



DSI-SG-42

Pius Yee | Lim Zheng Gang | Eugene Matthew Cheong



Could we provide house evaluation prices consistently based on data?

Client Feedbacks

George Lee

33 years old
Marine Engineer



George Lee

33 years old | Marine Engineer

Expressed dissatisfaction from George, a seller.

- **Contradicting information**
 - E.g. Is his house worth more because it is near Joo Chiat Complex?
- **Waiting time for evaluation took too long**
- **The estimation provided by agents were very different.**



Problem Statement

Our current manual process of evaluating property data for customers is **time-consuming** and prone to **inconsistencies**, as it relies on individual agents generating analysis independently.

We have developed a model where our agents can provide invaluable insights and make **data-driven decisions**, ensuring a **standardized approach** to property valuation.

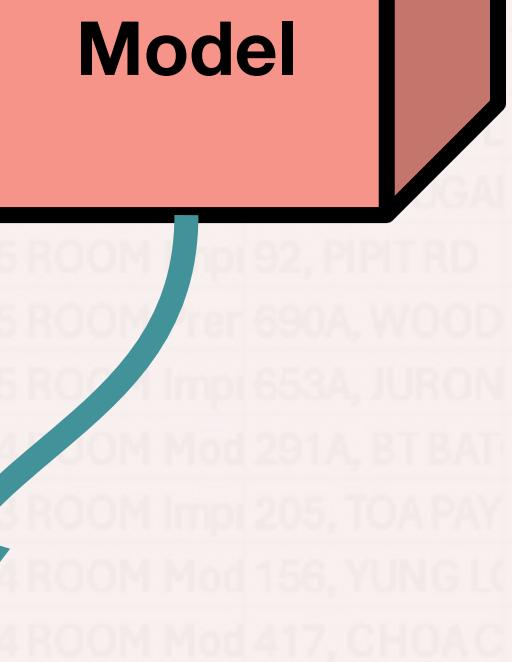
HDB Price Predictor

Delivering Clients' Satisfaction through Data Integration

Dataset

Trans_Year	town	flat_type	block	street_name	storey_range	floor_area_sc	flat_model	lease_comm	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sc	price_per_sq
16-05	KALLANG/WF	4 ROOM	38	UPP BOON KI	10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	4 ROOM Mod 38, UPP BOO	968.76	701.928238	
2-07	BISHAN	5 ROOM	153	BISHAN ST	1 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8	5 ROOM Imp 153, BISHAN	1399.32	475.230826	
3-07	BUKIT BATOK	EXECUTIVE	289B	BT BATOK ST	13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A 289B, BT BAT	1550.016	540.63958	
2-04	BISHAN	4 ROOM	232	BISHAN ST	2 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1108.692	496.080066	
7-12	YISHUN	4 ROOM	876	YISHUN ST	8 TO 03	83	Simplified	1987	298000	2017	12	11	10	12	11	4 ROOM Sim 876, YISHUN	893.412	333.552717	
3-01	GEYLANG	3 ROOM	95	ALJUNIED CP	07 TO 09	65	Improved	1975	335000	2013	1	1	1	1	1	Imp 95, ALJUNIED	699.66	478.803991	
8-05	HOUGANG	5 ROOM	641	HOUGANG A	07 TO 09	120	Improved	1987	433000	2018	5	5	4	6	5	Imp 641, HOUGA	1291.68	335.222346	
2-03	BEDOK	3 ROOM	701	BEDOK RESE	06 TO 10	68	New General	1980	340000	2012	3	3	2	4	3	New 701, BEDOK I	731.952	464.511334	
20-01	BISHAN	5 ROOM	450	SIN MING AV	10 TO 12	125	Improved	1989	700000	2020	1	1	1	1	1	Imp 450, SIN MIN	1345.5	520.252694	
4-06	SENGKANG	5 ROOM	307D	ANCHORVAL	10 TO 12	110	Improved	2001	490000	2014	6	6	5	7	6	Imp 307D, ANCH	1184.04	413.83737	
3-06	SENGKANG	4 ROOM	273D	COMPASSVA	13 TO 15	90	PremiumApa	2009	625000	2013	6	6	5	7	6	Pter 273D, COMP	968.76	645.154631	
8-03	TAMPINES	3 ROOM	412	TAMPINES ST	01 TO 03	69	Improved	1985	270000	2018	3	3	2	4	3		742.716	363.530609	
7-07	SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	125	Improved	1985	500000	2017	7	7	6	8	7		1345.5	371.609067	
6-08	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2016	8	8	7	9	8		1011.816	761.00793	
16-09	JURONG WE	5 ROOM	653A	JURONG WE	04 TO 06	111	Improved	2002	453000	2019	8	5	4	6	5		979.524	352.211891	
20-06	BUKIT BATOK	4 ROOM	291A	BT BATOK ST	01 TO 03	104	Model A	1997	360000	2020	6	2	1	3	2		785.772	367.648631	
20-07	TOA PAYOH	3 ROOM	205	TOA PAYOH N	10 TO 12	65	Improved	1973	260000	2020	7	11	10	12	11		1280.916	312.276527	
7-09	JURONG WE	4 ROOM	156	YUNG LOH RI	04 TO 06	107	Model A	1996	358000	2017	9	5	4	6	5		1323.972	604.242386	
6-03	CHOACHUK	4 ROOM	417	CHOACHUK	07 TO 09	105	Model A	1993	383000	2016	3	8	7	9	8		1302.444	618.836587	
12-11	SEMBAWANG	5 ROOM	507C	WELLINGTON	10 TO 12	110	Improved	2001	503000	2012	11	11	10	12	11		1291.68	352.254428	
12-12	KALLANG/WF	5 ROOM	103	JLN RAJAH	07 TO 09	139	Model A	1984	708000	2012	12	8	10	12	11		968.76	332.383666	
2-07	SENGKANG	5 ROOM	299B	COMPASSVA	13 TO 15	115	PremiumApa	2001	496000	2012	7	14	13	15	14		968.76	433.543912	
19-04	TOA PAYOH	5 ROOM	848	LOR 2 TOAPA	10 TO 12	122	Improved	1997	820000	2019	4	11	10	12	11		1453.14	295.910924	
8-11	KALLANG/WF	3 ROOM	64	KALLANG BA	01 TO 03	65	Improved	1974	260000	2018	11	2	1	3	2		1593.072	379.769402	
8-11	CHOACHUK	5 ROOM	684C	CHOACHUK	04 TO 06	110	Improved	2002	350000	2018	11	5	4	6	5		1291.68	501.672241	
3-04	ANG MO KIO	3 ROOM	219	ANG MO KIO	07 TO 09	67	New General	1977	385000	2013	4	8	7	9	8		815.15	145.833333	
20-12	TOA PAYOH	3 ROOM	116	LOR 2 TOAPA	07 TO 09	72	Improved	1970	350000	2020	12	8	7	9	8		1184.04	451.608241	
19-03	WOODLAND	5 ROOM	137	MARSILING R	07 TO 09	121	Improved	1985	340000	2019	3	8	7	9	8		1302.444	261.047692	
9-08	BUKIT BATOK	3 ROOM	208	BT BATOK ST	04 TO 06	73	Model A	1983	268000	2019	8	5	4	6	5		785.772	341.065856	
7-04	BUKIT MERAH	5 ROOM	112A	DEPOT RD	16 TO 18	115	Improved	2006	708000	2017	4	17	16	18	17		1237.86	571.954825	
16-12	SEMBAWANG	5 ROOM	325	SEMBAWANG	10 TO 12	120	Improved	1999	395000	2016	12	11	10	12	11		1291.68	305.803295	

Predicted result:
\$642,088



Why use it?

App based on our data

Benefits

- Quickly obtain prices in the area when meeting with clients
- Shows client the importance of certain amenities that affects the price.
- Give the clients the assurance that the price evaluations are based on data.

Why change?

Clients' expectations are difficult

Difficult to predict a price and show the differences with certain amenities on the spot

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Enc_Year	town	flat_type	block	street_name	storey_range	floor_area_sc	flat_model	lease_commn	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sc	price_per_sq	
16-05	KALLANG/WF	4 ROOM	38	UPP BOON KI	10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	4 ROOM Mod 38, UPP BOO	968.76	701.928238		
2-07	BISHAN	5 ROOM	153	BISHAN ST	13 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8	5 ROOM Imp 153, BISHAN	1399.32	475.230826		
3-07	BUKIT BATOK	EXECUTIVE	289B	BT BATOK ST	13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A 289B, BT BAT	1550.016	540.63958		
2-04	BISHAN	4 ROOM	232	BISHAN ST	2 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1108.692	496.080066		
7-12	YISHUN	4 ROOM	876	YISHUN ST	8 TO 03	83	Simplified	1987	298000	2017	12	2	1	3	2	4 ROOM Simj 876, YISHUN	893.412	333.552717		
3-01	GEYLANG	3 ROOM	95	ALJUNIED CR	07 TO 09	65	Improved	1975	335000	2013	1	8	7	9	8	3 ROOM Imp 95, ALJUNIED	699.66	478.803991		
8-05	HOUGANG	5 ROOM	641	HOUGANG A'	07 TO 09	120	Improved	1987	433000	2018	5	8	7	9	8	5 ROOM Imp 641, HOUGA	1291.68	335.222346		
2-03	BEDOK	3 ROOM	701	BEDOK RESE	06 TO 10	68	New General	1980	340000	2012	3	8	6	10	8	3 ROOM New 701, BEDOK I	731.952	464.511334		
20-01	BISHAN	5 ROOM	450	SIN MING AV	10 TO 12	125	Improved	1989	700000	2020	1	11	10	12	11	5 ROOM Imp 450, SIN MIN	1345.5	520.252694		
14-06	SENGKANG	5 ROOM	307D	ANCHORVAL	10 TO 12	110	Improved	2001	490000	2014	6	11	10	12	11	5 ROOM Imp 307D, ANCH	1184.04	413.83737		
3-06	SENGKANG	4 ROOM	273D	COMPASSVA	13 TO 15	90	PremiumApa	2009	625000	2013	6	14	13	15	14	4 ROOM Pte 273D, COMP	968.76	645.154631		
8-03	TAMPINES	3 ROOM	412	TAMPINES ST	01 TO 03	69	Improved	1985	270000	2018	3	2	1	3	2	3 ROOM Imp 412, TAMPINI	742.716	363.530609		
7-07	SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	125	Improved	1985	500000	2017	7	8	7	9	8	5 ROOM Imp 121, SERANG	1345.5	371.609067		
5-08	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2015	8	29	28	30	29	4 ROOM Mod 54, HAVELOC	1011.816	761.00793		
9-10	BUKIT PANAI	5 ROOM	481	SEGAR F	01 TO 02	91	PremiumApa	2002	345000	2019	10	8	7	9	8	4 ROOM Pte 481, SEGAR F	979.524	352.211891		
8-01	BUKIT PANAI	5 ROOM	481	PENDIN	01 TO 02	73	Model A	1987	288000	2018	1	11	10	12	11	3 ROOM Mod 116, PENDIN	785.772	367.648631		
20-11	WOODLAND	5 ROOM	318	WOODL	01 TO 02	119	Model A	1993	400000	2015	11	10	12	12	11	4 ROOM Mod 318, WOODL	1280.916	312.276527		
5-12	BISHAN	5 ROOM	292	BISHAN ST	2 TO 09	123	PremiumApa	1998	800000	2015	3	8	7	9	8	5 ROOM Imp 292, BISHAN	1323.972	604.242386		
8-03	BISHAN	5 ROOM	194	BISHAN ST	1 TO 09	68	Improved	1987	806000	2018	3	8	7	9	8	5 ROOM Imp 194, BISHAN	1302.444	618.836587		
9-10	YISHUN	4 ROOM	164	YISHUN ST	01 TO 04	455000		1997	455000	2015	7	20	19	21	20	4 ROOM Pte 455A, YISHUN	1291.68	352.254428		
7-08	WOODLAND	5 ROOM	554	WOODL	01 TO 02	322000		2014	8	18	17	19	18	4 ROOM Mod 554, WOODL	968.76	332.383666				
5-07	SENGKANG	5 ROOM	653A	FERNV	01 TO 02	420000		2015	7	20	19	21	20	4 ROOM Pte 455A, FERNV	968.76	433.543912				
9-10	WOODLAND	5 ROOM	409	WOODL	01 TO 02	135	Model A	1996	430000	2018	3	3	1	5	3	4 ROOM Mod 409A, WOODL	1453.14	295.910924		
2-03	HOUGANG	EXECUTIVE	558	HOUGANG	01 TO 02	148	Maisonette	1992	608000	2012	3	3	1	5	3	EXECUTIVE H 558, HOUGA	1593.072	379.769402		
9-04	GEYLANG	5 ROOM	92	PIPI TRD	01 TO 02	92	Improved	1997	648000	2019	4	8	7	9	8	5 ROOM Imp 92, PIPI RD	1291.68	501.672241		
16-05	WOODLAND	5 ROOM	653A	WOODD	01 TO 02	2004		2004	472000	2016	5	14	13	15	14	5 ROOM Pte 653A, WOODD	1184.04	398.635181		
9-08	JURONG WEST	4 ROOM	653A	JURON	01 TO 03	117	Improved	2002	453000	2019	8	5	4	6	5	5 ROOM Imp 653A, JURON	1194.804	379.141683		
20-06	BUKIT BATOK	4 ROOM	291A	BT BATOK ST	01 TO 03	104	Model A	1997	360000	2020	6	2	1	3	2	4 ROOM Mod 291A, BTBAT	1119.456	321.58477		
20-07	TOA PAYOH	3 ROOM	205	TOA PAYOH N	10 TO 12	65	Improved	1973	260000	2020	7	11	10	12	11	3 ROOM Imp 205, TOAPAY	699.66	371.609067		
7-09	JURONG WE	4 ROOM	156	YUNG LOH RI	04 TO 06	107	Model A	1996	358000	2017	9	5	4	6	5	4 ROOM Mod 156, YUNG LO	1151.748	310.831883		
6-03	CHOACHUK	4 ROOM	417	CHOACHUK	07 TO 09	105	Model A	1993	383000	2016	3	8	7	9	8	4 ROOM Mod 417, CHOAC	1130.22	338.872078		
12-11	SEMBAWANG	5 ROOM	507C	WELLINGTON	10 TO 12	110	Improved	2001	503000	2012	11	11	10	12	11	5 ROOM Imp 507C, WELLI	1184.04	424.816729		
2-12	KALLANG/WF	5 ROOM	103	JLN RAJAH	07 TO 09	139	Model A	1984	708000	2012	12	8	7	9	8	5 ROOM Mod 103, JLN RAJ	1496.196	473.200035		
2-07	SENGKANG	5 ROOM	299B	COMPASSVA	13 TO 15	115	PremiumApa	2001	496000	2012	7	14	13	15	14	5 ROOM Pte 299B, COMP.	1237.86	400.691516		
19-04	TOA PAYOH	5 ROOM	848	LOR 2 TOAPA	10 TO 12	122	Improved	1997	820000	2019	4	11	10	12	11	5 ROOM Imp 848, LOR 2TC	1313.208	624.425072		
8-11	KALLANG/WF	3 ROOM	64	KALLANG BAII	01 TO 03	65	Improved	1974	260000	2018	11	2	1	3	2	3 ROOM Imp 64, KALLANG	699.66	371.609067		
8-11	CHOACHUK	5 ROOM	684C	CHOACHUK	04 TO 06	110	Improved	2002	350000	2018	11	5	4	6	5	5 ROOM Imp 684C, CHOA	1184.04	295.598122		
3-04	ANG MO KIO	3 ROOM	219	ANG MO KIO	07 TO 09	67	New General	1977	385000	2013	4	8	7	9	8	3 ROOM New 219, ANG MC	721.188	533.841384		
20-12	TOA PAYOH	3 ROOM	116	LOR 2 TOAPA	07 TO 09	72	Improved	1970	350000	2020	12	8	7	9	8	3 ROOM Imp 116, LOR 2TC	775.008	451.608241		
19-03	WOODLAND	5 ROOM	137	MARSILING R	07 TO 09	121	Improved	1985	340000	2019	3	8	7	9	8	5 ROOM Imp 137, MARSILI	1302.444	261.047692		
9-0																				

Assumptions stem from experiential knowledge

Instead of basing our estimations on assumptions, we should validate it **with data** so that our agents provide clients with **consistent information**

Assumptions

- Mature or Non-matured estates
- Higher floor units
- Near MRT station
- Near Schools
- Near Hawker centres or Malls

Data

- Mature or Non-matured estates
- Higher floor units
- Near MRT station
- Near Schools
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George Lee

33 years old | Marine Engineer

Expressed dissatisfaction from George, a seller.

