





Could we provide house evaluation price consistently based on data?

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 analyses 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

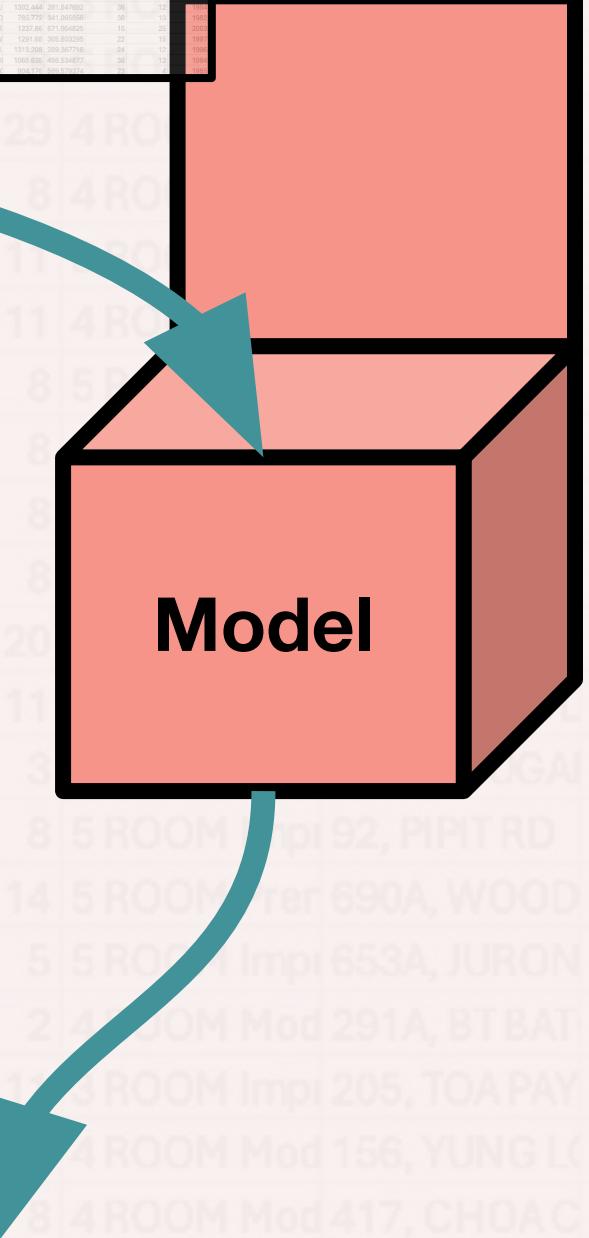
Delivering Clients' Satisfaction through Data Integration

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	375.608241	
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

Model



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.

Recent client feedbacks

- Assessments to the same property are different.
- Price evaluations take too long
- Different price estimations of the same property from different agents

George Lee

33 years old
Marine Technician



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 are very different.**



Assumptions stem from experiential knowledge

Instead of basing our estimations on assumptions, we validate it **with data** so that our agents provide customers 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
- Near Hawker centres or Malls

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		
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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		
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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		
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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

