
Riveredge	134	03/03/2009	08/12/2023
Tanjong Ria Condominium	224	01/04/1999	30/01/2023
Casurina Cove	157	03/10/1998	01/03/2023
Legenda at Joo Chiat	127	30/07/2005	18/01/2023
Camelot By The Water	124	12/07/2002	09/09/2022
Katong Park Towers	207	01/04/1995	31/08/2017
Neptune Court	649	26/12/1995	16/02/2023
Laguna Park	417	26/12/1995	08/03/2023
Lagoon View	311	28/11/1995	303/03/2023
East Bay Gardens	56	04/06/2008	28/07/2022
Roxy Square	25	23/05/1996	30/06/2021
Seaside Residences	11	29/04/2021	15/12/2022
Seaside Park	9	10/05/2007	21/09/2018
The Red House	7	29/11/2019	31/08/2022

Group by Quarters

- Drop unit dependent variables: bedroom and floor height

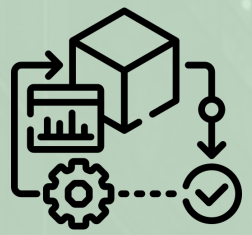
Condo Name	Number of Quarters
Neptune Court	106
Lagoon View	100
Laguna Park	95
Tanjong Ria Condominium	75
Katong Park Towers	69
Casurina Cove	65
Legenda at Joo Chiat	56
Dunman View	54
Camelot By The Water	49
Riveredge	47
The Shore Residences	33
East Bay Gardens	29
Silversea	29
Roxy Square	21
Costa Rhu	20
Cote D'Azur	19
Mandarin Gardens	19
Pebble Bay	19
Villa Marina	18
Water Place	18
Sanctuary Green	17
Seaside Park	7
The Red House	4
Seaside Residences	3

Data cleaning

- Dealing with categorical variables
  - MRT
    - 350m (5 min walking distance)
    - TEL (Aug 2014)
  - Schools (Within 1km)
  - Covid (2020-2022)
- Split test-train

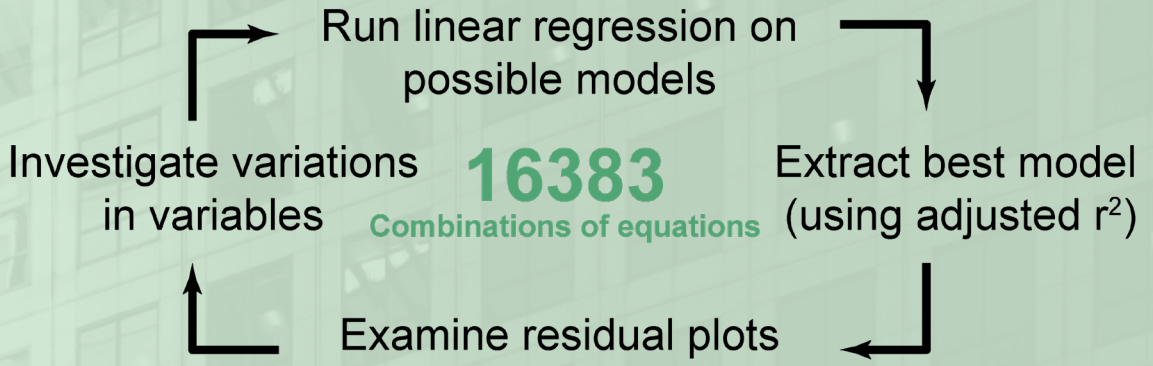
T_index	Project Name	YYYYQQ	Vol	**DPSF_percent**	Age_Q	Covid	MRT	Schools	DPPI_percent	Test_Train
6	CAMELOT BY-THE-WATER	2005Q4	2	**-0.1582**	46	0	0	0	0.01564	Train
106	CASUARINA COVE	2020Q1	2	**-0.0711**	113	1	1	0	-0.01003	Test
136	COTE D'AZUR	2018Q2	8	**-0.1391**	75	0	1	1	0.03178	Train
222	EAST BAY GARDENS	2014Q3	2	**0.0308**	86	0	1	0	-0.00415	Train
390	LAGOON VIEW	2018Q4	3	**-0.1954**	173	0	1	0	0.00479	Test

Final database fed to the model



Modelling

Regression to find out **growth rate** of property prices



Unit Roots Problem

Absolute values

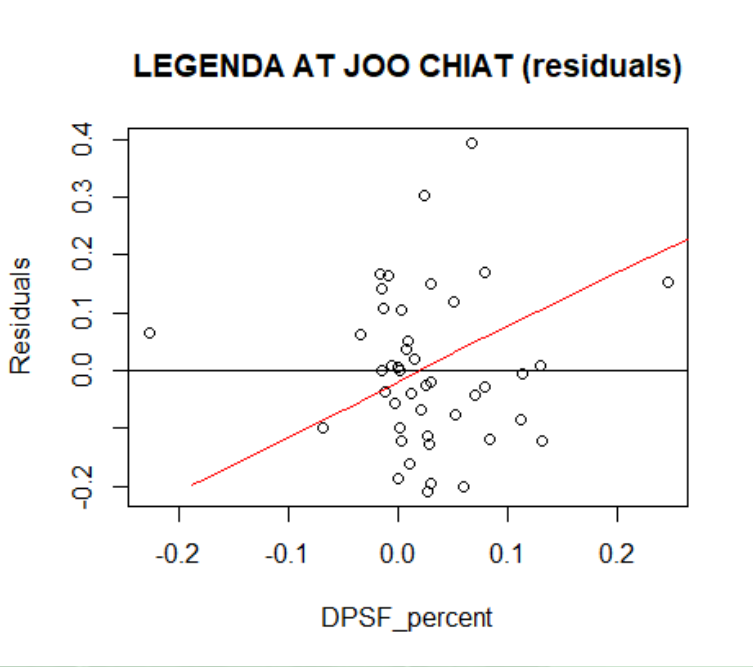
- Adjusted r^2 values will **tend towards 1** even though models have **bad predictive ability**