- **Contradicting information**
 - E.g. Is his house worth more because it is near Joo Chiat Complex?
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- **The estimation provided by agents were very different.**



B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
Inc_Year	Month	town	flat_type	block	street_name	storey_range	floor_area_sqm	flat_model	lease_comm	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sqm	price_per_sqm
6-05	KALLANG/WF	4 ROOM	3B	UPP BOON KI	10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	4 ROOM Mod 3B, UPP BOO	968.76	701.928238		
2-07	BISHAN	5 ROOM	153	BISHAN ST	07 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8	5 ROOM Imp 153, BISHAN	1399.32	475.230826		
3-07	BUKIT BATOK	EXECUTIVE	289B	BT BATOK ST	13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A 289B, BT BAT	1550.016	540.63958		
2-04	BISHAN	4 ROOM	232	BISHAN ST	01 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1108.692	496.080066		
7-12	YISHUN	4 ROOM	876	YISHUN ST	01 TO 03	83	Simplified	1987	298000	2017	12	2	1	3	2	4 ROOM Simj 876, YISHUN	893.412	333.552717		
3-01	GEYLANG	3 ROOM	95	ALIJUNIED CR	07 TO 09	65	Improved	1975	335000	2013	1	8	7	9	8	3 ROOM Imp 95, ALIJUNIED	699.66	478.803991		
8-05	HOUGANG	5 ROOM	641	HOUGANG A	07 TO 09	120	Improved	1987	433000	2018	5	8	7	9	8	5 ROOM Imp 641, HOUGAI	1291.68	335.222346		
2-03	BEDOK	3 ROOM	701	BEDOK RESE	06 TO 10	68	New Generat	1980	340000	2012	3	8	6	10	8	3 ROOM New 701, BEDOK I	731.952	464.511334		
20-01	BISHAN	5 ROOM	450	SIN MING AV	10 TO 12	125	Improved	1989	700000	2020	1	11	10	12	11	5 ROOM Imp 450, SIN MIN	1345.5	520.252694		
4-06	SENGKANG	5 ROOM	307D	ANCHORVAL	10 TO 12	110	Improved	2001	490000	2014	6	11	10	12	11	5 ROOM Imp 307D, ANCH	1184.04	413.83737		
3-06	SENGKANG	4 ROOM	273D	COMPASSVA	13 TO 15	90	Premium Apa	2009	625000	2013	6	14	13	15	14	4 ROOM Pre 273D, COMP	968.76	645.154631		
8-03	TAMPINES	3 ROOM	412	TAMPINES ST	01 TO 03	69	Improved	1985	270000	2018	3	2	1	3	2	3 ROOM Imp 412, TAMPINI	742.716	363.530609		
7-07	SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	125	Improved	1985	500000	2017	7	8	7	9	8	5 ROOM Imp 121, SERANG	1345.5	371.609067		
5-08	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2015	8	29	28	30	29	4 ROOM Mod 54, HAVELOC	1011.816	761.00793		
9-08	JURONG WE	5 ROOM	690A	WOODLAND	13 TO 15	110	Premium Apa	2004	472000	2016	5	14	13	15	14	5 ROOM Pre 690A, WOOD	1184.04	398.635181		
9-08	JURONG WE	5 ROOM	653A	JURONG WE	04 TO 06	111	Improved	2002	453000	2019	8	5	4	6	5	5 ROOM Imp 653A, JURON	1194.804	379.141683		
20-06	BUKIT BATOK	4 ROOM	291A	BT BATOK ST	01 TO 03	104	Model A	1997	360000	2020	6	2	1	3	2	4 ROOM Mod 291A, BT BAT	1119.456	321.58477		
20-07	TOA PAYOH	3 ROOM	205	TOA PAYOH N	10 TO 12	65	Improved	1973	260000	2020	7	11	10	12	11	3 ROOM Imp 205, TOA PAY	699.66	371.609067		
7-09	JURONG WE	4 ROOM	156	YUNG LOH R	04 TO 06	107	Model A	1996	358000	2017	9	5	4	6	5	4 ROOM Mod 156, YUNG LO	1151.748	310.831883		
6-03	CHOACHUK	4 ROOM	417	CHOACHUK	07 TO 09	105	Model A	1993	383000	2016	3	8	7	9	8	4 ROOM Mod 417, CHOAC	1130.22	338.872078		
12-11	SEMBAWANG	5 ROOM	507C	WELLINGTON	10 TO 12	110	Improved	2001	503000	2012	11	11	10	12	11	5 ROOM Imp 507C, WELLI	1184.04	424.816729		
2-12	KALLANG/WF	5 ROOM	103	JLN RAJAH	07 TO 09	139	Model A	1984	708000	2012	12	8	7	9	8	5 ROOM Mod 103, JLN RAJ	1496.196	473.200035		
2-07	SENGKANG	5 ROOM	299B	COMPASSVA	13 TO 15	115	Premium Apa	2001	496000	2012	7	14	13	15	14	5 ROOM Pre 299B, COMP	1237.86	400.691516		
19-04	TOA PAYOH	5 ROOM	84B	LOR 2 TOA PA	10 TO 12	122	Improved	1997	820000	2019	4	11	10	12	11	5 ROOM Imp 84B, LOR 2 TO	1313.208	624.425072		
8-11	KALLANG/WF	3 ROOM	64	KALLANG BA	01 TO 03	65	Improved	1974	260000	2018	11	2	1	3	2	3 ROOM Imp 64, KALLANG	699.66	371.609067		
8-11	CHOACHUK	5 ROOM	684C	CHOACHUK	04 TO 06	110	Improved	2002	350000	2018	11	5	4	6	5	5 ROOM Imp 684C, CHOA	1184.04	295.598122		
3-04	ANG MO KIO	3 ROOM	219	ANG MO KIO	07 TO 09	67	New Generat	1977	385000	2013	4	8	7	9	8	3 ROOM New 219, ANG MC	721.188	533.841384		
20-12	TOA PAYOH	3 ROOM	116	LOR 2 TOA PA	07 TO 09	72	Improved	1970	350000	2020	12	8	7	9	8	3 ROOM Imp 116, LOR 2 TO	775.008	451.608241		
9-03	WOODLAND	5 ROOM	137	MARSILING R	07 TO 09	121	Improved	1985	340000	2019	3	8	7	9	8	5 ROOM Imp 137, MARSILI	1302.444	261.047692		
9-08	BUKIT BATOK	3 ROOM	208	BT BATOK ST	04 TO 06	73	Model A	1983	268000	2019	8	5	4	6	5	3 ROOM Mod 208, BT BATO	785.772	341.065856		
7-04	BUKIT MERAH	5 ROOM	112A	DEPOT RD	16 TO 18	115	Improved	2006	708000	2017	4	17	16	18	17	5 ROOM Imp 112A, DEPOT	1237.86	571.954825		
16-12	SEMBAWANG	5 ROOM	325	SEMBAWANG	10 TO 12	120	Improved	1999	395000	2016	12	11	10	12	11	5 ROOM Imp 325, SEMBAV	1291.68	305.803295		

Our Data

2012 - 2021

Our Data

2012 - 2021

- Nearly a decade worth of data
- Over 78 features to analyse.
- Over 150,000 entries

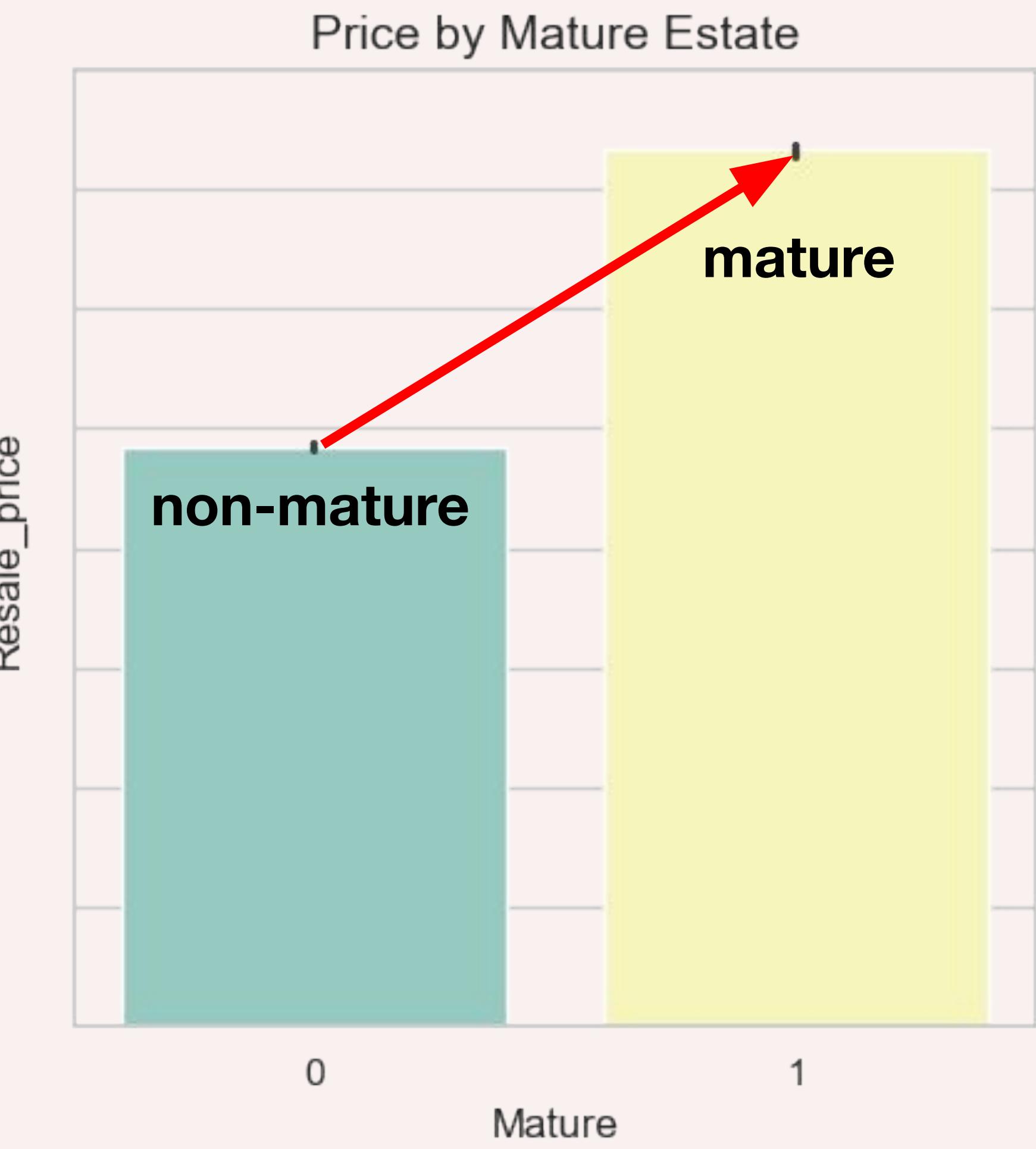
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Inc_Year	Mtown	flat_type	block	street_name	storey_range	floor_area_sq	flat_model	lease_comm	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sq	price_per_sq	
6-05	KALLANG/WF	4 ROOM	3B	UPP BOON KI	10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	4 ROOM Mod 3B, UPP BOO	968.76	701.928238		
2-07	BISHAN	5 ROOM	153	BISHAN ST 1	07 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8	5 ROOM Impr 153, BISHAN	1399.32	475.230826		
3-07	BUKIT BATOK	EXECUTIVE	289B	BT BATOK ST 1	13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A/ 289B, BT BAT	1550.016	540.63958		
2-04	BISHAN	4 ROOM	232	BISHAN ST 2	01 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1108.692	496.080066		
7-12	YISHUN	4 ROOM	876	YISHUN ST 8	01 TO 03	83	Simplified	1987	298000	2017	12	2	1	3	2	4 ROOM Simj 876, YISHUN	893.412	333.552717		
3-01	GEYLANG	3 ROOM	95	ALIJUNIED CP	07 TO 09	65	Improved	1975	335000	2013	1	8	7	9	8	3 ROOM Impr 95, ALIJUNIED	699.66	478.803991		
8-05	HOUGANG	5 ROOM	641	HOUGANG A	07 TO 09	120	Improved	1987	433000	2018	5	8	7	9	8	5 ROOM Impr 641, HOUGA	1291.68	335.222346		
2-03	BEDOK	3 ROOM	701	BEDOK RESE	06 TO 10	68	New General	1980	340000	2012	3	8	6	10	8	3 ROOM New 701, BEDOK I	731.952	464.511334		
20-01	BISHAN	5 ROOM	450	SIN MING AV	10 TO 12	125	Improved	1989	700000	2020	1	11	10	12	11	5 ROOM Impr 450, SIN MIN	1345.5	520.252694		
14-06	SENGKANG	5 ROOM	307D	ANCHORVAL	10 TO 12	110	Improved	2001	490000	2014	6	11	10	12	11	5 ROOM Impr 307D, ANCH	1184.04	413.83737		
3-06	SENGKANG	4 ROOM	273D	COMPASSVA	13 TO 15	90	PremiumApa	2009	625000	2013	6	14	13	15	14	4 ROOM Pre 273D, COMP	968.76	645.154631		
8-03	TAMPINES	3 ROOM	412	TAMPINES ST 1	01 TO 03	69	Improved	1985	270000	2018	3	2	1	3	2	3 ROOM Impr 412, TAMPINI	742.716	363.530609		
7-07	SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	126	Improved	1985	500000	2017	7	8	7	9	8	5 ROOM Impr 121, SERANG	1345.5	371.609067		
6-08	BUKIT MERAH	4 ROOM	54	HAVELOCK R	08 TO 20	94	Model A	2013	770000	2015	8	29	28	30	29	4 ROOM Mod 54, HAVELOC	1011.816	761.00793		
										2019	10	8	7	9	8	4 ROOM Pre 481, SEGAR F	979.524	352.211891		
										2018	1	11	10	12	11	3 ROOM Mod 116, PENDIN	785.772	367.648631		
										2020	11	11	10	12	11	4 ROOM Mod 318, WOODL	1280.916	312.276527		
										2018	1	11	10	12	11	3 ROOM Pre 292, BISHAN	1323.972	604.242386		
										2019	1	11	10	12	11	5 ROOM Impr 194, BISHAN	1302.444	618.836587		
										2017	1	11	10	12	11	4 ROOM Mod 554, WOODL	968.76	332.383666		
										2019	1	11	10	12	11	4 ROOM Pre 407A, FERNV	968.76	433.543912		
										2018	1	11	10	12	11	5 ROOM Mod 409, WOODL	1453.14	295.910924		
										2012	3	3	1	5	3	EXECUTIVE M 558, HOUGAI	1593.072	379.769402		
										2019	4	8	7	9	8	5 ROOM Impr 92, PIRIT RD	1291.68	501.672241		
										2016	5	14	13	15	14	5 ROOM Pre 690A, WOOD	1184.04	398.635181		
										2019	8	5	4	6	5	5 ROOM Impr 653A, JURON	1194.804	379.141683		
										2020	6	2	1	3	2	4 ROOM Mod 291A, BTBAT	1119.456	321.58477		
										2020	7	11	10	12	11	3 ROOM Impr 205, TOAPAY	699.66	371.609067		
										2017	9	5	4	6	5	4 ROOM Mod 156, YUNG LOH	1151.748	310.831883		
										2016	3	8	7	9	8	4 ROOM Mod 417, CHOAC	1130.22	338.872078		
										2012	11	11	10	12	11	5 ROOM Impr 507C, WELLI	1184.04	424.816729		
										2012	12	8	7	9	8	5 ROOM Mod 103, JLN RAJ	1496.196	473.200035		
										2012	7	14	13	15	14	5 ROOM Pre 299B, COMP	1237.86	400.591516		
										2019	4	11	10	12	11	5 ROOM Impr 84B, LOR 2 TO	1313.208	624.425072		
										2018	1	11	10	12	11	3 ROOM Impr 64, KALLANG	699.66	371.609067		
										2018	11	5	4	6	5	5 ROOM Impr 684C, CHOA	1184.04	295.598122		
										2013	4	8	7	9	8	3 ROOM New 219, ANG MC	721.188	533.841384		
										2020	12	8	7	9	8	3 ROOM Impr 116, LOR 2 TO	775.008	451.608241		
										2019	3	8	7	9	8	5 ROOM Impr 137, MARSILI	1302.444	261.047692		
										2019	8	5	4	6	5	3 ROOM Mod 208, BT BAT	785.772	341.065856		
										2017	4	17	16	18	17	5 ROOM Impr 112A, DEPOT	1237.86	571.954825		
										2016	12	11	10	12	11	5 ROOM Impr 325, SEMBAW	1291.68	305.803295		

Findings

- Mature or Non-matured estates
- Higher floor units
- Near MRT station
- Near Schools
- Near Hawker centres