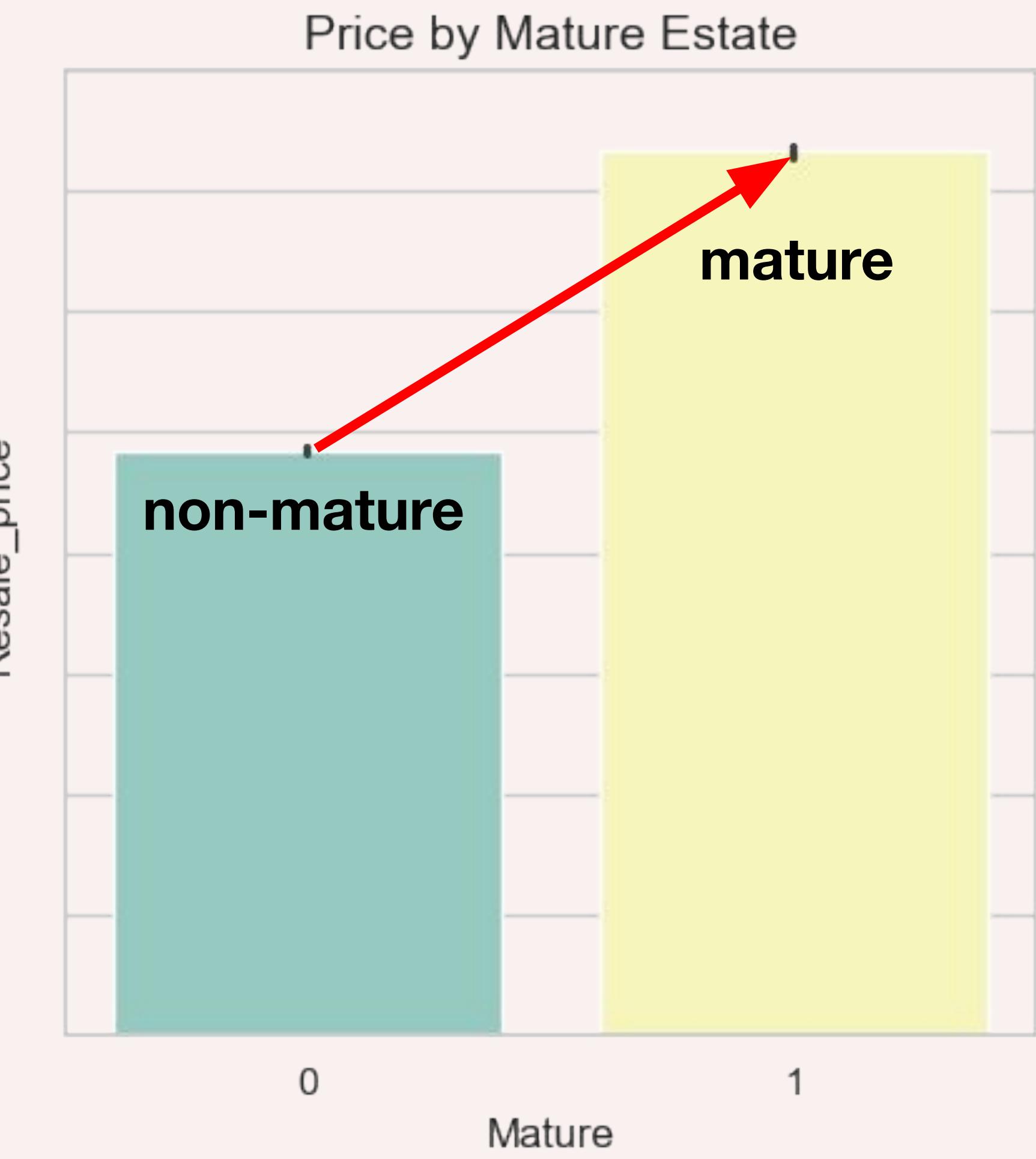
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Inc_Year	Mtown	flat_type	block	street_name	storey_range	floor_area_sq	flat_model	lease_comm	resale_price	Tranc_Year	Tranc_Month	mid_storey	lower	upper	mid	full_flat_type	address	floor_area_sq	price_per_sq	
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7-07	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										2019	10	8	7	9	8	4 ROOM Pre 481, SEGAR F	979.524	352.211891		
2018										2018	1	11	10	12	11	3 ROOM Mod 116, PENDIN	785.772	367.648631		
2020										2020	11	11	10	12	11	4 ROOM Mod 318, WOODL	1280.916	312.276527		
2017										2017	8	7	6	8	8	3 ROOM Pre 292, BISHAN	1323.972	604.242386		
2016										2016	8	14	13	15	14	5 ROOM Impr 860, YISHUN	1291.68	352.254428		
2015										2015	11	18	17	21	11	5 ROOM Mod 554, WOODL	968.76	332.383666		
2014										2014	3	3	1	5	3	4 ROOM Pre 407A, FERNV	968.76	433.543912		
2013										2013	4	8	7	9	4	5 ROOM Mod 409, WOODL	1453.14	295.910924		
2012										2012	5	14	13	15	14	5 ROOM Pre 690A, WOOD	1184.04	398.635181		
2011										2011	8	5	4	6	5	5 ROOM Impr 653A, JURON	1194.804	379.141683		
2010										2010	6	2	1	3	2	4 ROOM Mod 291A, BTBAT	1119.456	321.58477		
2009										2009	7	11	10	12	11	3 ROOM Impr 205, TOAPAY	699.66	371.609067		
2008										2008	9	5	4	6	5	4 ROOM Mod 156, YUNG LO	1151.748	310.831883		
2007										2007	3	8	7	9	8	4 ROOM Mod 417, CHOAC	1130.22	338.872078		
2006										2006	8	10	12	11	11	5 ROOM Impr 507C, WELLI	1184.04	424.816729		
2005										2005	11	11	10	12	11	5 ROOM Mod 103, JLN RAJ	1496.196	473.200035		
2004										2004	12	8	7	9	8	5 ROOM Mod 103, JLN RAJ	775.008	451.608241		
2003										2003	7	14	13	15	14	5 ROOM Pre 299B, COMP	1237.86	400.591516		
2002										2002	4	11	10	12	11	5 ROOM Impr 84B, LOR 2 TO	1313.208	624.425072		
2001										2001	4	11	10	12	11	5 ROOM Impr 84B, LOR 2 TO	1313.208	624.425072		
2000										2000	11	2	1	3	2	3 ROOM Impr 64, KALLANG	699.66	371.609067		
1999										1999	11	5	4	6	5	5 ROOM Impr 684C, CHOA	1184.04	295.598122		
1998										1998	4	8	7	9	8	3 ROOM New 219, ANG MC	721.188	533.841384		
1997										1997	12	8	7	9	8	3 ROOM Impr 116, LOR 2 TO	775.008	451.608241		
1996										1996	3	8	7	9	8	5 ROOM Impr 137, MARSILI	1302.444	261.047692		
1995										1995	8	5	4	6	5	3 ROOM Mod 208, BT BAT	785.772	341.065856		
1994										1994	4	17	16	18	17	5 ROOM Impr 112A, DEPOT	1237.86	571.954825		
1993										1993	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