Original Variables	Transformation
PSF	$\Delta\text{PSF}(\%) = \frac{\text{PSF}_t - \text{PSF}_{t-1}}{\text{PSF}_{t-1}}$
PPI	$\Delta\text{PPI}(\%) = \frac{\text{PPI}_t - \text{PPI}_{t-1}}{\text{PPI}_{t-1}}$
Vol	$\ln(Vol)$
Age_Q	$\ln(Age\_Q)$

Do not chase higher adjusted r^2s (without good reason)!!!

Check Residuals

- Residuals not randomly spread
- Notice straight line trend in residuals plot



$$\Delta PSF(\%) = \alpha + \beta_1 \Delta PPI(\%) + \ldots + \varepsilon$$

Investigate variation in variables

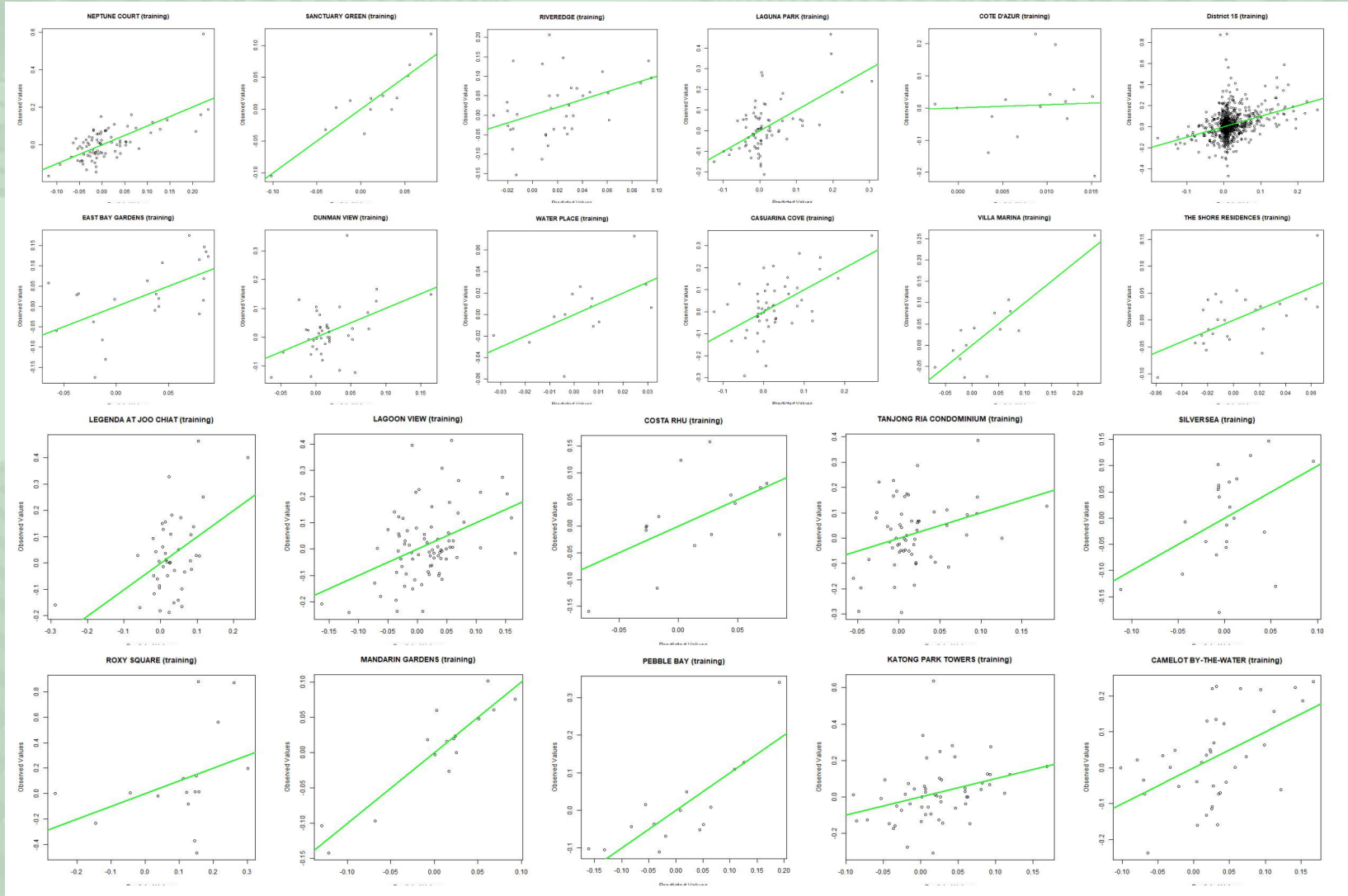
- Non-linear variations
  - $\Delta PPI(\%)^2, ln(Vol), ln(Age\_Q)$
- Interaction terms
  - $\Delta PPI(\%) * ln(Vol)$
  - $\Delta PPI(\%) * ln(Age\_Q)$
  - $\Delta PPI(\%) * Schools$
  - $\Delta PPI(\%) * Covid$
  - $\Delta PPI(\%) * MRT$
  - $ln(Vol) * ln(Age\_Q)$
  - $ln(Vol) * MRT$
  - $ln(Age\_Q) * MRT$