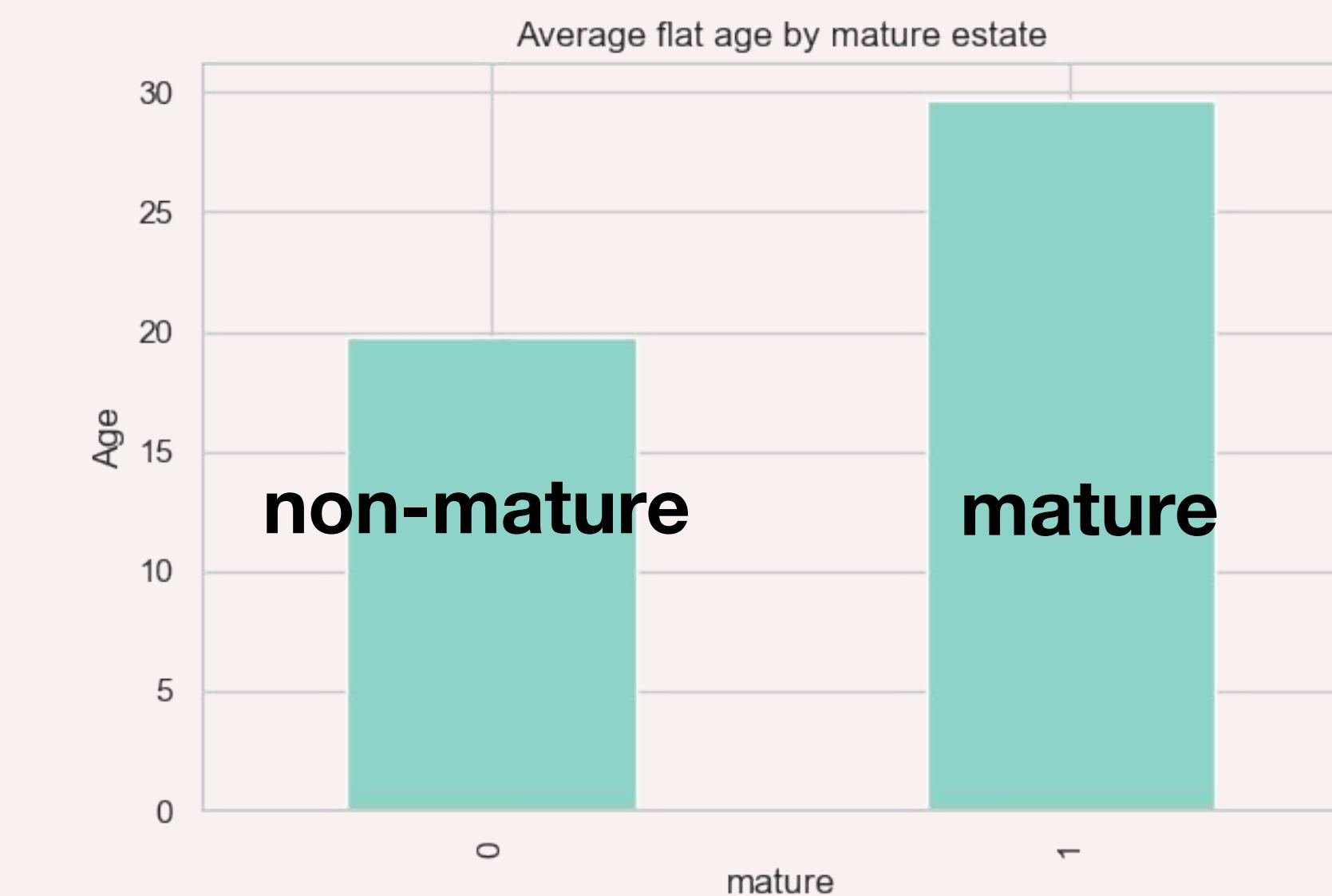
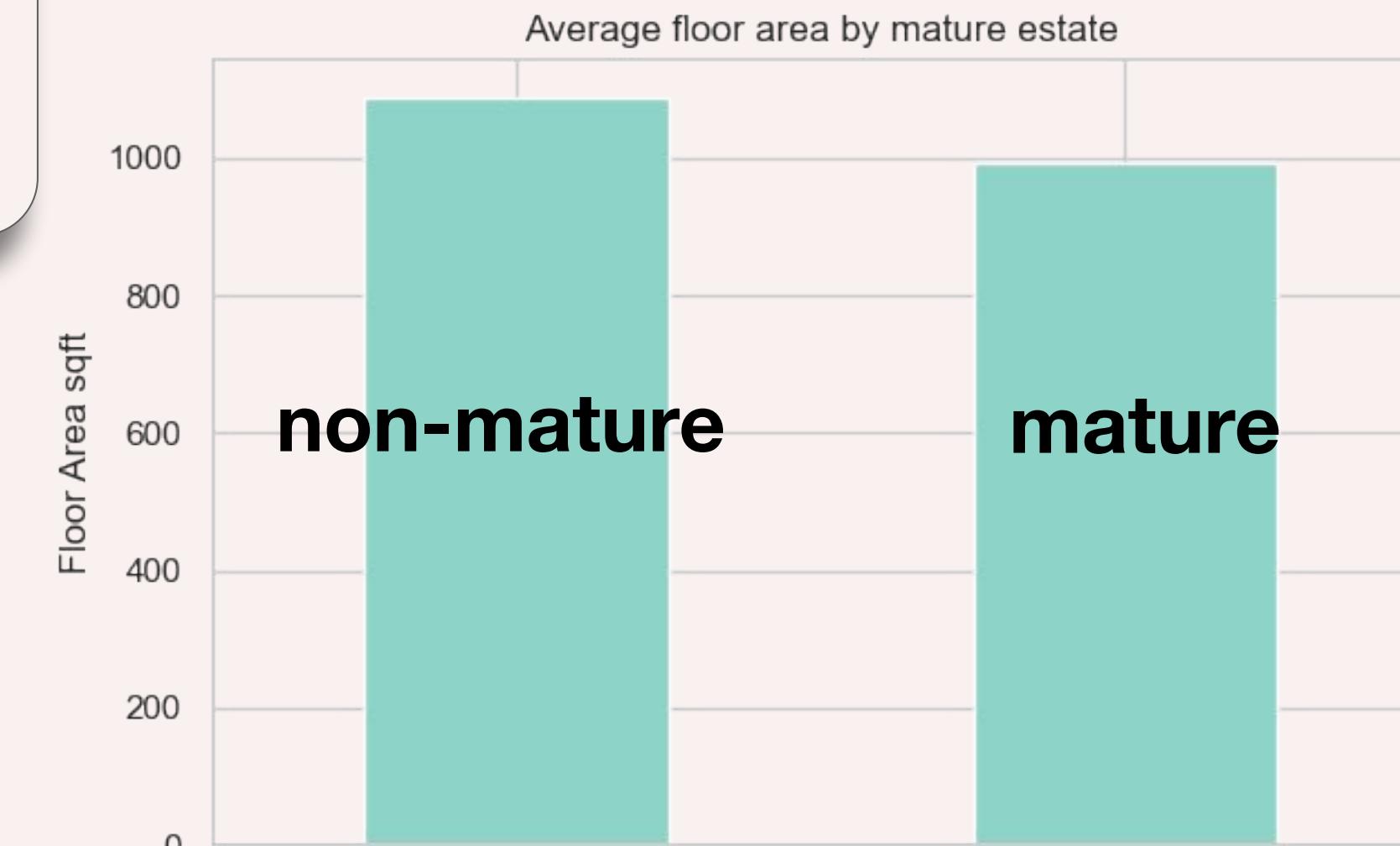
Mature or Non-matured estates

- Mature estates tend to have higher resale prices?



Mature or Non-matured estates

- Mature estates tend to have flats that are smaller and older?

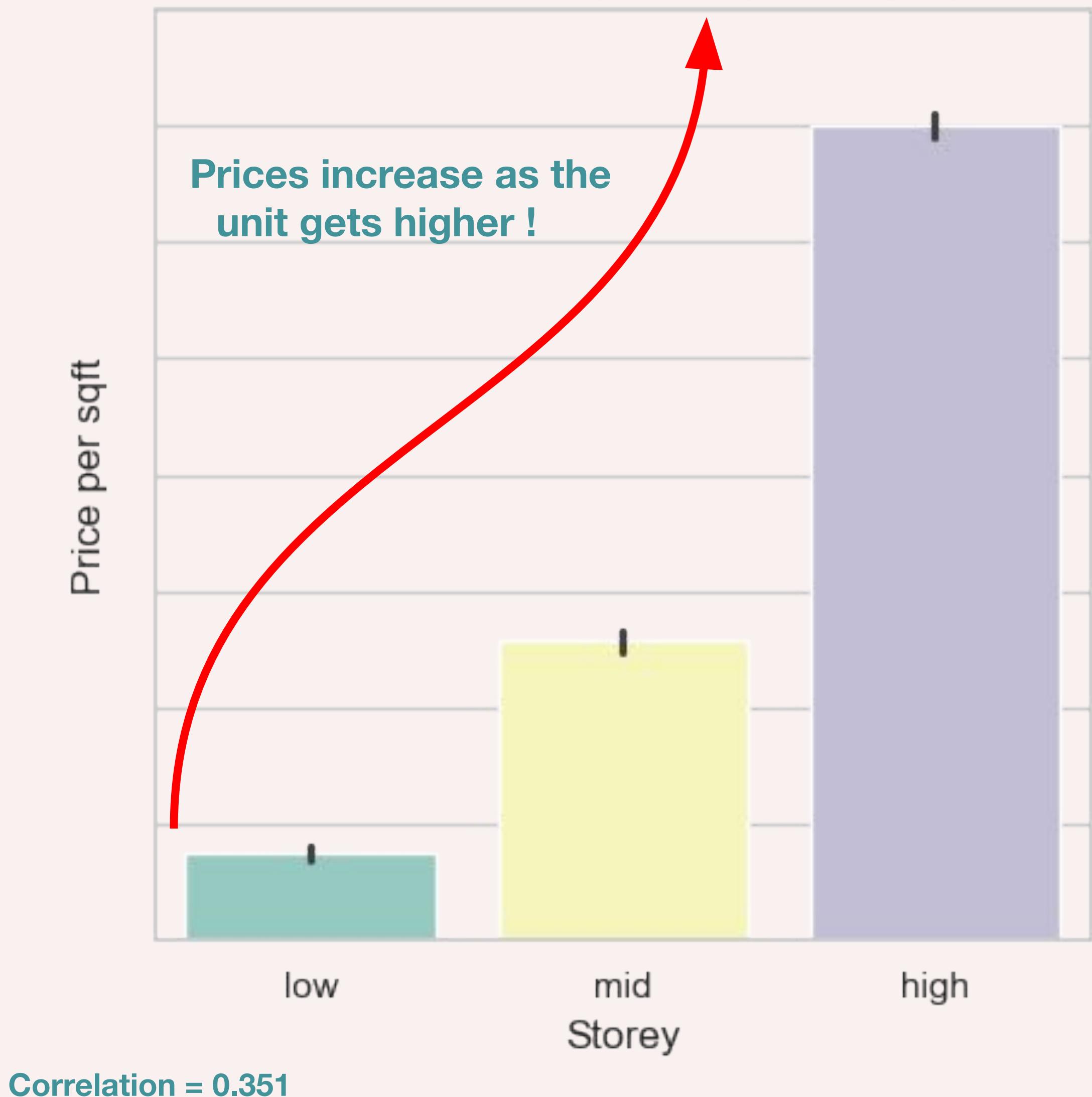


High floor units

The units on higher floors tend to have better resale value?

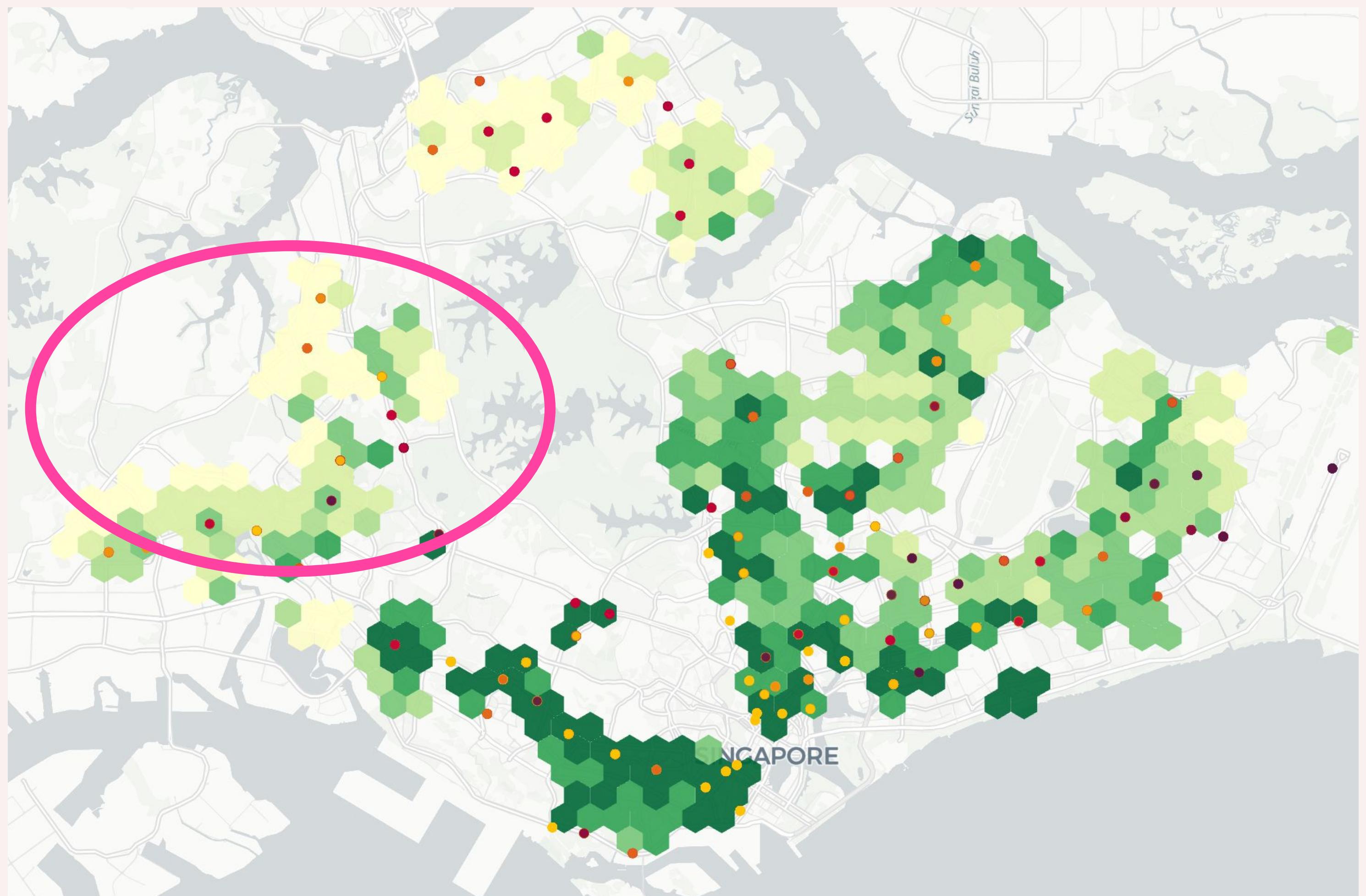
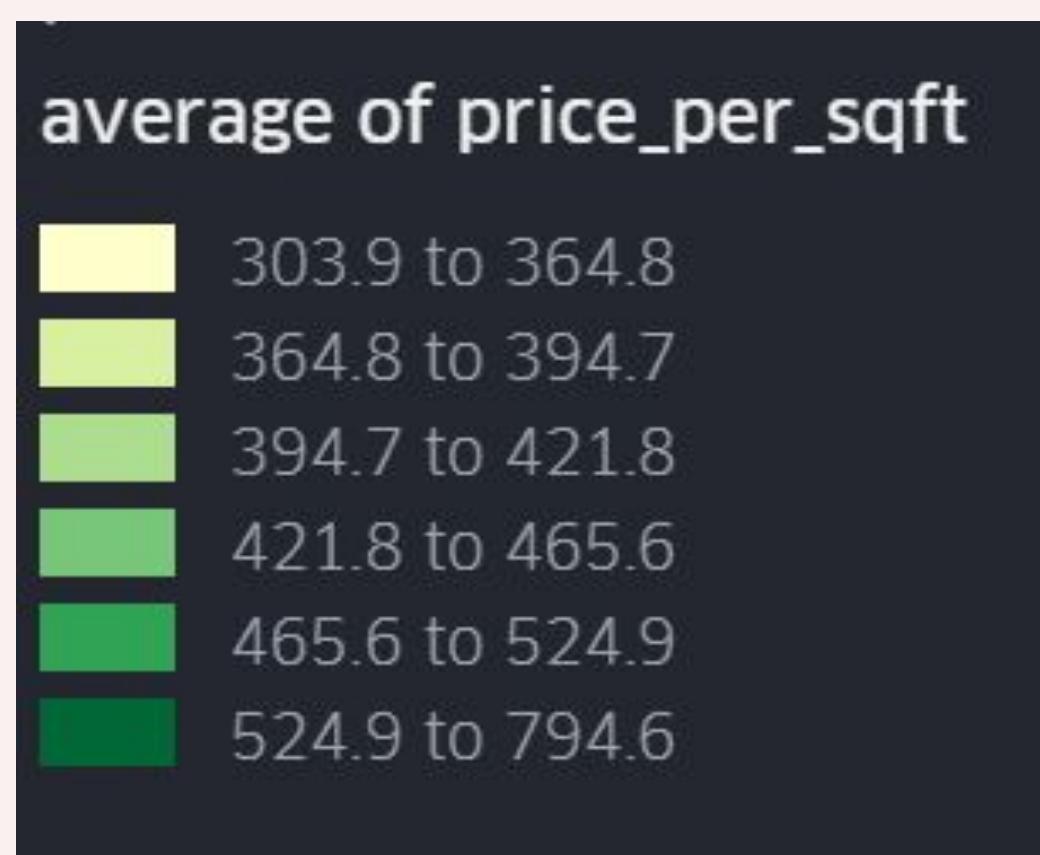


Price per sqft by Storey Category



Near MRT station

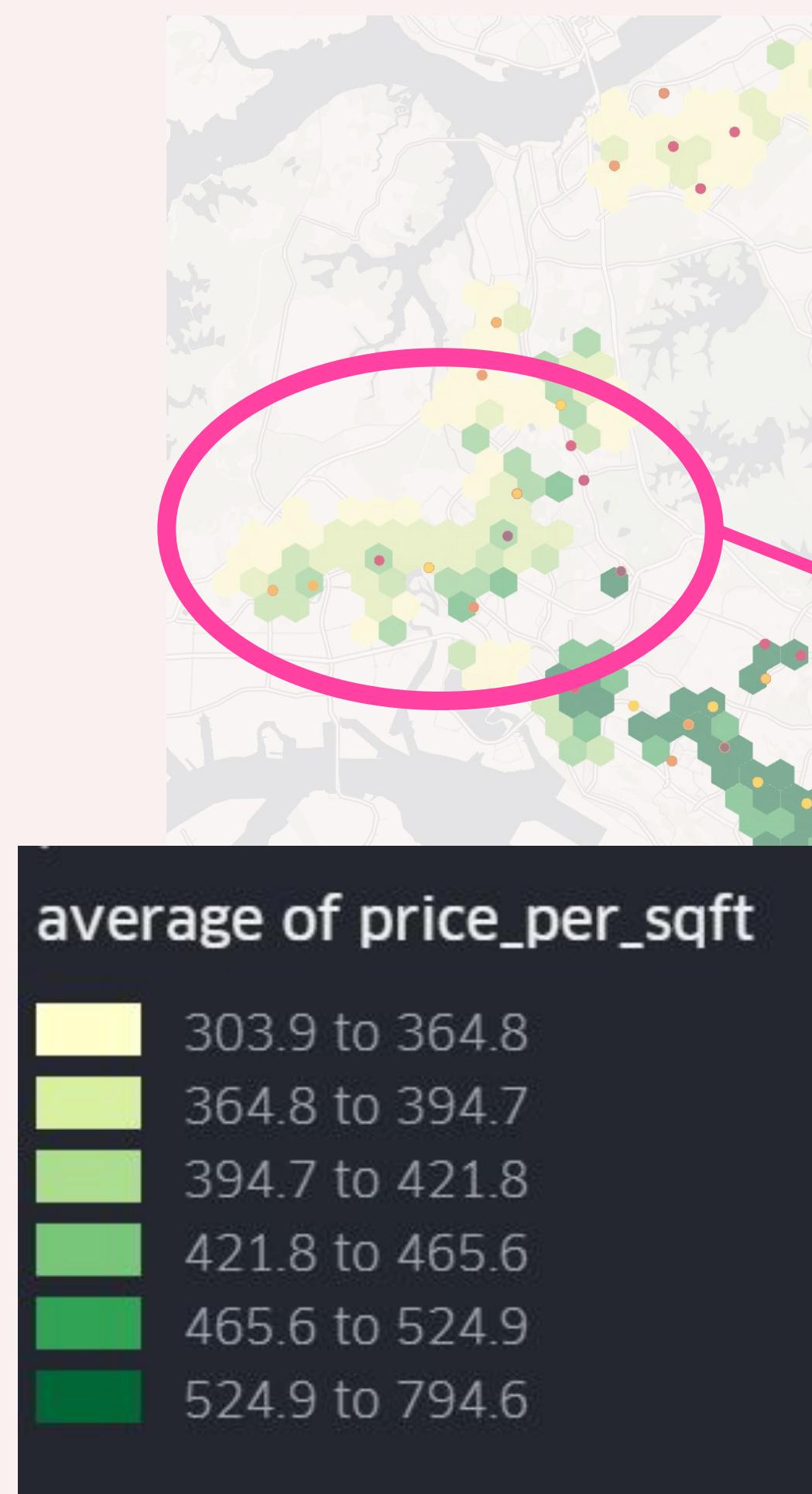
- Higher resale price for flats near to MRT?



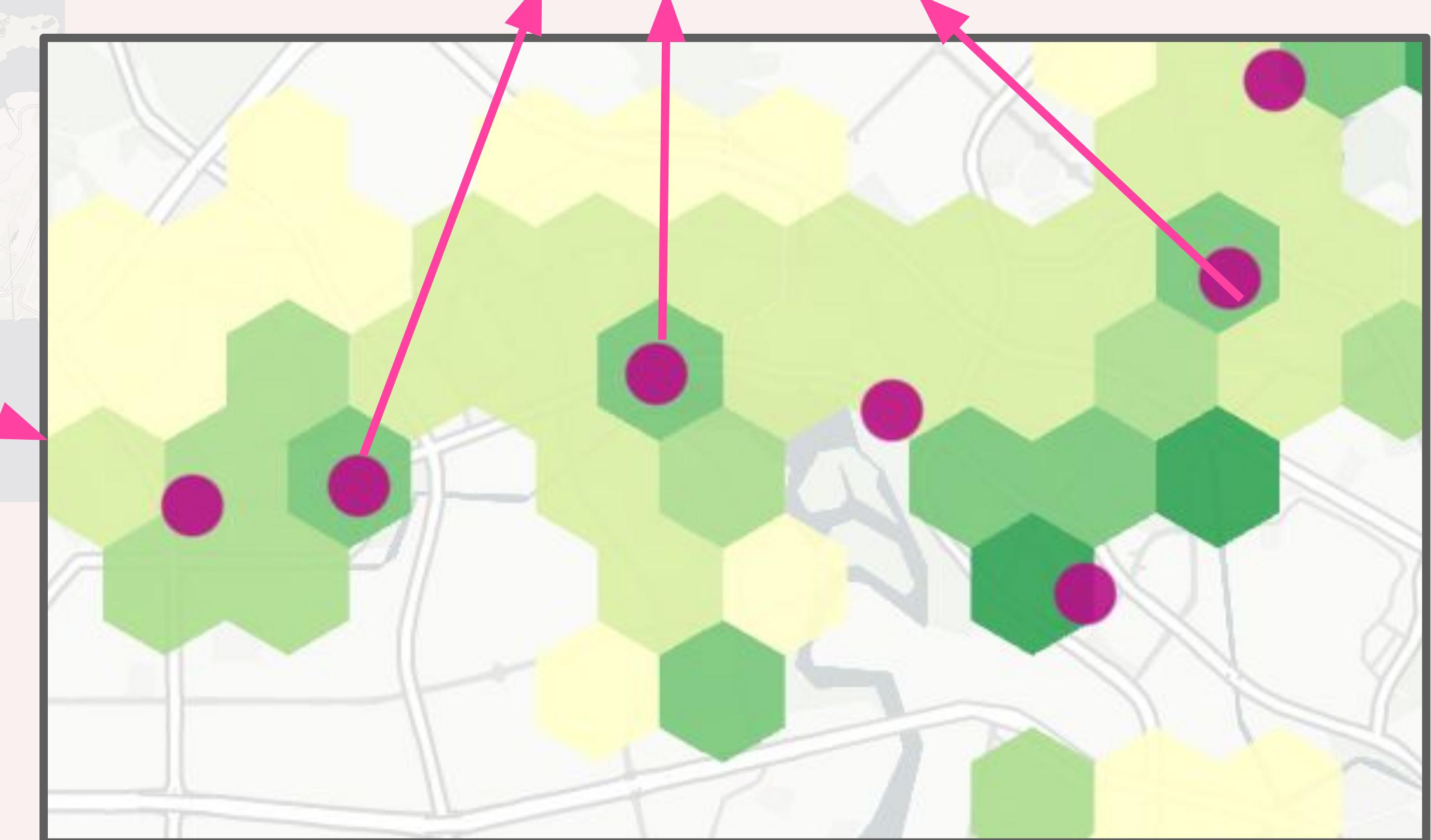
Near MRT station



Near MRT station



Prices tend to be higher in areas near surrounding MRT stations



Primary Schools

We **assumed** that houses nearer to primary schools will command better resale prices

BUT IS IT REALLY TRUE?

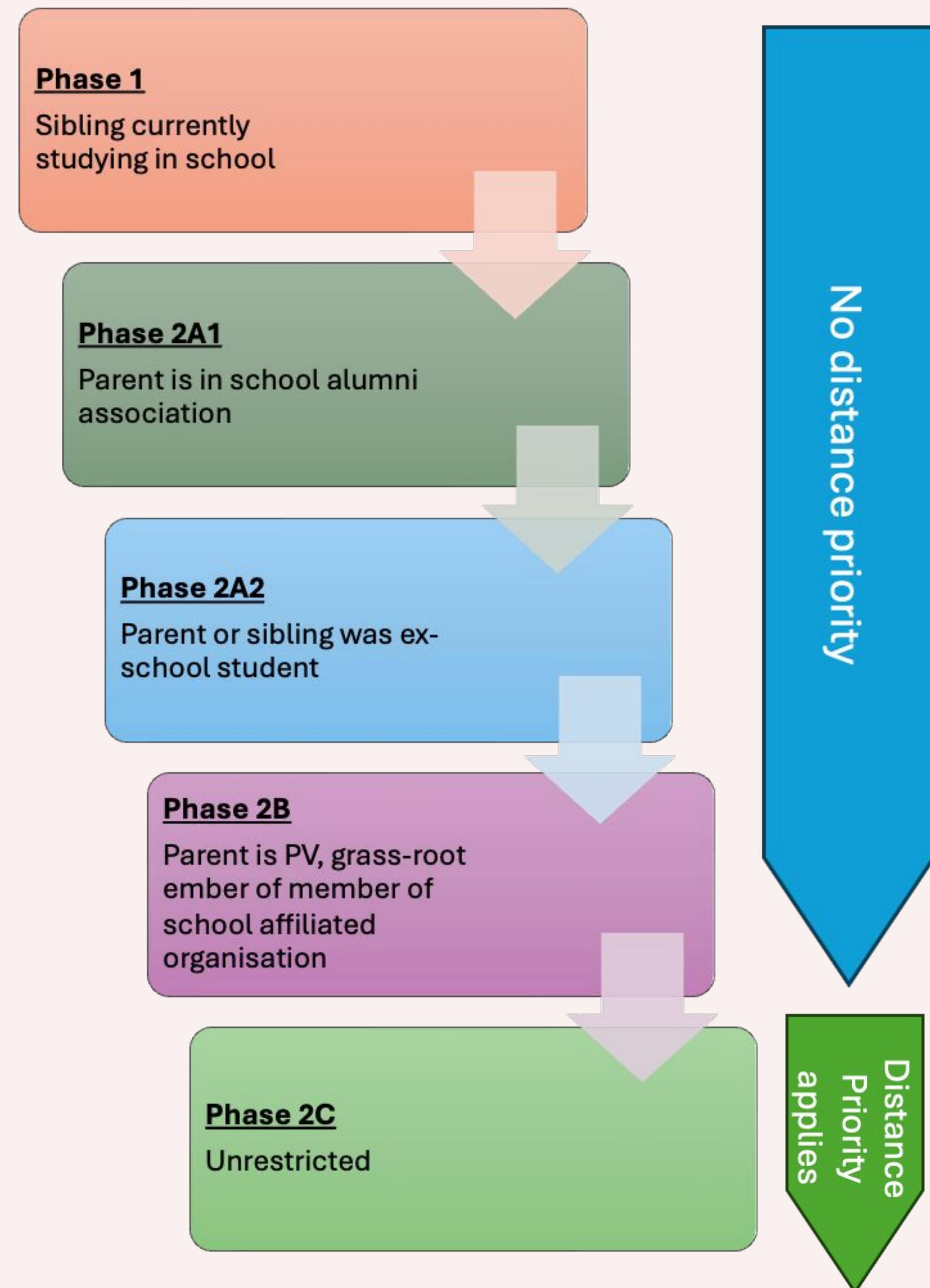


Primary Schools

Based on our qualitative and quantitative research

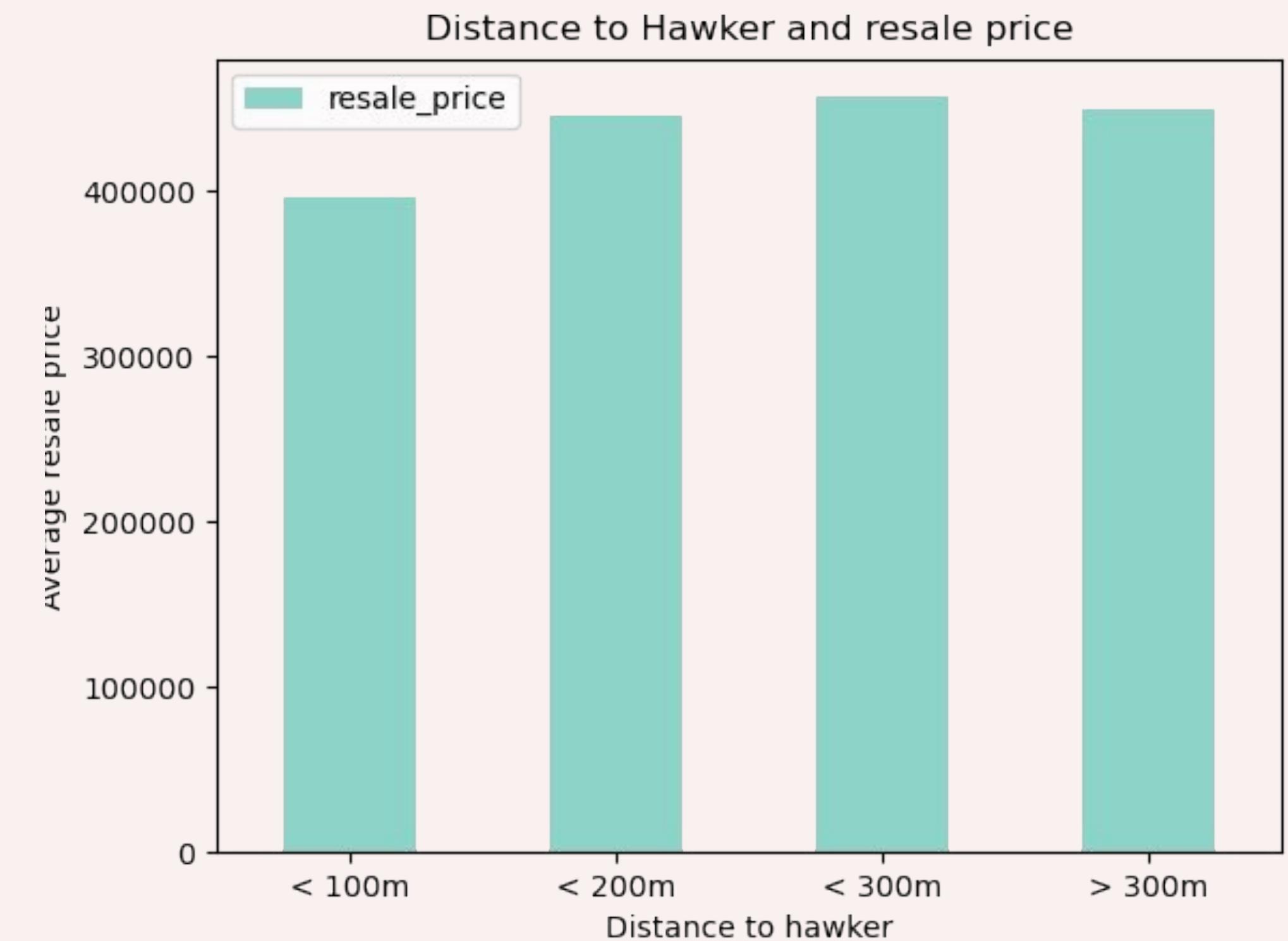
- Unable to derive conclusive results due to:**
- Difficulty in isolating this against other factors**
 - Some people HATE living near schools due to noise pollution.**
 - Registration before phase 2C is more important**

[Stacked homes, 2023](#)



Hawkers

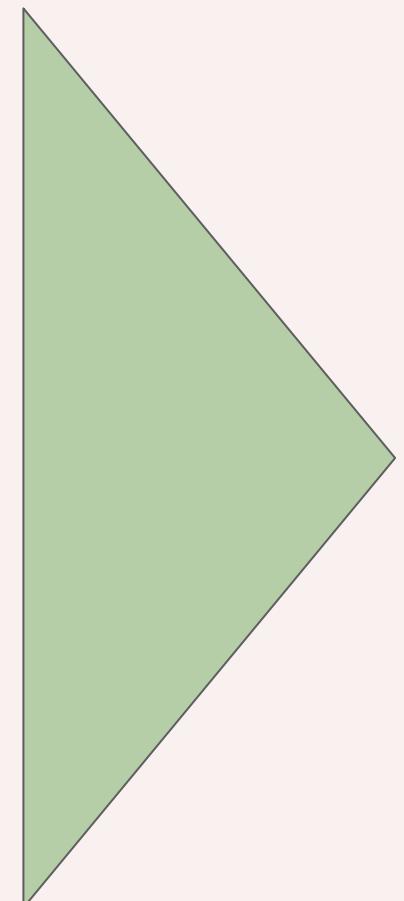
- Near to hawker tends to have higher resale price?



- Houses near Hawker Centre does not show the expected increase in **Resale prices**.
- This shows that there are underlying variables and factors that impacts this relationship.

Summary of Findings

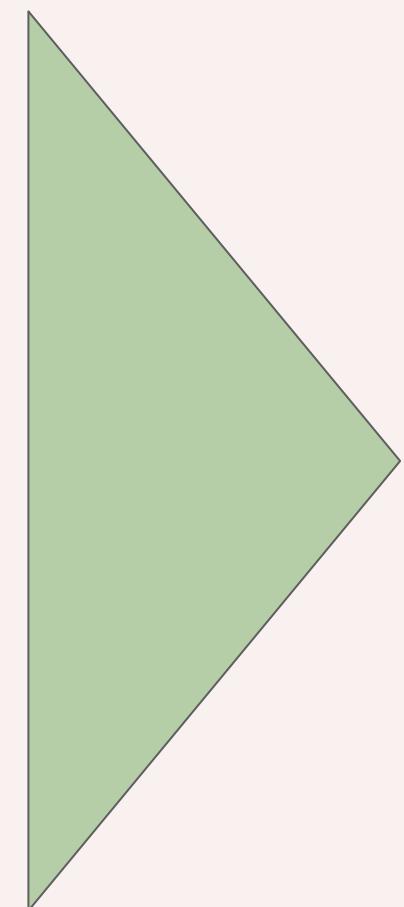
- **Higher** resale price in Mature estates
- **High** chance to find smaller and older flats in Mature estate
- Higher floor units are priced **higher**
- Units near MRT are priced **higher**
- **Inconclusive** relationship between price and distance to primary school
- Near Hawker centres **does not have the expected impact** in resale prices generally



George now receives consistent, data driven information from our agents

Summary of Findings

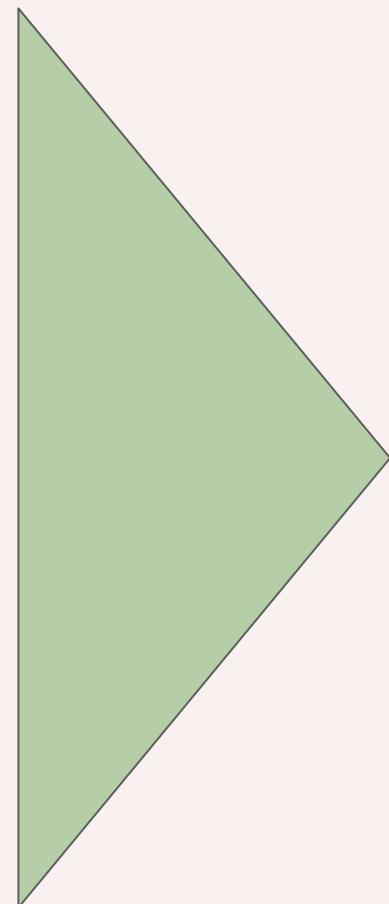
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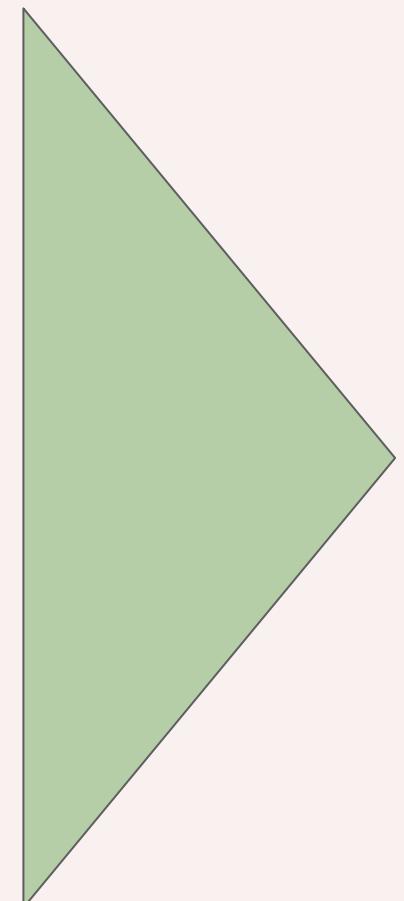
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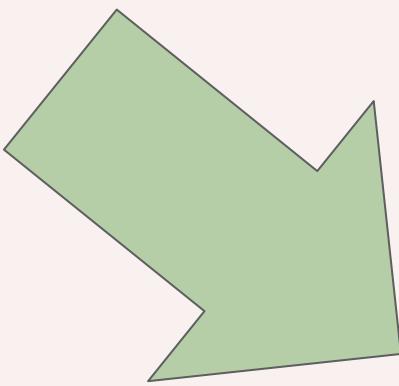
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George now receives consistent, data driven information from our agents