Model Selection

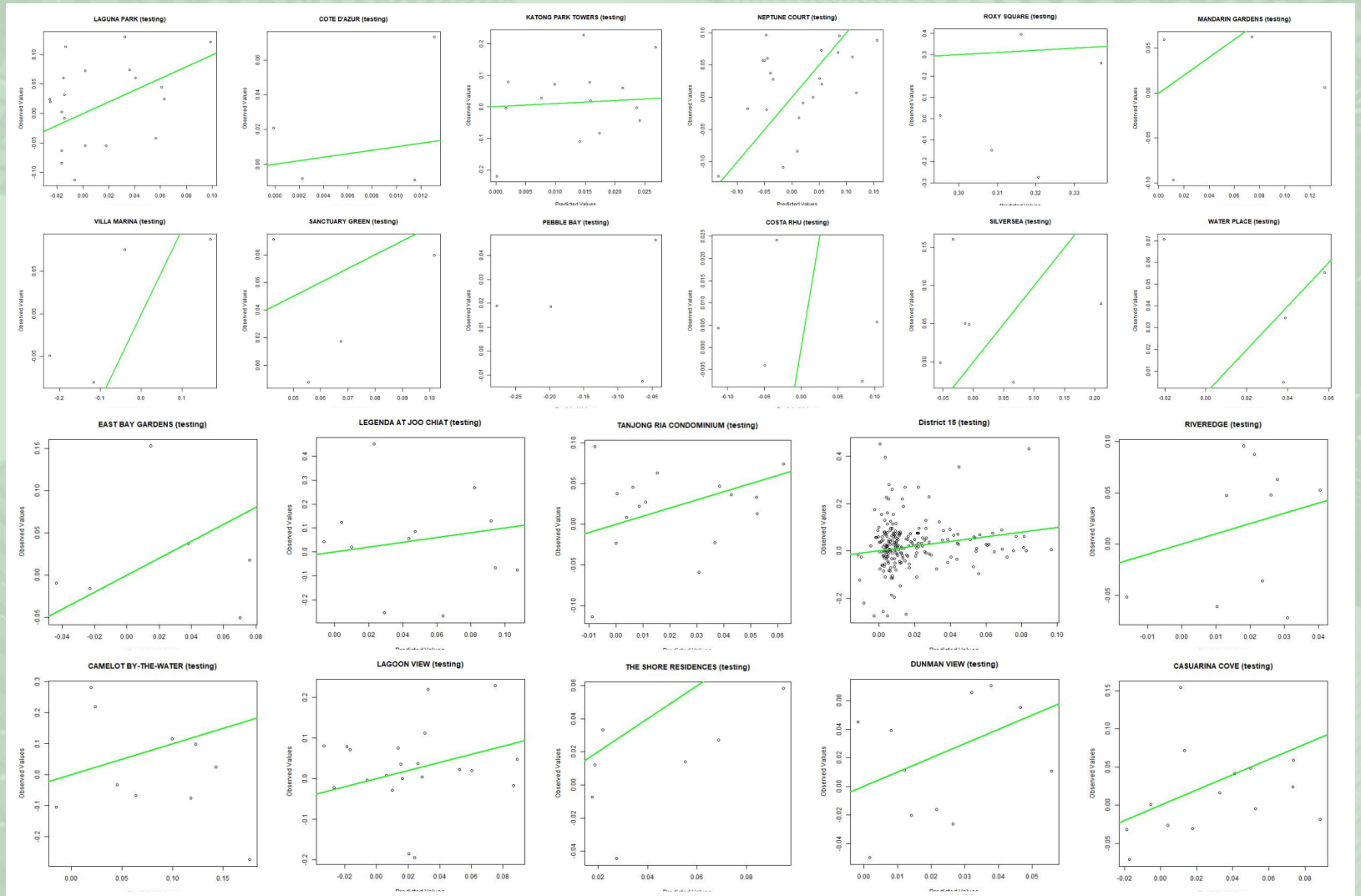
- Since variables properly identified, unit roots problem avoided:
  - Loop through 16383 combinations of equation (Must include ΔPPI(%))
- Extract best adjusted r^2 model for each condo

Project Name	Adjusted R^2 (simple linear regression)	Adjusted R^2 (final)
CAMELOT BY-THE-WATER	0.106503	0.146
CASUARINA COVE	0.299067	0.299067
COSTA RHU	-0.02069	0.116697
COTE D'AZUR	-0.07438	-0.07438
DUNMAN VIEW	0.170694	0.170694
EAST BAY GARDENS	-0.04762	0.234514
KATONG PARK TOWERS	0.093518	0.093518
LAGOON VIEW	0.111507	0.149911
LAGUNA PARK	0.260551	0.297036
LEGENDA AT JOO CHIAT	0.185077	0.194734
MANDARIN GARDENS	0.181225	0.697347
NEPTUNE COURT	0.286786	0.425416
PEBBLE BAY	-0.03195	0.22846
RIVEREDGE	0.024785	0.118896
ROXY SQUARE	0.008117	0.013567
SANCTUARY GREEN	-0.08139	0.652081
SILVERSEA	-0.03069	0.071824
TANJONG RIA CONDOMINIUM	0.088759	0.088759
THE SHORE RESIDENCES	0.06199	0.214428
VILLA MARINA	0.069411	0.307519
WATER PLACE	-0.06842	0.051857
District 15	0.103376	0.114566

Big improvement!