“The general information is consistent. The pricing provides by our agents **differ!!!!”**



Develop a predictor to empower our agents to provide similar and accurate prediction.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Inc_Year	Mtown	flat_type	block	street_name	storey_range	floor_area_sc	flat_model	lease_comm	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sc	price_per_sq	
16-05	KALLANG/WF	4 ROOM	38	UPP BOON KI	10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	4 ROOM Mod 38, UPP BOO	968.76	701.928238		
2-07	BISHAN	5 ROOM	153	BISHAN ST	10 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8	5 ROOM Imp 153, BISHAN	1399.32	475.230826		
3-07	BUKIT BATOK	EXECUTIVE	289B	BT BATOK ST	13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A 289B, BT BAT	1550.016	540.63958		
2-04	BISHAN	4 ROOM	232	BISHAN ST	2 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1108.692	496.080066		
7-12	YISHUN	4 ROOM	876	YISHUN ST	8 TO 03	83	Simplified	1987	298000	2017	12	11	10	12	11	4 ROOM Sim 876, YISHUN	893.412	333.552717		
3-01	GEYLANG	3 ROOM	95	ALJUNIED CP	07 TO 09	65	Improved	1975	335000	2013	1	1	1	1	65	3 ROOM Imp 95, ALJUNIED	699.66	478.803991		
8-05	HOUGANG	5 ROOM	641	HOUGANG A	07 TO 09	120	Improved	1987	433000	2018	5	5	4	6	120	5 ROOM Imp 641, HOUGA	1291.68	335.222346		
2-03	BEDOK	3 ROOM	701	BEDOK RESE	06 TO 10	68	New General	1980	340000	2012	3	3	2	4	68	New 701, BEDOK I	731.952	464.511334		
20-01	BISHAN	5 ROOM	450	SIN MING AV	10 TO 12	125	Improved	1989	700000	2020	1	1	1	1	125	Imp 450, SIN MIN	1345.5	520.252694		
4-06	SENGKANG	5 ROOM	307D	ANCHORVAL	10 TO 12	110	Improved	2001	490000	2014	6	6	5	7	110	Imp 307D, ANCH	1184.04	413.83737		
3-06	SENGKANG	4 ROOM	273D	COMPASSVA	13 TO 15	90	PremiumApa	2009	625000	2013	6	6	5	7	90	Pter 273D, COMP	968.76	645.154631		
8-03	TAMPINES	3 ROOM	412	TAMPINES ST	01 TO 03	69	Improved	1985	270000	2018	3	3	2	4	69	3 ROOM Imp 412, TAMPI	742.716	363.530609		
7-07	SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	125	Improved	1985	500000	2017	7	7	6	8	125	5 ROOM Imp 121, SERANG	1345.5	371.609067		
5-08	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2016	8	8	7	9	29	4 ROOM Imp 54, HAVEL	1011.816	761.00793		
14-09	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2016	8	8	7	9	29	4 ROOM Imp 54, HAVEL	979.524	352.211891		
11-09	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2016	8	8	7	9	29	4 ROOM Imp 54, HAVEL	785.772	367.648631		
1-10	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2016	8	8	7	9	29	4 ROOM Imp 54, HAVEL	1280.916	312.276527		
1-10	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2016	8	8	7	9	29	4 ROOM Imp 54, HAVEL	1323.972	604.242386		
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1-10	BUKIT MERAH	4 ROOM	54	HAVELOCK R	28 TO 30	94	Model A	2013	770000	2016	8	8	7	9	29	4 ROOM Imp 54, HAVEL	1453.14	295.910924		
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1-10	TOA PAYOH	3 ROOM	205	TOA PAYOH N	10 TO 12	65	Improved	1973	260000	2020	7	11	10	12	11	3 ROOM Imp 205, TOA PAY	699.66	371.609067		
7-09	JURONG WE	4 ROOM	156	YUNG LOH RI	04 TO 06	107	Model A	1996	358000	2017	9	5	4	6	107	4 ROOM Mod 156, YUNG LO	1151.748	310.831883		
6-03	CHOACHUK	4 ROOM	417	CHOACHUK	07 TO 09	105	Model A	1993	383000	2016	3	8	7	9	105	4 ROOM Mod 417, CHOAC	1130.22	338.872078		
12-11	SEMBAWANG	5 ROOM	507C	WELLINGTON	10 TO 12	110	Improved	2001	503000	2012	11	11	10	12	11	5 ROOM Imp 507C, WELLI	1184.04	424.816729		
12-12	KALLANG/WF	5 ROOM	103	JLN RAJAH	07 TO 09	139	Model A	1984	708000	2012	12	8	10	12	103	JLN RAJAH Mod 103, JLN RAJ	1496.196	473.200035		
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19-04	TOA PAYOH	5 ROOM	848	LOR 2 TOAPA	10 TO 12	122	Improved	1997	820000	2019	4	11	10	12	11	5 ROOM Imp 848, LOR 2TC	1313.208	624.425072		
8-11	KALLANG/WF	3 ROOM	64	KALLANG BA	01 TO 03	65	Improved	1974	260000	2018	11	2	1	3	65	3 ROOM Imp 64, KALLANG	699.66	371.609067		
8-11	CHOACHUK	5 ROOM	684C	CHOACHUK	04 TO 06	110	Improved	2002	350000	2018	11	5	4	6	110	5 ROOM Imp 684C, CHOA	1184.04	295.598122		
3-04	ANG MO KIO	3 ROOM	219	ANG MO KIO	07 TO 09	67	New General	1977	385000	2013	4	8	7	9	67	3 ROOM New 219, ANG MC	721.188	533.841384		
20-12	TOA PAYOH	3 ROOM	116	LOR 2 TOAPA	07 TO 09	72	Improved	1970	350000	2020	12	8	7	9	72	3 ROOM Imp 116, LOR 2TC	775.008	451.608241		
19-03	WOODLAND	5 ROOM	137	MARSILING R	07 TO 09	121	Improved	1985	340000	2019	3	8	7	9	121	5 ROOM Imp 137, MARSILI	1302.444	261.047692		
9-08	BUKIT BATOK	3 ROOM	208	BT BATOK ST	04 TO 06	73	Model A	1983	268000	2019	8	5	4	6	53	3 ROOM Mod 208, BT BATO	785.772	341.065856		
7-04	BUKIT MERAH	5 ROOM	112A	DEPOT RD	16 TO 18	115	Improved													

Selecting Features

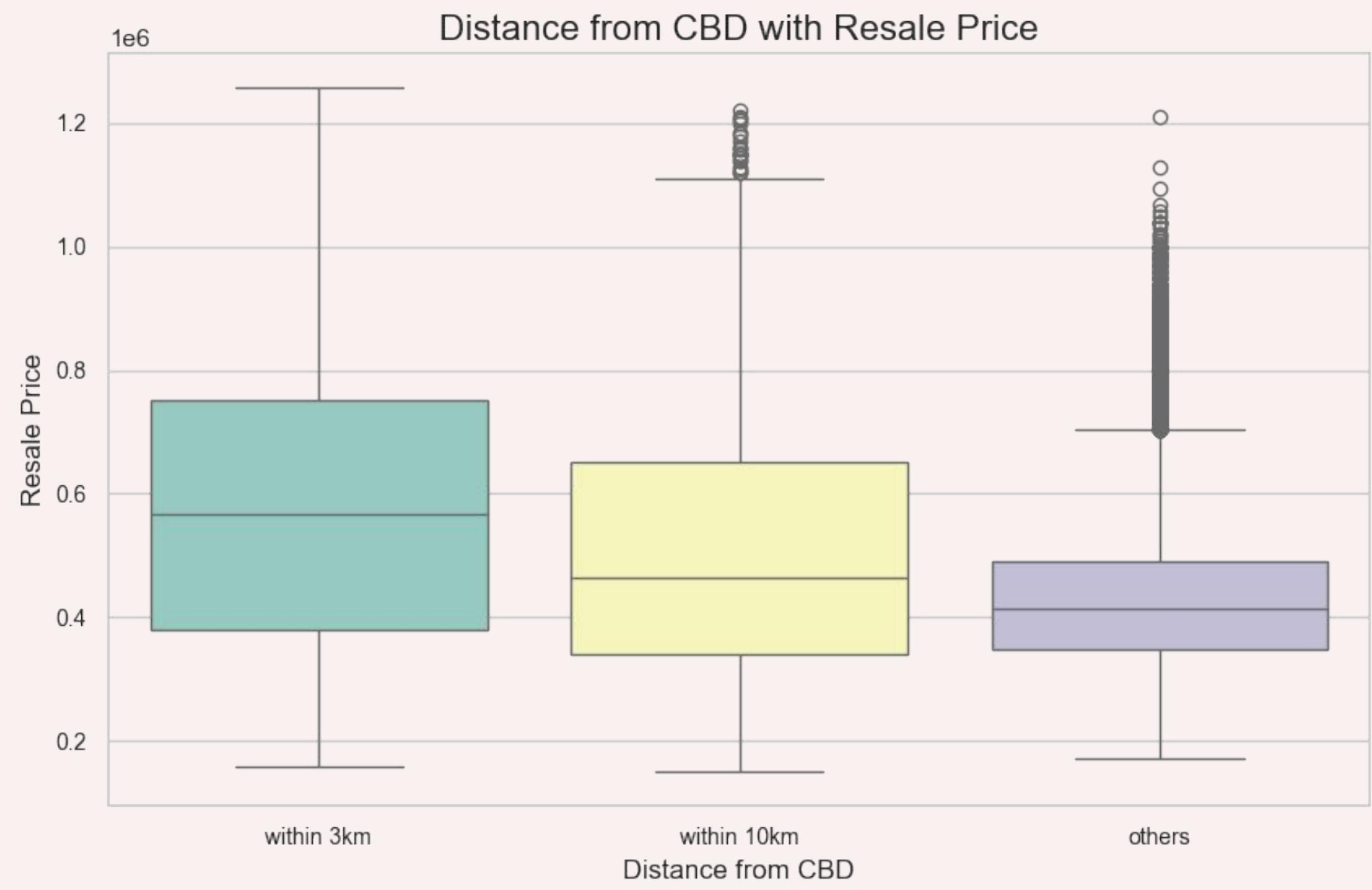
- Floor level
- Distance to nearest MRT
- Mature / Non- Mature Estate
- Transaction Year
- Age of houses as of transaction year
- Flat Type
- Flat Model
- Planning Area

Engineered New Features

Based on domain knowledge, we have also engineered additional features that is unique to our model

- **Distance from Central Business District (CBD)**
- Distance from the nearest “Super Mall”
- Corrections to model based on unique flat types

Distance From CBD



- Units near CBD have generally have a higher price.

Engineered New Features

Based on domain knowledge, we have also engineered additional features that is unique to our model

- ~~Distance from Central Business District (CBD)~~
- **Distance from the nearest “Super Mall”**
- Corrections to model based on unique flat types

Are all malls created equal?