Observed vs Predicted (training)



Observed vs Predicted (testing)

Project Name	(Intercept)	ΔPPI(%)	ln(Age_Q)	MRT	ΔPPI(%)*ln(Age_Q)	ΔPPI(%)*MRT	ln(Vol)	ΔPPI(%)*ln(Vol)	Covid	ΔPPI(%)*Covid	ln(Vol)*ln(Age_Q)
CAMELOT BY-THE-WATER	-0.41	38.93	0.10	-0.05	-9.34	7.78	0	0	0	0	0
CASUARINA COVE	0.00	1.67	0	0	0	0	0	0	0	0	0
COSTA RHU	-0.08	1.64	0	0	0	0	0.08	-2.35	0	0	0
COTE D'AZUR	0.01	-0.28	0	0	0	0	0	0	0	0	0
DUNMAN VIEW	0.00	1.03	0	0	0	0	0	0	0	0	0
EAST BAY GARDENS	-0.04	2.11	0	0	0	0	0.11	-2.10	0	0	0
KATONG PARK TOWERS	0.01	0.99	0	0	0	0	0	0	0	0	0
LAGOON VIEW	-0.02	0.91	0	0	0	0	0.04	0	0	0	0
LAGUNA PARK	0.11	-8.78	-0.02	0	1.92	0	-0.01	0.79	0	0	0
LEGENDA AT JOO CHIAT	0.03	1.79	0	0	0	0	-0.04	0	0	0	0
MANDARIN GARDENS	-18.16	0.23	3.58	0	0	0	6.93	5.50	0.03	-10.83	-1.37
NEPTUNE COURT	0.93	-0.53	-0.21	0	0	0	-0.58	0.86	0	0	0.13
PEBBLE BAY	31.84	592.49	-6.73	0	-130.46	0	-18.29	7.74	-0.02	19.20	3.85
RIVEREDGE	-0.02	0.28	0	0	0	0	0.04	0	0	0	0
ROXY SQUARE	-0.56	-1.69	0.19	0	0	0	0	0	0	0	0
SANCTUARY GREEN	-12.71	-0.80	2.76	0	0	0	3.94	0	-0.15	0	-0.84
SILVERSEA	-0.01	-9.44	0	0	0	0	0.00	6.02	0	0	0
TANJONG RIA CONDOMINIUM	0.00	1.11	0	0	0	0	0	0	0	0	0
THE SHORE RESIDENCES	-0.12	-70.84	0.03	0	19.47	0	0	0	0.03	-7.21	0
VILLA MARINA	-10.08	454.99	2.19	0	-98.87	0	11.45	3.81	0.06	10.91	-2.47
WATER PLACE	-1.40	-3.26	0.33	0	0	0	-0.06	2.74	0	0	0
District 15	0.02	-0.86	0.00	0.00	0.34	-0.90	0.00	0.34	0	0	0

Final Model (Coeff): not useful for interpretation!

Project Name	(Intercept)	ΔPPI(%)	ln(Age_Q)	MRT	ΔPPI(%)*ln(Age_Q)	ΔPPI(%)*MRT	ln(Vol)	ΔPPI(%)*ln(Vol)	Covid	ΔPPI(%)*Covid	ln(Vol)*ln(Age_Q)
CAMELOT BY-THE-WATER	-0.41	38.93	0.10	-0.05	-9.34	7.78	0	0	0	0	0
CASUARINA COVE	0.00	1.67	0	0	0	0	0	0	0	0	0
COSTA RHU	-0.08	1.64	0	0	0	0	0.08	-2.35	0	0	0
COTE D'AZUR	0.01	-0.28	0	0	0	0	0	0	0	0	0
DUNMAN VIEW	0.00	1.03	0	0	0	0	0	0	0	0	0
EAST BAY GARDENS	-0.04	2.11	0	0	0	0	0.11	-2.10	0	0	0
KATONG PARK TOWERS	0.01	0.99	0	0	0	0	0	0	0	0	0
LAGOON VIEW	-0.02	0.91	0	0	0	0	0.04	0	0	0	0
LAGUNA PARK	0.11	-8.78	-0.02	0	1.92	0	-0.01	0.79	0	0	0
LEGENDA AT JOO CHIAT	0.03	1.79	0	0	0	0	-0.04	0	0	0	0
MANDARIN GARDENS	-18.16	0.23	3.58	0	0	0	6.93	5.50	0.03	-10.83	-1.37
NEPTUNE COURT	0.93	-0.53	-0.21	0	0	0	-0.58	0.86	0	0	0.13
PEBBLE BAY	31.84	592.49	-6.73	0	-130.46	0	-18.29	7.74	-0.02	19.20	3.85
RIVEREDGE	-0.02	0.28	0	0	0	0	0.04	0	0	0	0
ROXY SQUARE	-0.56	-1.69	0.19	0	0	0	0	0	0	0	0
SANCTUARY GREEN	-12.71	-0.80	2.76	0	0	0	3.94	0	-0.15	0	-0.84
SILVERSEA	-0.01	-9.44	0	0	0	0	0.00	6.02	0	0	0
TANJONG RIA CONDOMINIUM	0.00	1.11	0	0	0	0	0	0	0	0	0
THE SHORE RESIDENCES	-0.12	-70.84	0.03	0	19.47	0	0	0	0.03	-7.21	0
VILLA MARINA	-10.08	454.99	2.19	0	-98.87	0	11.45	3.81	0.06	10.91	-2.47
WATER PLACE	-1.40	-3.26	0.33	0	0	0	-0.06	2.74	0	0	0
District 15	0.02	-0.86	0.00	0.00	0.34	-0.90	0.00	0.34	0	0	0

Final Model (Coeff): not useful for interpretation!