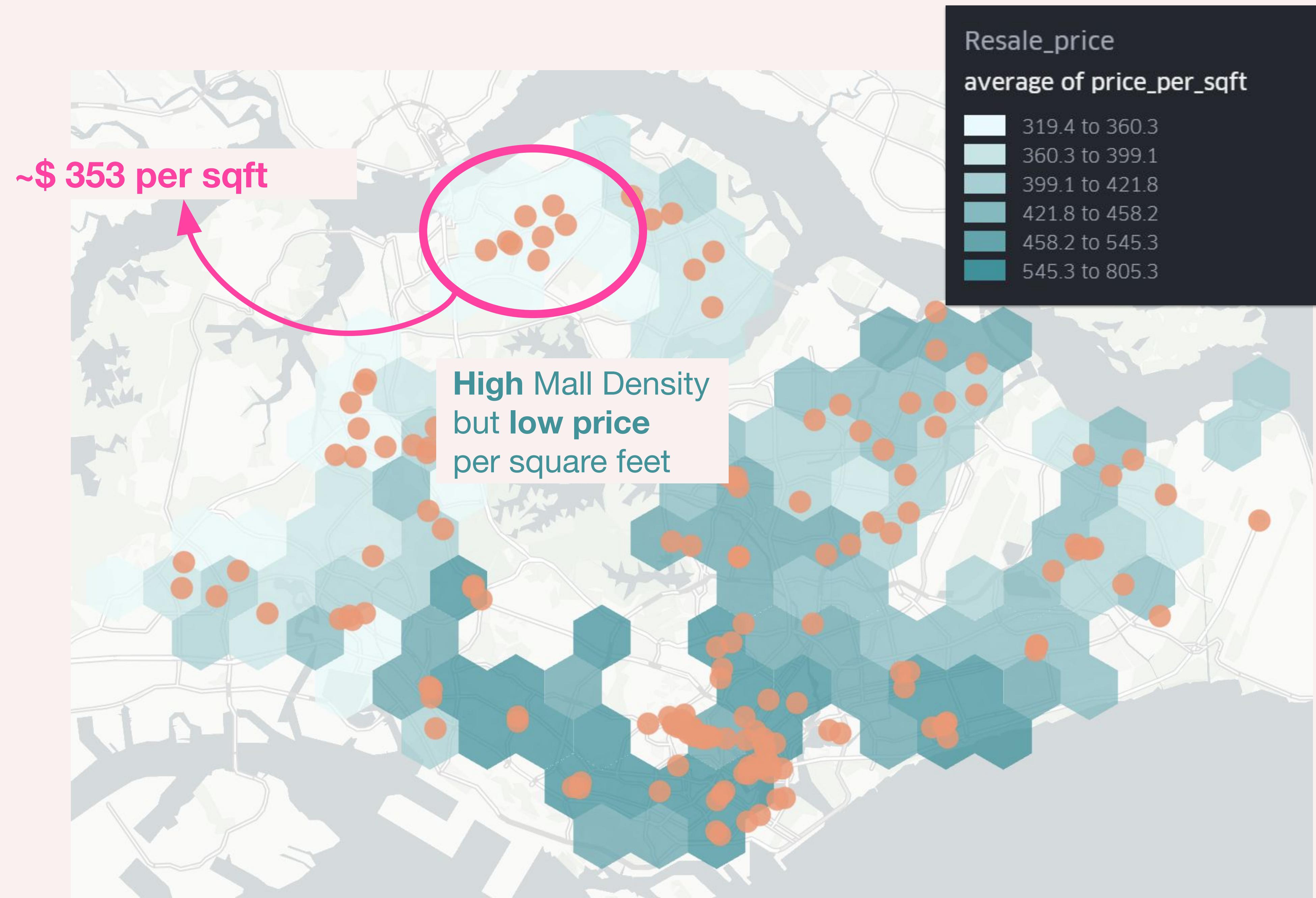


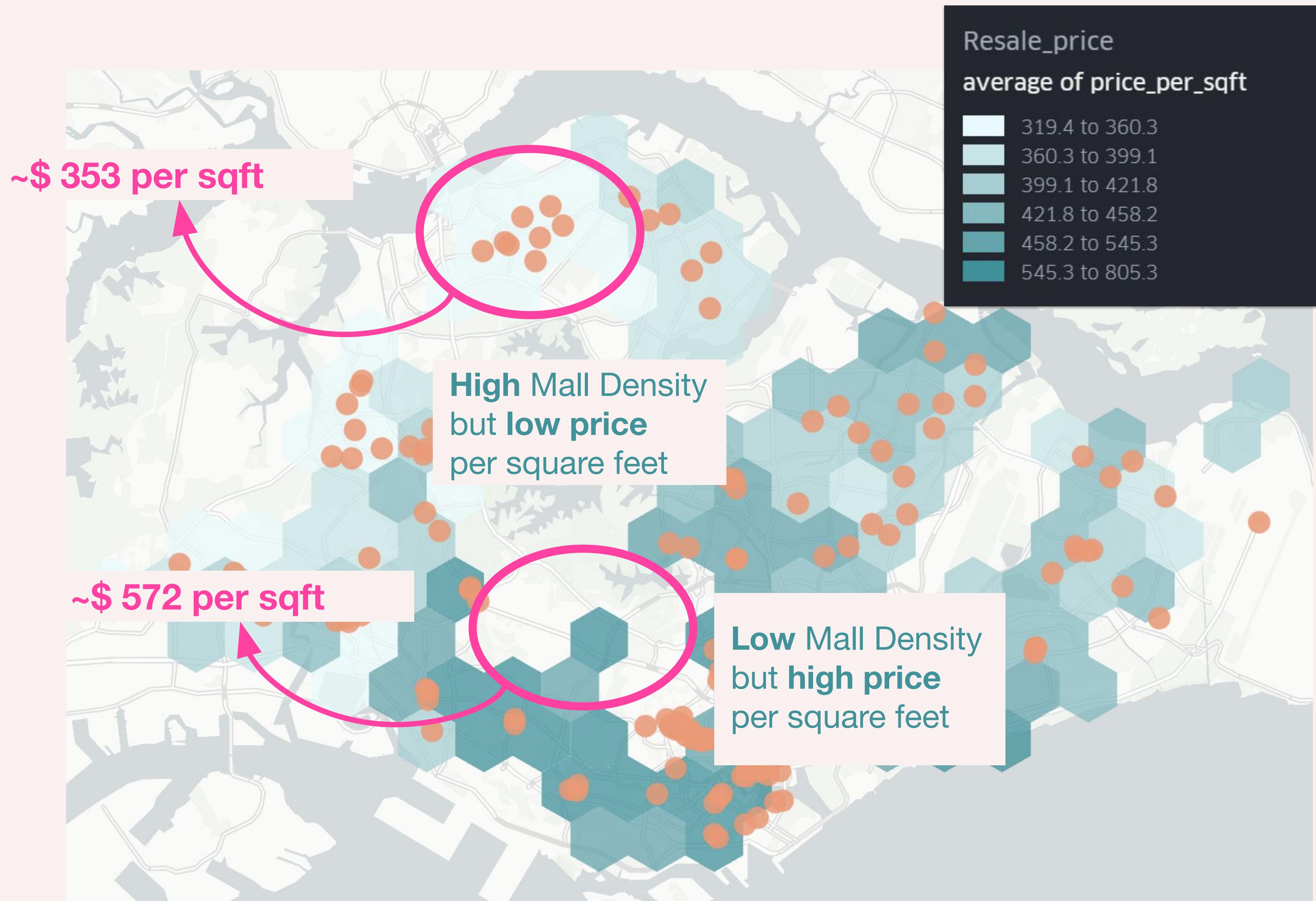
Joo Chiat Complex

VS



Paya Lebar Quarter

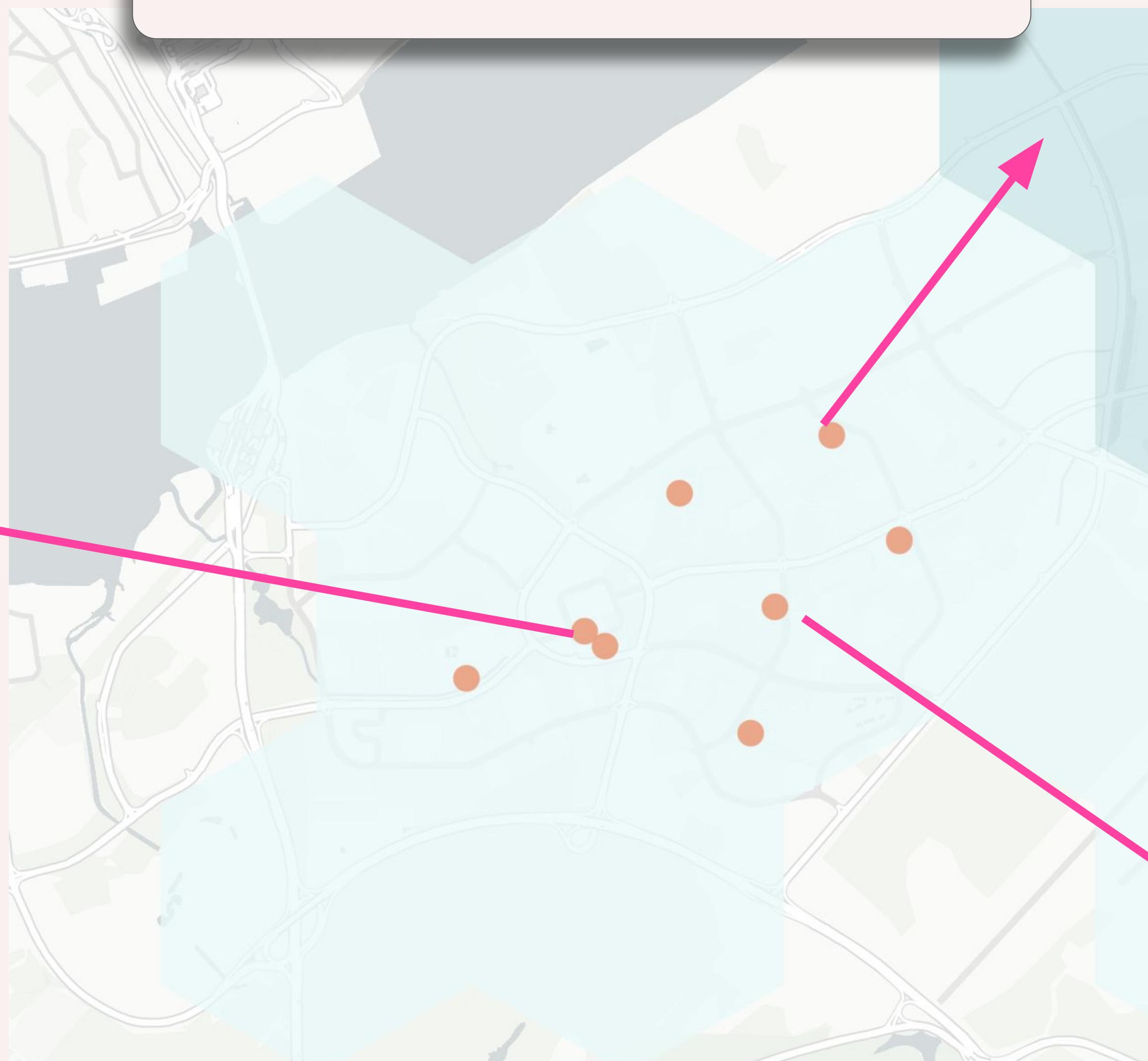




Malls? Or Pseudo Malls?



Woodlands North Plaza



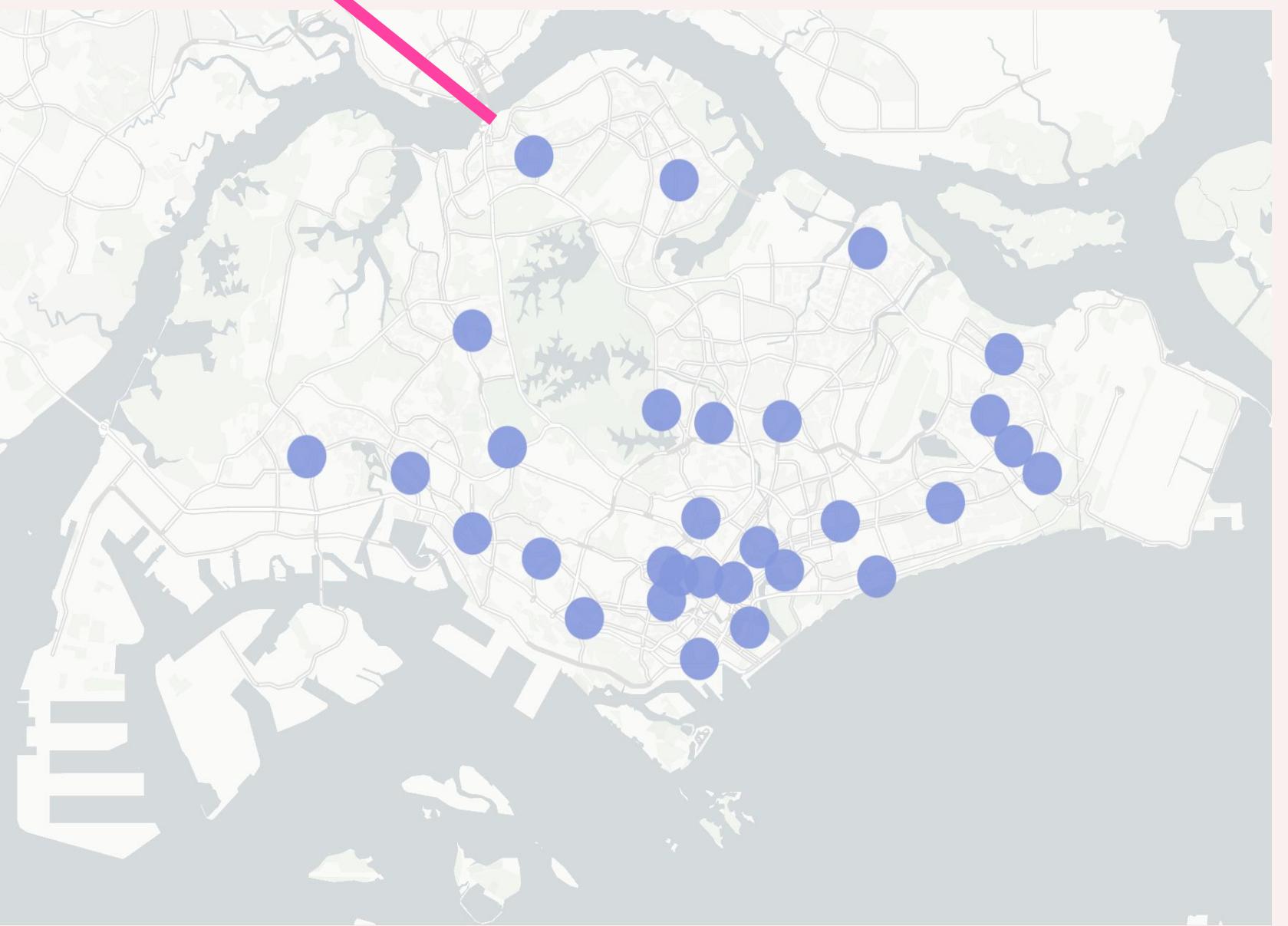
888 Plaza



Woodlands Mart



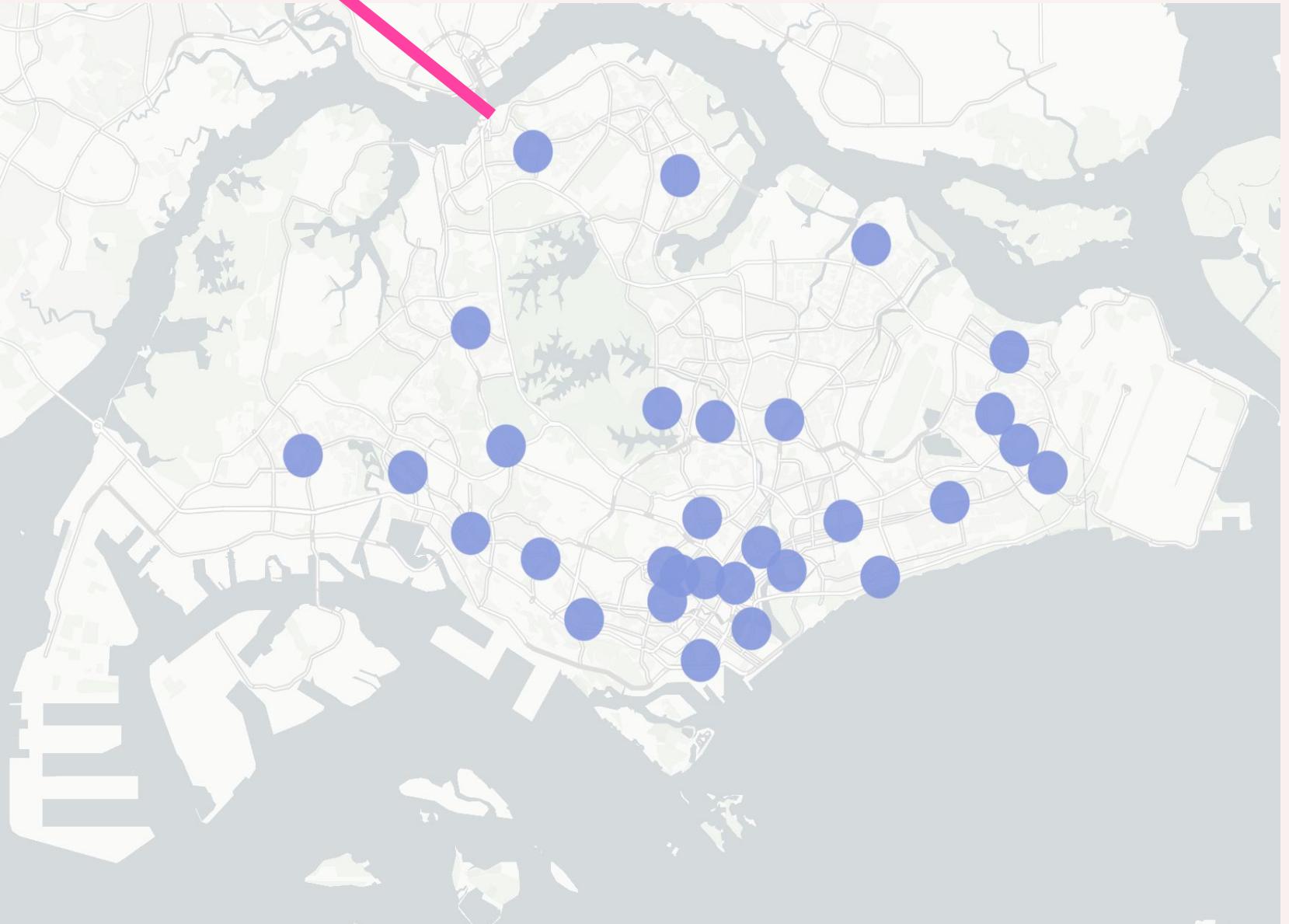
**Causeway
Point**



**Reduce shopping malls to a few
based on domain knowledge**



Causeway
Point



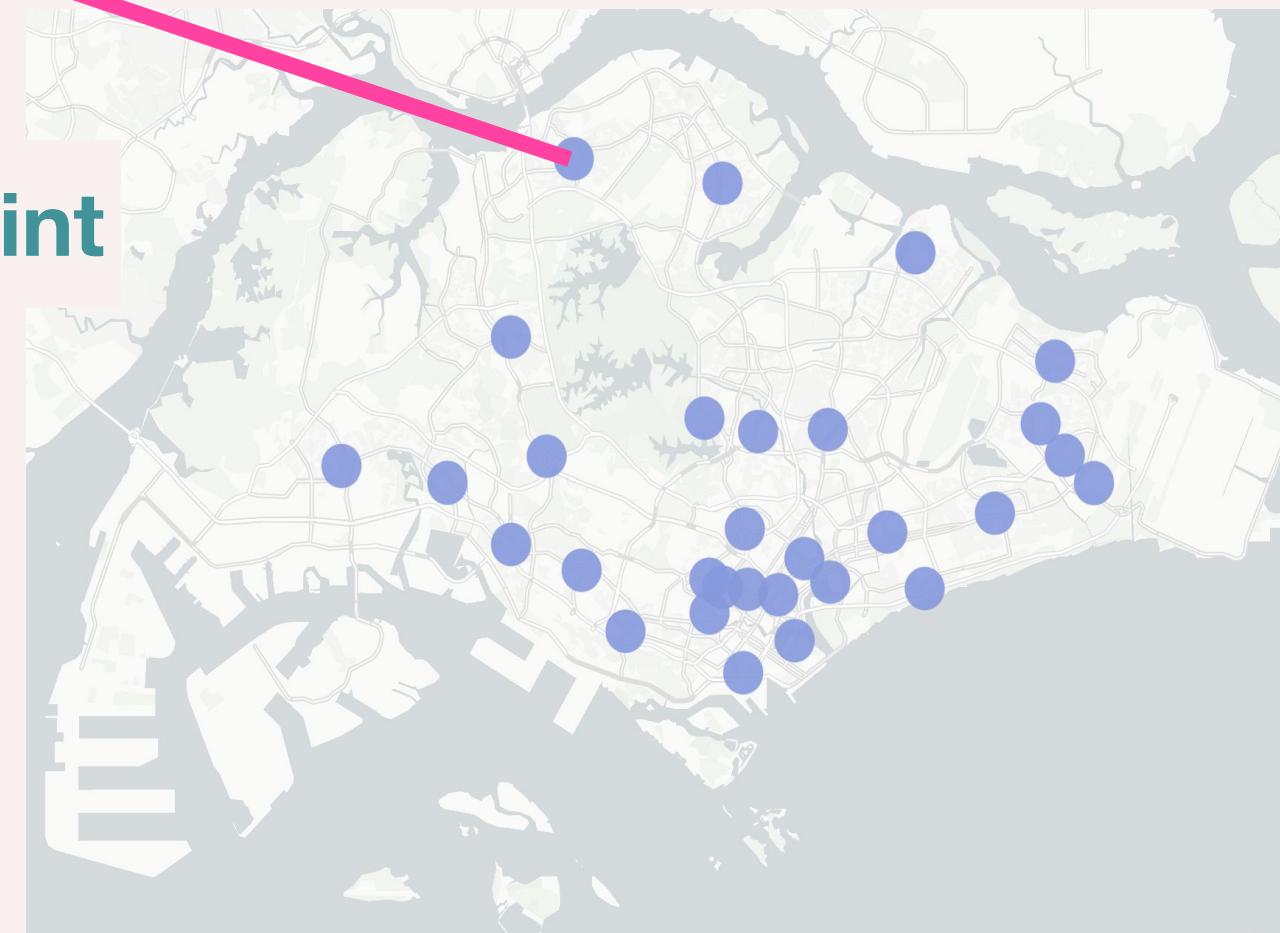
Reduce shopping malls to a few based on domain knowledge



ID	Trans_YearMonth	Bat_Type	Block	Street_Name	Block_Floor_Area_sq_ft	Floor	Model_A	Issue_Comm_Start_Prc	Trans_Year	Trans_Month_End_Year	Lower	Upper	Mid	Full_Rmt_Type	Address	Floor_Area_sq_ft	Per_sq_ft	Hdb_Age	Max_Floor_By_Year_Compl
86471	2016-05	KALLANG W 4 ROOM	36	UPR ROAD 61 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11-4 ROOM Mod 58, UPP RDO	965.76	701.925238	15	24	2006
122589	2012-07	BISHAN 5 ROOM	153	RISHAN ST 11 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8-5 ROOM Imp 158, BISHAN	1398.32	475.230286	34	9	1987
170897	2013-07	BUKIT BATOK EXECUTIVE	209B	BT BATOK ST 11 TO 16	140	Apartment	1987	638000	2013	7	14	13	15	14 EXECUTIVE A/288B, BT BAT	1550.016	540.630598	24	16	1996
86070	2012-04	BISHAN 4 ROOM	232	BISHAN ST 21 TO 05	189	Model A	1982	550000	2012	4	3	1	5	3-4 ROOM Mod 232, BISHAN	1108.892	496.080068	29	11	1996
103860	2012-07	TOA PAYOH 4 ROOM	299	TOA PAYOH ST 1 TO 10	120	Improved	1987	600000	2012	27	27	27	28	2-4 ROOM Imp 299, TOA PAY	1000.0	400.000000	34	1	1996
28610	2010-01	GEYLANG 3 ROOM	95	ALUNING CH 07 TO 09	65	Improved	1975	335000	2013	1	8	7	9	8-3 ROOM Imp 95, ALUNING	899.86	478.020891	40	12	1975
173300	2018-08	HOUDANG 3 ROOM	641	HOUDANG A 07 TO 09	120	Improved	1987	433000	2018	6	8	7	9	8-3 ROOM Imp 641, HOUDAG	1391.68	335.222348	34	17	1988
55059	2012-03	BEDOK 3 ROOM	701	BEDOK RES 06 TO 10	68	New General	1987	340000	2012	3	8	6	10	8-3 ROOM New 701, BEDOK	731.852	484.511334	41	12	1988
169723	2020-01	BISHAN 3 ROOM	450	SIN MIND AV 10 TO 12	120	Improved	1987	700000	2020	1	11	10	12	11-3 ROOM Imp 450, SIN MIN	1345.5	520.202694	32	25	1998
103861	2012-07	TOA PAYOH 3 ROOM	307D	TOA PAYOH ST 1 TO 10	120	Improved	1987	600000	2012	27	27	27	28	2-3 ROOM Imp 307D, TOA PAY	1000.0	400.000000	30	17	2000
901010	2013-06	SENKOANG 4 ROOM	273D	COMPASSIA 13 TO 16	90	Premium/Ap	2008	625000	2013	6	14	13	15	14-4 ROOM Per 273D, COMP	965.76	645.154631	12	16	2008
46479	2018-03	TAMPINES 3 ROOM	412	TAMPINES ST 01 TO 03	69	Improved	1985	270000	2018	3	2	1	3	2-3 ROOM Imp 412, TAMPINI	742.716	383.530009	36	12	1984
162311	2017-07	SERANGOON 5 ROOM	121	SERANGOON 07 TO 09	120	Improved	1985	500000	2017	7	8	7	9	8-5 ROOM Imp 121, SERANG	1345.5	371.609057	36	13	1984
52787	2018-08	BUKIT HERAH 4 ROOM	54	HARLOCK 28 TO 30	94	Model A	2013	770000	2015	8	29	28	30	20-4 ROOM Mod 54, HARLO	1011.816	761.000793	8	36	2011
125865	2018-08	TOA PAYOH 4 ROOM	497	TOA PAYOH ST 1 TO 10	120	Improved	1987	570000	2018	27	27	27	28	2-4 ROOM Imp 497, TOA PAY	979.000	399.000000	30	17	2011
21885	2018-01	BUKIT PANJU 4 ROOM	116	PROVIDE 07 TO 10	73	Model	1987	288000	2018	1	11	10	12	11-3 ROOM Mod 116, PANJU	979.000	399.000000	30	17	1988
54196	2020-11	WOODLAND 4 ROOM	318	WOODLAND 10 TO 12	110	Model A	1993	400000	2020	11	11	10	12	11-4 ROOM Mod 318, WOODL	1280.016	312.270237	28	12	1984
154005	2015-12	BISHAN 5 ROOM	292	BISHAN ST 2 TO 10	120	Premium/Ap	1985	600000	2015	12	8	7	9	8-5 ROOM Per 292, BISHAN	1323.972	604.242386	23	24	1998
164979	2018-03	BISHAN 5 ROOM	194	BISHAN ST 11 TO 09	121	Improved	1987	800000	2018	3	8	7	9	8-5 ROOM Imp 194, BISHAN	1320.444	618.836597	34	25	1988
13868	2017-12	TOA PAYOH 4 ROOM	980	TOA PAYOH ST 1 TO 10	120	Improved	1988	400000	2017	10	10	9	11	8-4 ROOM Imp 980, TOA PAY	7291.08	188.000042	30	12	1988
44739	2017-08	WOODLAND 4 ROOM	354	WOODLAND 07 TO 09	30	Model A	1985	220000	2017	8	8	7	9	8-4 ROOM Mod 354, WOODL	1322.000	332.300042	22	12	1990
113785	2015-07	SENKOANG 4 ROOM	407C	FERNAVIL RI 19 TO 21	90	Premium/Ap	2005	420000	2015	7	20	19	21	20-4 ROOM Per 407A, FERN	968.76	433.543912	16	26	2005
125382	2018-10	WOODLAND 4 ROOM	409	WOODLAND 10 TO 12	130	Model A	1985	430000	2019	10	11	10	12	11-5 ROOM Mod 409, WOODL	1453.14	295.310024	25	14	1984
164364	2018-03	HOUDANG 3 ROOM	558	HOUDANG 01 TO 03	140	Modellette	1982	605000	2012	3	3	1	5	3-3 ROOM H 01, HOUDANG	1593.072	379.760402	29	11	1984
103862	2018-08	TOA PAYOH 4 ROOM	92	PTT RD 01 TO 03	120	Improved	1987	540000	2015	4	11	10	12	12-3 ROOM Imp 92, PTT RD	1000.0	501.000241	24	18	1958
147905	2018-08	TOA PAYOH 4 ROOM	299A	TOA PAYOH ST 11 TO 15	111	Improved	1987	520000	2018	5	14	13	15	14-3 ROOM Imp 299A, TOA PAY	1144.772	388.000000	17	20	1998
166009	2018-08	JURONG WEST 5 ROOM	653A	JURONG WE 04 TO 06	111	Improved	2002	465000	2019	5	4	4	6	5-5 ROOM Imp 653A, JURON	1194.004	379.141983	19	16	2008
68973	2020-08	BUKIT BATOK 4 ROOM	291A	BT BATOK ST 01 TO 03	104	Model A	1987	360000	2020	6	2	1	3	2-4 ROOM Mod 291A, BT BAT	1119.456	321.584777	24	19	1998
35372	2020-07	TOA PAYOH 3 ROOM	205	TOA PAYOH 10 TO 12	87	Improved	1973	260000	2020	7	11	10	12	11-3 ROOM Imp 205, TOA PAY	699.86	371.609097	48	12	1973
72362	2017-09	TOA PAYOH 3 ROOM	156	TOA PAY OH 04 TO 06	107	Model A	1986	350000	2017	9	5	4	6	8-3 ROOM Mod 156, TOA PAY	1111.748	338.000085	25	10	1984
112030	2018-03	CHOA CHU KUAH 4 ROOM	417	CHOA CHU KUAH 01 TO 03	102	Model A	1987	200000	2018	3	7	6	8	8-4 ROOM Mod 417, CHOA CH	1130.000	338.872078	20	13	1991
108303	2012-11	SEMAWAN 5 ROOM	507C	WELLINGTON 10 TO 12	110	Improved	2001	500000	2012	11	11	10	12	11-5 ROOM Imp 507C, WELLIN	1184.04	424.810279	20	12	2008
141326	2012-12	KALLANG W 5 ROOM	103	JN RAJAH 07 TO 09	130	Model A	1985	708000	2012	12	8	7	9	8-5 ROOM Mod 103, JN RAJ	1496.196	473.200035	37	20	1985
113403	2012-07	SENGKANG 5 ROOM	299B	COMPASSIA 13 TO 17	115	Premium/Ap	2001	490000	2012	7	14	13	15	14-5 ROOM Imp 299B, COMP	1237.86	405.891516	20	17	1998
140705	2018-04	TOA PAYOH 4 ROOM	648	LOFT DAIRY 10 TO 12	120	Improved	1987	520000	2019	4	11	10	12	11-5 ROOM Imp 648, LOFT D	1512.000	624.420272	24	20	1998
1																			



Causeway Point



**Reduce shopping malls to
a few based on domain
knowledge**

Re-calculate nearest distance to mall

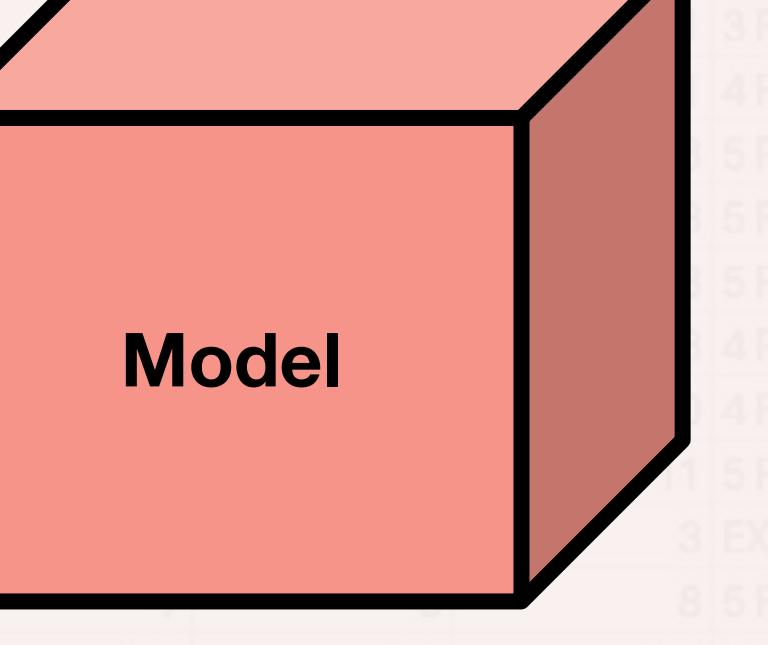
Better performing feature

Engineered New Features

Based on domain knowledge, we have also engineered additional features that is unique to our model

- ~~Distance from Central Business District (CBD)~~
- ~~Distance from the nearest “Super Mall”~~
- **Corrections to model based on unique flat types**

Fine Tuning



Model

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
enc_Year	Mtown	flat_type	block	street_name	storey_range	floor_area_sq	flat_model	lease_comm	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sq	price_per_sq
6-05	KALLANG/WFH	4 ROOM	3B	UPP BOON KI	10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	4 ROOM Mod 3B, UPP BOO	968.76	701.928238	
2-07	BISHAN	5 ROOM	153	BISHAN ST 1	07 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8	5 ROOM Impr 153, BISHAN	1399.32	475.230826	
3-07	BUKIT BATOK	EXECUTIVE	289B	BT BATOK ST 1	13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A 289B, BT BAT	1550.016	540.63958	
2-04	BISHAN	4 ROOM	232	BISHAN ST 2	01 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1108.692	496.080066	
7-12	YISHUN	4 ROOM	876	YISHUN ST 8	01 TO 03	83	Simplified	1987	298000	2017	12	2	1	3	2	4 ROOM Simj 876, YISHUN	893.412	333.552717	
3-01	GEYLANG	3 ROOM	95	ALIJUNIED CP	07 TO 09	65	Improved	1975	335000	2013	1	8	7	9	8	3 ROOM Impr 95, ALIJUNIED	699.66	478.803991	
8-05	HOUGANG	5 ROOM	641	HOUGANG A	07 TO 09	120	Improved	1987	433000	2018	5	8	7	9	8	5 ROOM Impr 641, HOUGA	1291.68	335.222346	
2-03	BEDOK	3 ROOM	701	BEDOK RESE	06 TO 10	68	New General	1980	340000	2012	3	8	6	10	8	3 ROOM New 701, BEDOK I	731.952	464.511334	
20-01	BISHAN	5 ROOM	450	SIN MING AV	10 TO 12	125	Improved	1989	700000	2020	1	11	10	12	11	5 ROOM Impr 450, SIN MIN	1345.5	520.252694	
14-06	SENGKANG	5 ROOM	307D	ANCHORVAL	10 TO 12	110	Improved	2001	490000	2014	6	11	10	12	11	5 ROOM Impr 307D, ANCH	1184.04	413.83737	
3-06	SENGKANG	4 ROOM	273D	COMPASSVA	13 TO 15	90	PremiumApa	2009	625000	2013	6	14	13	15	14	4 ROOM Pre 273D, COMP	968.76	645.154631	
8-03	TAMPINES	3 ROOM	412	TAMPINES ST 1	01 TO 03	69	Improved	1985	270000	2018	3	2	1	3	2	3 ROOM Impr 412, TAMPINI	742.716	363.530609	
7-07	SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	126	Improved	1985	500000	2017	7	8	7	9	8	5 ROOM Impr 121, SERANG	1345.5	371.609067	
6-08	BUKIT MERAH	4 ROOM	54	HAVELOCK R	08 TO 20	94	Model A	2013	770000	2015	8	29	28	30	29	4 ROOM Mod 54, HAVELOC	1011.816	761.00793	
8-05	WOODLAND	5 ROOM	690A	WOODLAND W	10 TO 15	100	Premium	2004	442000	2016	7	14	13	15	14	5 ROOM Pre 690A, WOOD	1184.04	398.635181	
9-08	JURONG WE	5 ROOM	653A	JURONG WE	04 TO 06	111	Improved	2002	453000	2019	8	5	4	6	5	5 ROOM Impr 653A, JURON	1194.804	379.141683	
20-06	BUKIT BATOK	4 ROOM	291A	BT BATOK ST 1	01 TO 03	104	Model A	1997	360000	2020	6	2	1	3	2	4 ROOM Mod 291A, BTBAT	1119.456	321.58477	
20-07	TOA PAYOH	3 ROOM	205	TOA PAYOH N	10 TO 12	65	Improved	1973	260000	2020	7	11	10	12	11	3 ROOM Impr 205, TOAPAY	699.66	371.609067	
7-09	JURONG WE	4 ROOM	156	YUNG LOH RI	04 TO 06	107	Model A	1996	358000	2017	9	5	4	6	5	4 ROOM Mod 156, YUNG LO	1151.748	310.831883	
6-03	CHOACHUK	4 ROOM	417	CHOACHUK	07 TO 09	105	Model A	1993	383000	2016	3	8	7	9	8	4 ROOM Mod 417, CHOAC	1130.22	338.872078	
12-11	SEMBAWANG	5 ROOM	507C	WELLINGTON	10 TO 12	110	Improved	2001	503000	2012	11	11	10	12	11	5 ROOM Impr 507C, WELLI	1184.04	424.816729	
2-12	KALLANG/WFH	5 ROOM	103	JLN RAJAH	07 TO 09	139	Model A	1984	708000	2012	12	8	7	9	8	5 ROOM Mod 103, JLN RAJ	1496.196	473.200035	
2-07	SENGKANG	5 ROOM	299B	COMPASSVA	13 TO 15	115	PremiumApa	2001	496000	2012	7	14	13	15	14	5 ROOM Pre 299B, COMP	1237.86	400.591516	
19-04	TOA PAYOH	5 ROOM	848	LOR 2 TOAPA	10 TO 12	122	Improved	1997	820000	2019	4	11	10	12	11	5 ROOM Impr 848, LOR 2TC	1313.208	624.425072	
8-11	KALLANG/WFH	3 ROOM	64	KALLANG BA	01 TO 03	65	Improved	1974	260000	2018	11	2	1	3	2	3 ROOM Impr 64, KALLANG	699.66	371.609067	
8-11	CHOACHUK	5 ROOM	684C	CHOACHUK	04 TO 06	110	Improved	2002	350000	2018	11	5	4	6	5	5 ROOM Impr 684C, CHOA	1184.04	295.598122	
3-04	ANG MO KIO	3 ROOM	219	ANG MO KIO	07 TO 09	67	New General	1977	385000	2013	4	8	7	9	8	3 ROOM New 219, ANG MC	721.188	533.841384	
20-12	TOA PAYOH	3 ROOM	116	LOR 2 TOAPA	07 TO 09	72	Improved	1970	350000	2020	12	8	7	9	8	3 ROOM Impr 116, LOR 2TC	775.008	451.608241	
9-03	WOODLAND	5 ROOM	137	MARSILING R	07 TO 09	121	Improved	1985	340000	2019	3	8	7	9	8	5 ROOM Impr 137, MARSILI	1302.444	261.047692	
9-08	BUKIT BATOK	3 ROOM	208	BT BATOK ST 1	04 TO 06	73	Model A	1983	268000	2019	8	5	4	6	5	3 ROOM Mod 208, BT BATO	785.772	341.065856	
7-04	BUKIT MERAH	5 ROOM	112A	DEPOT RD	16 TO 18	115	Improved	2006	708000	2017	4	17	16	18	17	5 ROOM Impr 112A, DEPOT	1237.86	571.954825	
6-12	SEMBAWANG	5 ROOM	325	SEMBAWANG C	10 TO 12	120	Improved	1999	395000	2018	12	11	10	12	11	5 ROOM Impr 325, SEMBAV	1291.68	305.803295	

**Tiong Bahru pre-war flat listed
at \$2m, lease left with just
43 years**

[Asiaone, 2023](#)

**This goes against our model that the older
the flat, the cheaper it gets.**

Unique Trends

Our model is able to predict general trends but does not predict “unique” cases.

Instead of classifying these as “**outliers**”, we account for these so that to improve the user experience.



Flat model: Terrace



Pre-war HDB Tiong Bahru
Year of completion in 1949

Unique Trends Solutions

We classify these “**unique**” HDB based on their **different profiles**.