Project Name	(Intercept)	ΔPPI(%)	ln(Age_Q)	MRT	ΔPPI(%)*ln(Age_Q)	ΔPPI(%)*MRT	ln(Vol)	ΔPPI(%)*ln(Vol)	Covid	ΔPPI(%)*Covid	ln(Vol)*ln(Age_Q)
CAMELOT BY-THE-WATER	-5.20	10.06	6.20	-0.60	-11.47	2.01	0	0	0	0	0
CASUARINA COVE	0	1.02	0	0	0	0	0	0	0	0	0
COSTA RHU	-2.96	0.88	0	0	0	0	5.53	-2.46	0	0	0
COTE D'AZUR	1.55	-0.55	0	0	0	0	0	0	0	0	0
DUNMAN VIEW	0	0.95	0	0	0	0	0	0	0	0	0
EAST BAY GARDENS	-0.70	0.90	0	0	0	0	1.39	-0.59	0	0	0
KATONG PARK TOWERS	0.50	0	0	0	0	0	0	0	0	0	0
LAGOON VIEW	-0.85	0	0	0	0	0	1.60	0	0	0	0
LAGUNA PARK	-35.37	13.77	37.20	0	-15.88	0	3.10	-1.83	0	0	0
LEGENDA AT JOO CHIAT	1.25	1.27	0	0	0	0	-1.51	0	0	0	0
MANDARIN GARDENS	-84.27	0	85.52	0	0	0	55.58	0.70	0	0	-56.55
NEPTUNE COURT	49.39	0	-57.50	0	0	0	-55.14	0.58	0	0	63.87
PEBBLE BAY	-59.69	-16.82	60.88	0	17.88	0	52.17	0	0	0	-53.09
RIVEREDGE	-0.60	0	0	0	0	0	1.51	0	0	0	0
ROXY SQUARE	-1.74	0	2.81	0	0	0	0	0	0	0	0
SANCTUARY GREEN	-49.38	0	50.68	0	0	0	26.82	0	0	0	-27.07
SILVERSEA	0.75	9.29	0	0	0	0	0	-8.89	0	0	0
TANJONG RIA CONDOMINIUM	0	0.83	0	0	0	0	0	0	0	0	0
THE SHORE RESIDENCES	-2.02	-8.41	1.86	0	9.57	0	0	0	0	0	0
VILLA MARINA	21.89	-16.01	-22.80	0	16.68	0	-40.28	0	0	0	41.74
WATER PLACE	-29.64	-1.06	32.25	0	0	0	-1.95	1.41	0	0	0
District 15	1.92	-0.72	-1.89	0	1.37	-0.75	0	0	0	0	0

Economic Significance:

How many units each variable contribute to a **1 unit** increase in ΔPSF(%)?

Prediction

- Unknown future x variables
  - Law of expectations
    - $\mathrm{E}(\Delta PSF(\%)) = \alpha + \mathrm{B}_1\mathrm{E}(\Delta PPI(\%)) + \ldots + \varepsilon$
    - Exception: Age_Q
- Future prices
  - $PSF_t = PSF_{t-1} * (1 + \Delta PSF_{t-1}(\%))$
    - $CI = PSF_{t-1} * (1 + \Delta PSF(\%)_{t-1} \pm 1.96 * \sigma_e)$
- Metrics
  - "Profits": $\frac{PSF_t - PSF_{latest}}{PSF_{latest}}$
  - "Risk": $Width\ of\ CI * \frac{RMSE}{\text{No. of quarters with records}}$
  - "Property Score": $\frac{Profits}{Risk}$

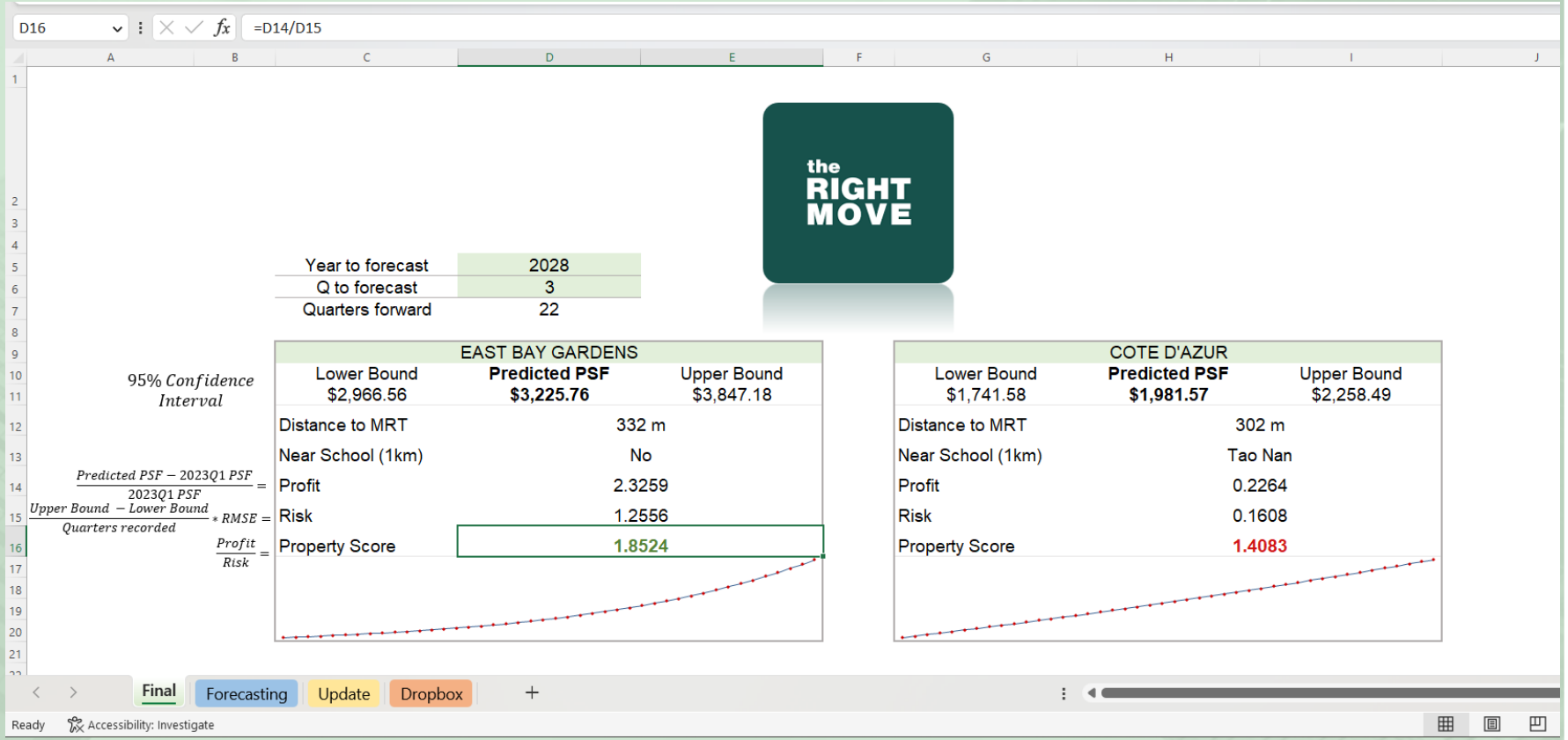
"prediction.csv"

Final Deliverble

What the client received

Final deliverable: Design Goals

- User-friendly
- Dynamic interface



Year to forecast:

2026

Q to forecast :

2

the RIGHT MOVE

Select Condo 1:

EAST BAY GARDENS

Lower Bound	**Predicted PSF**	Upper Bound
$1,814.44	**$1,972.97**	$2,353.05
Distance to MRT	332 m	
Near School (1km)	No	
Profit	1.0343	
Risk	0.7680	
Profit/Risk	1.3467	

Select Condo 2:

COTE D'AZUR

Lower Bound	**Predicted PSF**	Upper Bound
$1,602.07	**$1,822.83**	$2,077.57
Distance to MRT	302 m	
Near School (1km)	Tao Nan	
Profit	0.1282	
Risk	0.1479	
Profit/Risk	0.8667	

Year to forecast:
2026
Q to forecast :
2

the RIGHT MOVE

Select Condo 1:

EAST BAY GARDENS

Lower Bound	**Predicted PSF**	Upper Bound
$1,814.44	**$1,972.97**	$2,353.05
Distance to MRT	332 m	
Near School (1km)	No	
Profit	1.0343	
Risk	0.7680	
Profit/Risk	1.3467	

Select Condo 2:

COTE D'AZUR

Lower Bound	**Predicted PSF**	Upper Bound
$1,602.07	**$1,822.83**	$2,077.57
Distance to MRT	302 m	
Near School (1km)	Tao Nan	
Profit	0.1282	
Risk	0.1479	
Profit/Risk	0.8667	

Input Year and Quarter to forecast

Year to forecast:

2026

Q to forecast :

2

the RIGHT MOVE

Select Condo 1:

EAST BAY GARDENS

Lower Bound	**Predicted PSF**	Upper Bound
$1,814.44	**$1,972.97**	$2,353.05

Distance to MRT	332 m
Near School (1km)	No
Profit	1.0343
Risk	0.7680
Profit/Risk	1.3467

Select Condo 2:

COTE D'AZUR

Lower Bound	**Predicted PSF**	Upper Bound
$1,602.07	**$1,822.83**	$2,077.57

Distance to MRT	302 m
Near School (1km)	Tao Nan
Profit	0.1282
Risk	0.1479
Profit/Risk	0.8667

Dropbox for easy selection of property

Year to forecast:

2026

Q to forecast :

2

the RIGHT MOVE

Select Condo 1:

EAST BAY GARDENS

Lower Bound	**Predicted PSF**	Upper Bound
$1,814.44	**$1,972.97**	$2,353.05
Distance to MRT	332 m	
Near School (1km)	No	
Profit	1.0343	
Risk	0.7680	
Profit/Risk	1.3467	

Select Condo 2:

COTE D'AZUR

Lower Bound	**Predicted PSF**	Upper Bound
$1,602.07	**$1,822.83**	$2,077.57
Distance to MRT	302 m	
Near School (1km)	Tao Nan	
Profit	0.1282	
Risk	0.1479	
Profit/Risk	0.8667	

Key information displayed instantly

Year to forecast:

2026

Q to forecast :

2

Select Condo 1:

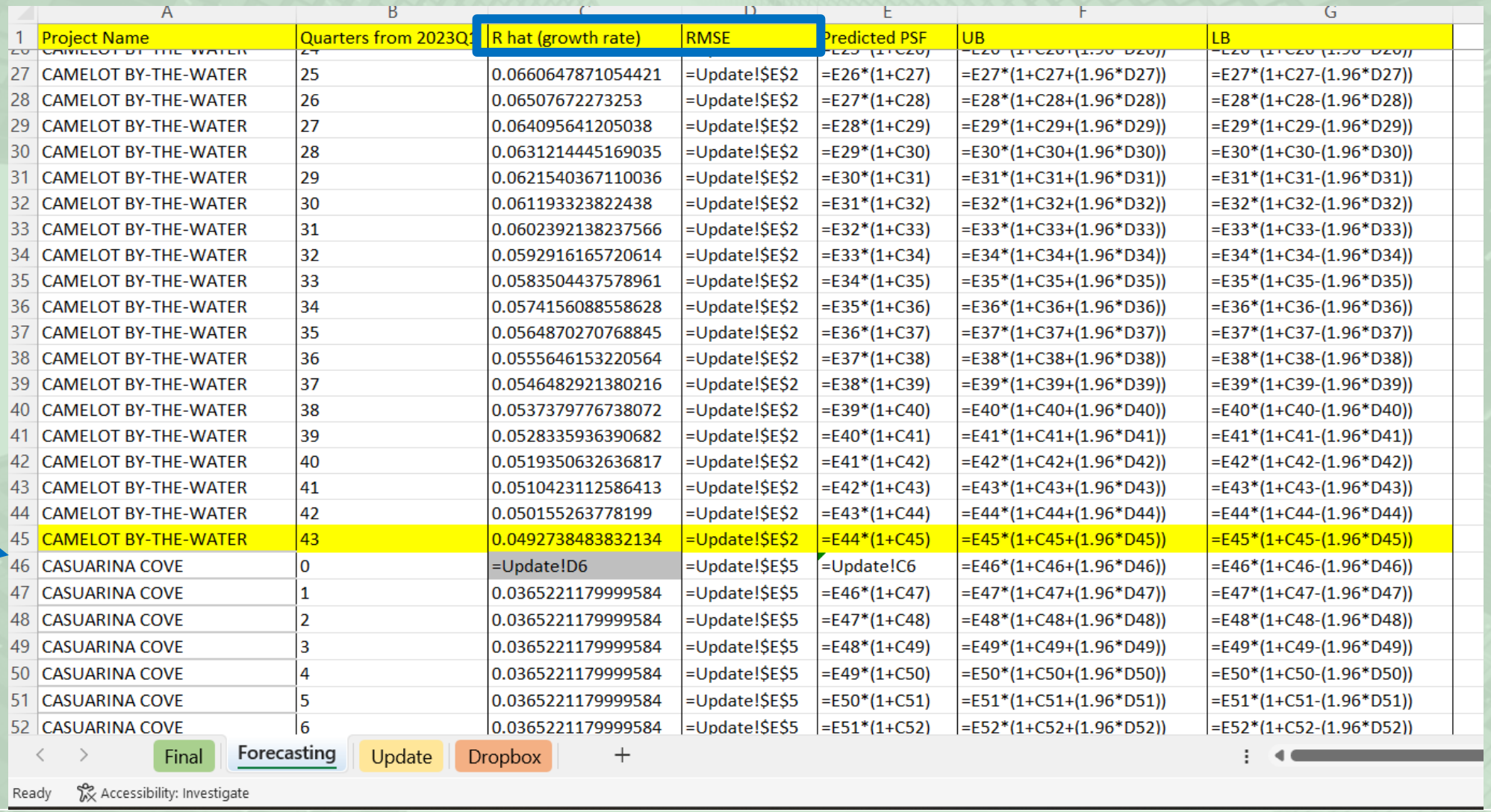
	EAST BAY GARDENS
Lower Bound	**Predicted PSF**
$1,814.44	**$1,972.97**
Distance to MRT	332 m
Near School (1km)	No
Profit	1.0343
Risk	0.7680
Profit/Risk	1.3467