Flat model: Terrace



Pre-war HDB Tiong Bahru
Year of completion in 1949

Engineered New Features

Based on domain knowledge, we have also engineered additional features that is unique to our model

- ~~Distance from Central Business District (CBD)~~
- ~~Distance from the nearest “Super Mall”~~
- ~~Corrections to model based on unique flat types~~

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Inc_Year	Mtown	flat_type	block	street_name	storey_range	floor_area_sq	flat_model	lease_comm	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sq	price_per_sq
6-05	KALLANG/WF	4 ROOM	3B	UPP BOON KI	10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	4 ROOM Mod 3B, UPP BOO	968.76	701.928238	
2-07	BISHAN	5 ROOM	153	BISHAN ST 1	07 TO 09	130	Improved	1987	665000	2012	7	8	7	9	8	5 ROOM Impr 153, BISHAN	1399.32	475.230826	
3-07	BUKIT BATOK	EXECUTIVE	289B	BT BATOK ST 1	13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A/ 289B, BT BAT	1550.016	540.63958	
2-04	BISHAN	4 ROOM	232	BISHAN ST 2	01 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1108.692	496.080066	
7-12	YISHUN	4 ROOM	876	YISHUN ST 8	01 TO 03	83	Simplified	1987	298000	2017	12	2	1	3	2	4 ROOM Simj 876, YISHUN	893.412	333.552717	
3-01	GEYLANG	3 ROOM	95	ALIJUNIED CP	07 TO 09	65	Improved	1975	335000	2013	1	8	7	9	8	3 ROOM Impr 95, ALIJUNIED	699.66	478.803991	
8-05	HOUGANG	5 ROOM	641	HOUGANG A	07 TO 09	120	Improved	1987	433000	2018	5	8	7	9	8	5 ROOM Impr 641, HOUGA	1291.68	335.222346	
2-03	BEDOK	3 ROOM	701	BEDOK RESE	06 TO 10	68	New General	1980	340000	2012	3	8	6	10	8	3 ROOM New 701, BEDOK I	731.952	464.511334	
20-01	BISHAN	5 ROOM	450	SIN MING AV	10 TO 12	125	Improved	1989	700000	2020	1	11	10	12	11	5 ROOM Impr 450, SIN MIN	1345.5	520.252694	
14-06	SENGKANG	5 ROOM	307D	ANCHORVAL	10 TO 12	110	Improved	2001	490000	2014	6	11	10	12	11	5 ROOM Impr 307D, ANCH	1184.04	413.83737	
3-06	SENGKANG	4 ROOM	273D	COMPASSVA	13 TO 15	90	PremiumApa	2009	625000	2013	6	14	13	15	14	4 ROOM Pre 273D, COMP	968.76	645.154631	
8-03	TAMPINES	3 ROOM	412	TAMPINES ST 1	01 TO 03	69	Improved	1985	270000	2018	3	2	1	3	2	3 ROOM Impr 412, TAMPINI	742.716	363.530609	
7-07	SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	126	Improved	1985	500000	2017	7	8	7	9	8	5 ROOM Impr 121, SERANG	1345.5	371.609067	
6-08	BUKIT MERAH	4 ROOM	54	HAWLOC RD	08 TO 20	94	Model A	2013	770000	2015	8	20	28	30	20	4 ROOM Mod 54, HAWLOC	1011.816	761.00793	
16-05	YUNG LOH RI	5 ROOM	690A	WOODLANDS RD 1	5	110	Premium	2004	420000	2016	5	14	13	15	8	5 ROOM Impr 54, WOOD	979.524	352.211891	
9-08	JURONG WE	5 ROOM	653A	JURONG WE	04 TO 06	111	Improved	2002	453000	2019	8	5	4	6	5	5 ROOM Impr 653A, JURON	785.772	367.648631	
20-06	BUKIT BATOK	4 ROOM	291A	BT BATOK ST 1	01 TO 03	104	Model A	1997	360000	2020	6	2	1	3	2	4 ROOM Mod 291A, BTBAT	1280.916	312.276527	
20-07	TOA PAYOH	3 ROOM	205	TOA PAYOH N	10 TO 12	65	Improved	1973	260000	2020	7	11	10	12	11	3 ROOM Impr 205, TOAPAY	1323.972	604.242386	
7-09	JURONG WE	4 ROOM	156	YUNG LOH RI	04 TO 06	107	Model A	1996	358000	2017	9	5	4	6	5	4 ROOM Mod 156, YUNG LO	1302.444	618.836587	
6-03	CHOACHUK	4 ROOM	417	CHOACHUK	07 TO 09	105	Model A	1993	383000	2016	3	8	7	9	8	4 ROOM Mod 417, CHOAC	1291.68	352.254428	
12-11	SEMBAWANG	5 ROOM	507C	WELLINGTON	10 TO 12	110	Improved	2001	503000	2012	11	11	10	12	11	5 ROOM Impr 507C, WELLI	968.76	433.543912	
2-12	KALLANG/WF	5 ROOM	103	JLN RAJAH	07 TO 09	139	Model A	1984	708000	2012	12	8	7	9	8	5 ROOM Mod 103, JLN RAJ	1453.14	295.910924	
2-07	SENGKANG	5 ROOM	299B	COMPASSVA	13 TO 15	115	PremiumApa	2001	496000	2012	7	14	13	15	14	5 ROOM Pre 299B, COMP	1593.072	379.769402	
19-04	TOA PAYOH	5 ROOM	848	LOR 2 TOAPA	10 TO 12	122	Improved	1997	820000	2019	4	11	10	12	11	5 ROOM Impr 848, LOR 2 TO	699.66	371.609067	
8-11	KALLANG/WF	3 ROOM	64	KALLANG BA	01 TO 03	65	Improved	1974	260000	2018	11	2	1	3	2	3 ROOM Impr 64, KALLANG	1151.748	310.831883	
8-11	CHOACHUK	5 ROOM	684C	CHOACHUK	04 TO 06	110	Improved	2002	350000	2018	11	5	4	6	5	5 ROOM Impr 684C, CHOA	1184.04	295.598122	
3-04	ANG MO KIO	3 ROOM	219	ANG MO KIO	07 TO 09	67	New General	1977	385000	2013	4	8	7	9	8	3 ROOM New 219, ANG MC	721.188	533.841384	
20-12	TOA PAYOH	3 ROOM	116	LOR 2 TOAPA	07 TO 09	72	Improved	1970	350000	2020	12	8	7	9	8	3 ROOM Impr 116, LOR 2 TO	775.008	451.608241	
9-03	WOODLAND	5 ROOM	137	MARSILING R	07 TO 09	121	Improved	1985	340000	2019	3	8	7	9	8	5 ROOM Impr 137, MARSILI	1302.444	261.047692	
9-08	BUKIT BATOK	3 ROOM	208	BT BATOK ST 1	04 TO 06	73	Model A	1983	268000	2019	8	5	4	6	5	3 ROOM Mod 208, BT BATO	785.772	341.065856	
7-04	BUKIT MERAH	5 ROOM	112A	DEPOT RD	16 TO 18	115	Improved	2006	708000	2017	4	17	16	18	17	5 ROOM Impr 112A, DEPOT	1237.86	571.954825	
6-12	SEMBAWANG	5 ROOM	325	SEMBAWANG	10 TO 12	120	Improved	1999	395000	2018	12	11	10	12	11	5 ROOM Impr 325, SEMBAV	1291.68	305.803295	

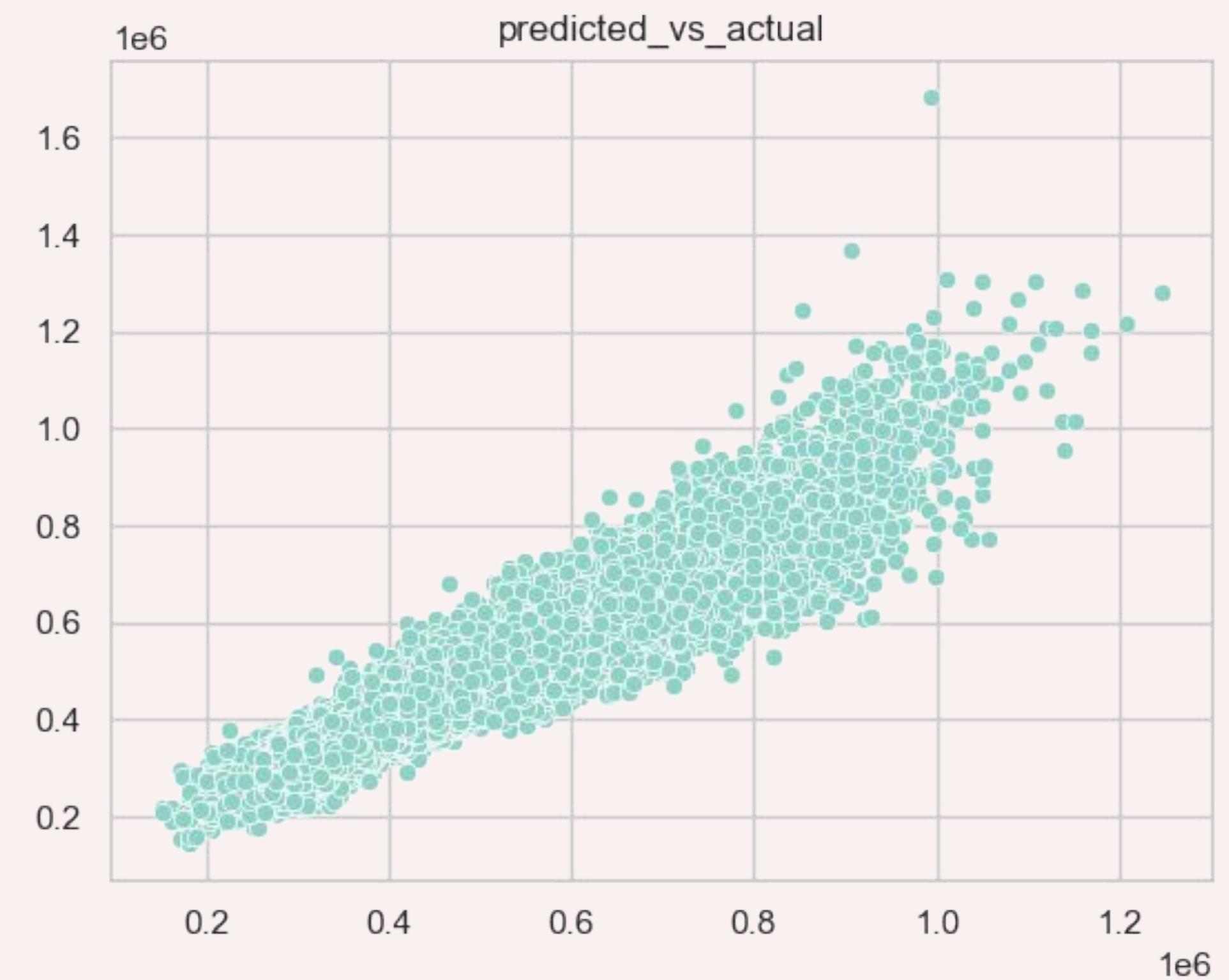
Model Performance

Model

Performance

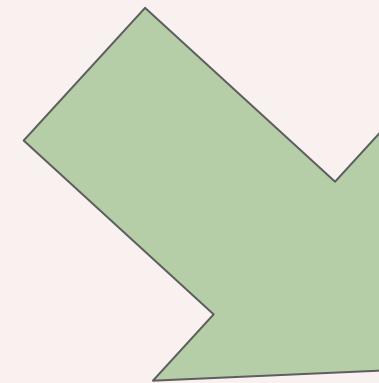
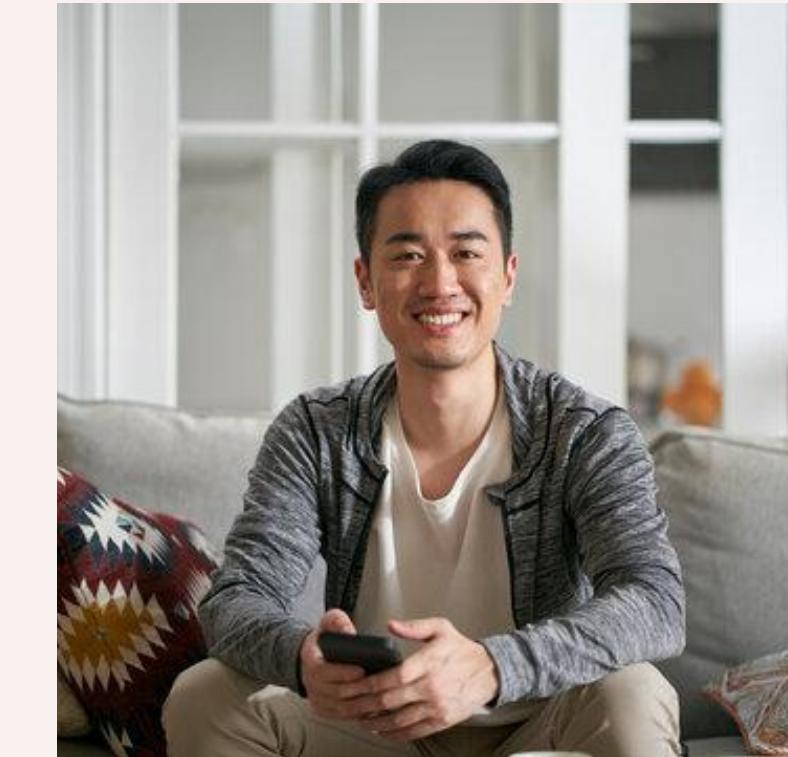
Our model is able to predict up to **90.3% of the variation** in HDB houses

The predicted data and actual varies with an average of **~\$45,000** based on our test

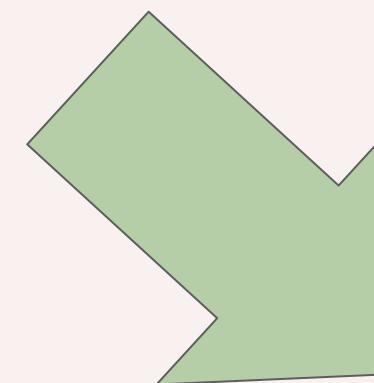


George is now a happy ERA customer as

1. Provided with consistent information
2. Agents provide similar quotations



He made ERA his agency of choice and refers his friends to us



**More earning potential for
ERA Agents**

Limitations

Agents should know the limitations of the model to prevent wrong prediction results

Limitations

Agents should know the limitations of the model to prevent wrong prediction results

- Takes time to train the model on new development areas
- Does not cater to “**unique**” HDB clusters unless identified.
- **Mature** and **non-mature** classification requires revision in the future in line with governments’ initiative

 PROPERTY NEWS Why The New Prime, Plus & Standard HDB Classification Makes Sense And How It Impacts Singaporeans

Ryan J AUGUST 21, 2023 • 4 MIN READ

House Price Evaluator

Developed by: Pius Yee | Lim Zheng Gang | Eugene Matthew Cheong

Select preferred planning area

Ang Mo Kio

Select Flat Type

1 ROOM

App Demo

Enter preferred floor area (square feet)

1000.80

0.00

1

50

99

Preferred distance to MRT (metres)

400.80

0.00

10000.00

0.00

Preferred maximum floor of the block

25.0

- +

Input Transaction Year

2013

2012

2021

Enter preferred distance to Mall (metres)



Scan the QR code here
to try the app

George Lee

33 years old | Marine Engineer

Details gathered:

1. **Geylang** area
2. **4 Room** flat
3. **Not** improved-Masionette or DBSS
4. **Not** Terrace
5. **Not** Pre-War
6. **9th floor**
7. **Tenure of 19 years**
8. **Size** of **900** square feet
9. Roughly about **3000m** from the **MRT**
10. His block has **20 floors**
11. Transaction year is **2021**
12. Roughly about **100m** from the Mall
13. Roughly about **7200m** from CBD



George Lee

33 years old | Marine Engineer

Details gathered:

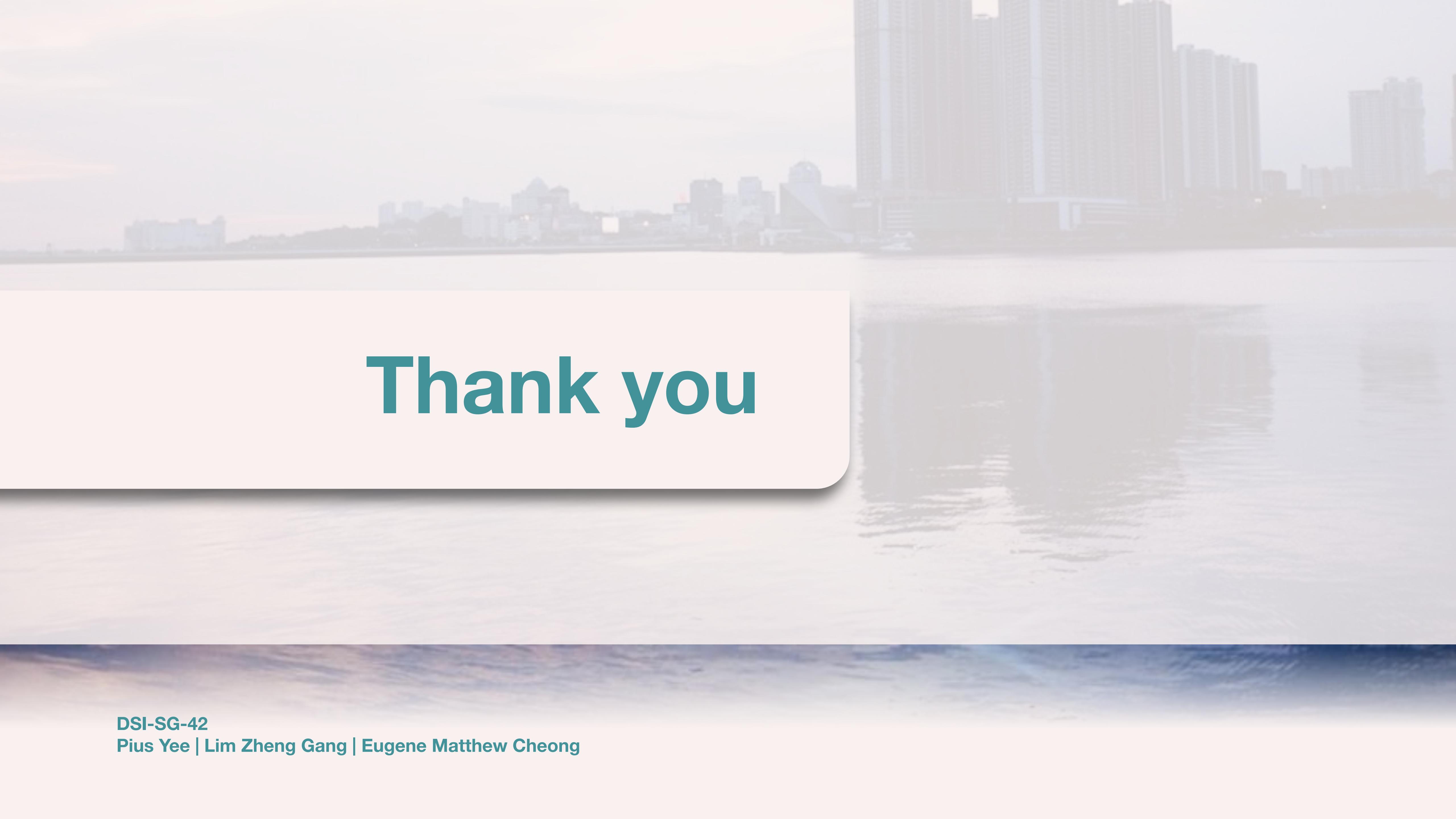
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What's Next?

With more resources, we will continuously enhance our research efforts and **refine models** by leveraging our constantly updating data source from our property agents.

- Build a new set of **classification** for **new** and **upcoming clusters** and **revisions** from **government initiatives and agent's feedback**.
- Enabling the **utilization** of more **complex** models.



Thank you

DSI-SG-42

Pius Yee | Lim Zheng Gang | Eugene Matthew Cheong