95% *Confidence Interval*

$$\frac{Predicted\ PSF - 2023Q1\ PSF}{2023Q1\ PSF} =$$

$$\frac{Upper\ Bound - Lower\ Bound}{Predicted\ total\ volume} * RMSE =$$

Formulas at the side for quick refresher



	A	B	C	D	E	F	G
1	Project Name	Quarters from 2023Q1	R hat (growth rate)	RMSE	Predicted PSF	UB	LB
27	CAMELOT BY-THE-WATER	25	0.0660647871054421	=Update!$E$2	=E26*(1+C27)	=E27*(1+C27+(1.96*D27))	=E27*(1+C27-(1.96*D27))
28	CAMELOT BY-THE-WATER	26	0.06507672273253	=Update!$E$2	=E27*(1+C28)	=E28*(1+C28+(1.96*D28))	=E28*(1+C28-(1.96*D28))
29	CAMELOT BY-THE-WATER	27	0.064095641205038	=Update!$E$2	=E28*(1+C29)	=E29*(1+C29+(1.96*D29))	=E29*(1+C29-(1.96*D29))
30	CAMELOT BY-THE-WATER	28	0.0631214445169035	=Update!$E$2	=E29*(1+C30)	=E30*(1+C30+(1.96*D30))	=E30*(1+C30-(1.96*D30))
31	CAMELOT BY-THE-WATER	29	0.0621540367110036	=Update!$E$2	=E30*(1+C31)	=E31*(1+C31+(1.96*D31))	=E31*(1+C31-(1.96*D31))
32	CAMELOT BY-THE-WATER	30	0.061193323822438	=Update!$E$2	=E31*(1+C32)	=E32*(1+C32+(1.96*D32))	=E32*(1+C32-(1.96*D32))
33	CAMELOT BY-THE-WATER	31	0.0602392138237566	=Update!$E$2	=E32*(1+C33)	=E33*(1+C33+(1.96*D33))	=E33*(1+C33-(1.96*D33))
34	CAMELOT BY-THE-WATER	32	0.0592916165720614	=Update!$E$2	=E33*(1+C34)	=E34*(1+C34+(1.96*D34))	=E34*(1+C34-(1.96*D34))
35	CAMELOT BY-THE-WATER	33	0.0583504437578961	=Update!$E$2	=E34*(1+C35)	=E35*(1+C35+(1.96*D35))	=E35*(1+C35-(1.96*D35))
36	CAMELOT BY-THE-WATER	34	0.0574156088558628	=Update!$E$2	=E35*(1+C36)	=E36*(1+C36+(1.96*D36))	=E36*(1+C36-(1.96*D36))
37	CAMELOT BY-THE-WATER	35	0.0564870270768845	=Update!$E$2	=E36*(1+C37)	=E37*(1+C37+(1.96*D37))	=E37*(1+C37-(1.96*D37))
38	CAMELOT BY-THE-WATER	36	0.0555646153220564	=Update!$E$2	=E37*(1+C38)	=E38*(1+C38+(1.96*D38))	=E38*(1+C38-(1.96*D38))
39	CAMELOT BY-THE-WATER	37	0.0546482921380216	=Update!$E$2	=E38*(1+C39)	=E39*(1+C39+(1.96*D39))	=E39*(1+C39-(1.96*D39))
40	CAMELOT BY-THE-WATER	38	0.0537379776738072	=Update!$E$2	=E39*(1+C40)	=E40*(1+C40+(1.96*D40))	=E40*(1+C40-(1.96*D40))
41	CAMELOT BY-THE-WATER	39	0.0528335936390682	=Update!$E$2	=E40*(1+C41)	=E41*(1+C41+(1.96*D41))	=E41*(1+C41-(1.96*D41))
42	CAMELOT BY-THE-WATER	40	0.0519350632636817	=Update!$E$2	=E41*(1+C42)	=E42*(1+C42+(1.96*D42))	=E42*(1+C42-(1.96*D42))
43	CAMELOT BY-THE-WATER	41	0.0510423112586413	=Update!$E$2	=E42*(1+C43)	=E43*(1+C43+(1.96*D43))	=E43*(1+C43-(1.96*D43))
44	CAMELOT BY-THE-WATER	42	0.050155263778199	=Update!$E$2	=E43*(1+C44)	=E44*(1+C44+(1.96*D44))	=E44*(1+C44-(1.96*D44))
45	CAMELOT BY-THE-WATER	43	0.0492738483832134	=Update!$E$2	=E44*(1+C45)	=E45*(1+C45+(1.96*D45))	=E45*(1+C45-(1.96*D45))
46	CASUARINA COVE	0	=Update!D6	=Update!$E$5	=Update!C6	=E46*(1+C46+(1.96*D46))	=E46*(1+C46-(1.96*D46))
47	CASUARINA COVE	1	0.0365221179999584	=Update!$E$5	=E46*(1+C47)	=E47*(1+C47+(1.96*D47))	=E47*(1+C47-(1.96*D47))
48	CASUARINA COVE	2	0.0365221179999584	=Update!$E$5	=E47*(1+C48)	=E48*(1+C48+(1.96*D48))	=E48*(1+C48-(1.96*D48))
49	CASUARINA COVE	3	0.0365221179999584	=Update!$E$5	=E48*(1+C49)	=E49*(1+C49+(1.96*D49))	=E49*(1+C49-(1.96*D49))
50	CASUARINA COVE	4	0.0365221179999584	=Update!$E$5	=E49*(1+C50)	=E50*(1+C50+(1.96*D50))	=E50*(1+C50-(1.96*D50))
51	CASUARINA COVE	5	0.0365221179999584	=Update!$E$5	=E50*(1+C51)	=E51*(1+C51+(1.96*D51))	=E51*(1+C51-(1.96*D51))
52	CASUARINA COVE	6	0.0365221179999584	=Update!$E$5	=E51*(1+C52)	=E52*(1+C52+(1.96*D52))	=E52*(1+C52-(1.96*D52))

Final | Forecasting | Update | Dropbox

Ready | Accessibility: Investigate

Predicting PSF and it's upper and lower bound

	A	B	C	D	E
1	Project Name	MRT dist	Schools	Volume of Transaction	RMSE
2	CAMELOT BY-THE-WATER	207 m	0	124	0.198368
3	CASUARINA COVE	107 m	0	155	0.058404
4	COSTA RHU	522 m	0	139	0.08541
5	COTE D'AZUR	302 m	Tao Nan	109	0.033903
6	DUNMAN VIEW	957 m	Kong Hwa	190	0.037612
7	EAST BAY GARDENS	332 m	0	56	0.079846
8	LAGOON VIEW	225 m	0	310	0.108972
9	LAGUNA PARK	124 m	0	414	0.099567
10	LEGENDA AT JOO CHIAT	802 m	0	126	0.064895
11	MANDARIN GARDENS	597 m	0	107	0.201354
12	NEPTUNE COURT	736 m	0	646	0.087579
13	PEBBLE BAY	148 m	0	87	0.071546
14	RIVEREDGE	581 m	0	134	0.191121
15	ROXY SQUARE	231 m	0	25	0.058245
16	SANCTUARY GREEN	249 m	0	98	0.360822
17	SILVERSEA	480 m	Tao Nan	130	0.049812
18	TANJONG RIA CONDOMINIUM	108 m	0	223	0.111199
19	THE SHORE RESIDENCES	534 m	Tao Nan	155	0.051132
20	VILLA MARINA	269 m	0	91	0.039165
21	WATER PLACE	139 m	0	88	0.11381
22					
23					

Other key information requested

Assumptions and Limitations

Assumptions

- Model uses Linear Regression, which may not be the best prediction method
- Variables used are based on what clients' intuition
- Future prices are dependent on historical prices

Limitations

- Solution heavily relies on adjusted r^2 values , may risk overfitting
- Unable to capture other important unit specific variables: e.g. floor height, floor area
- Nature of prediction may give in extreme values when predicting future pricing

Value and contribution

- Previously, client was predicting property by guesswork and intuition
- Pricing of property are chaotic and unpredictable
- Model attempts to address issue by heavily drawing input from existing data to give rise to predictions
- Impact and success of our model will only be seen in subsequent years when property pricing values are available for predictions

Thank You

Q & A