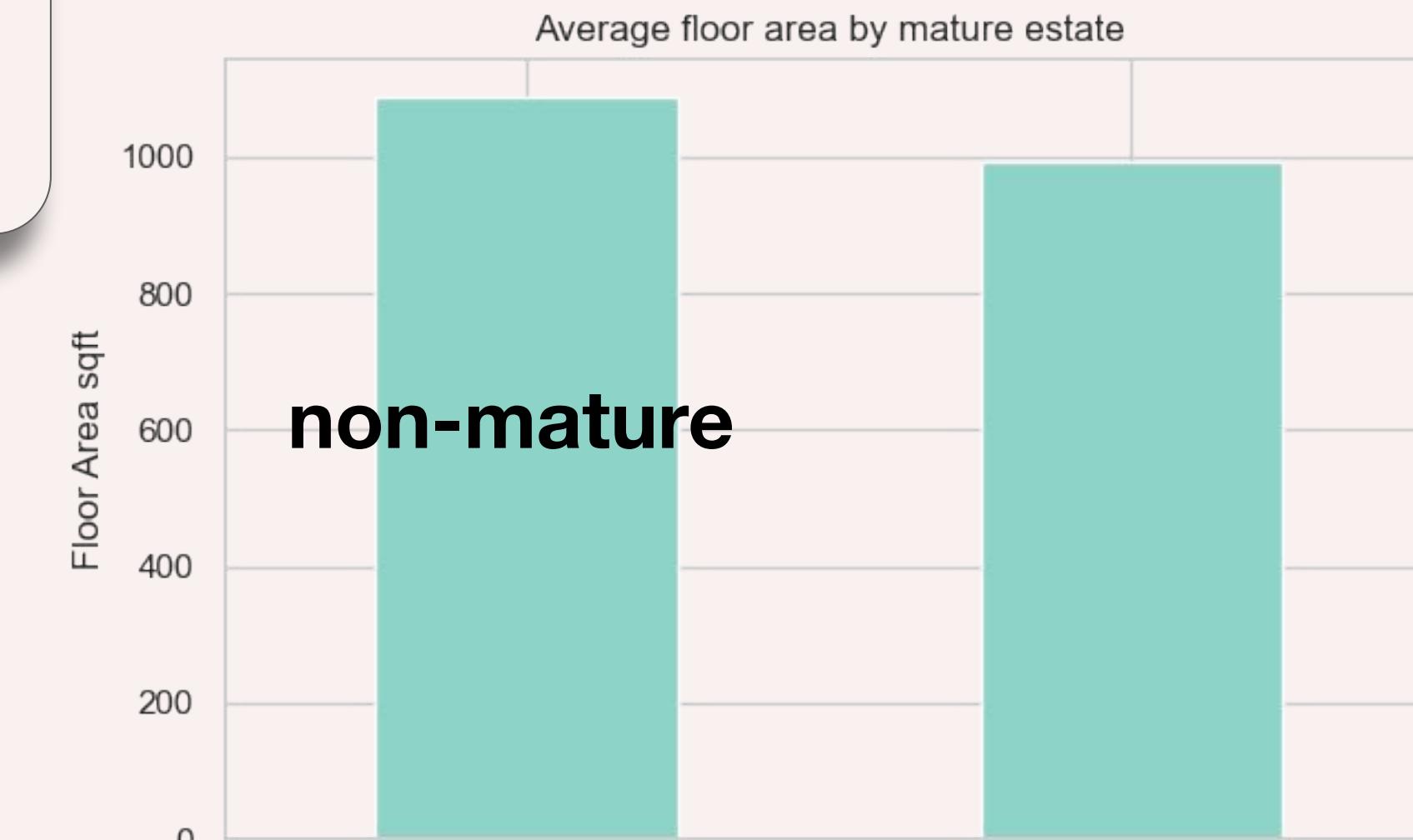
Mature or Non-matured estates

- Mature area tends to have higher resale price than non-mature area



Mature or Non-matured estates

- However, it is more likely to have a smaller and older flat in mature estates.

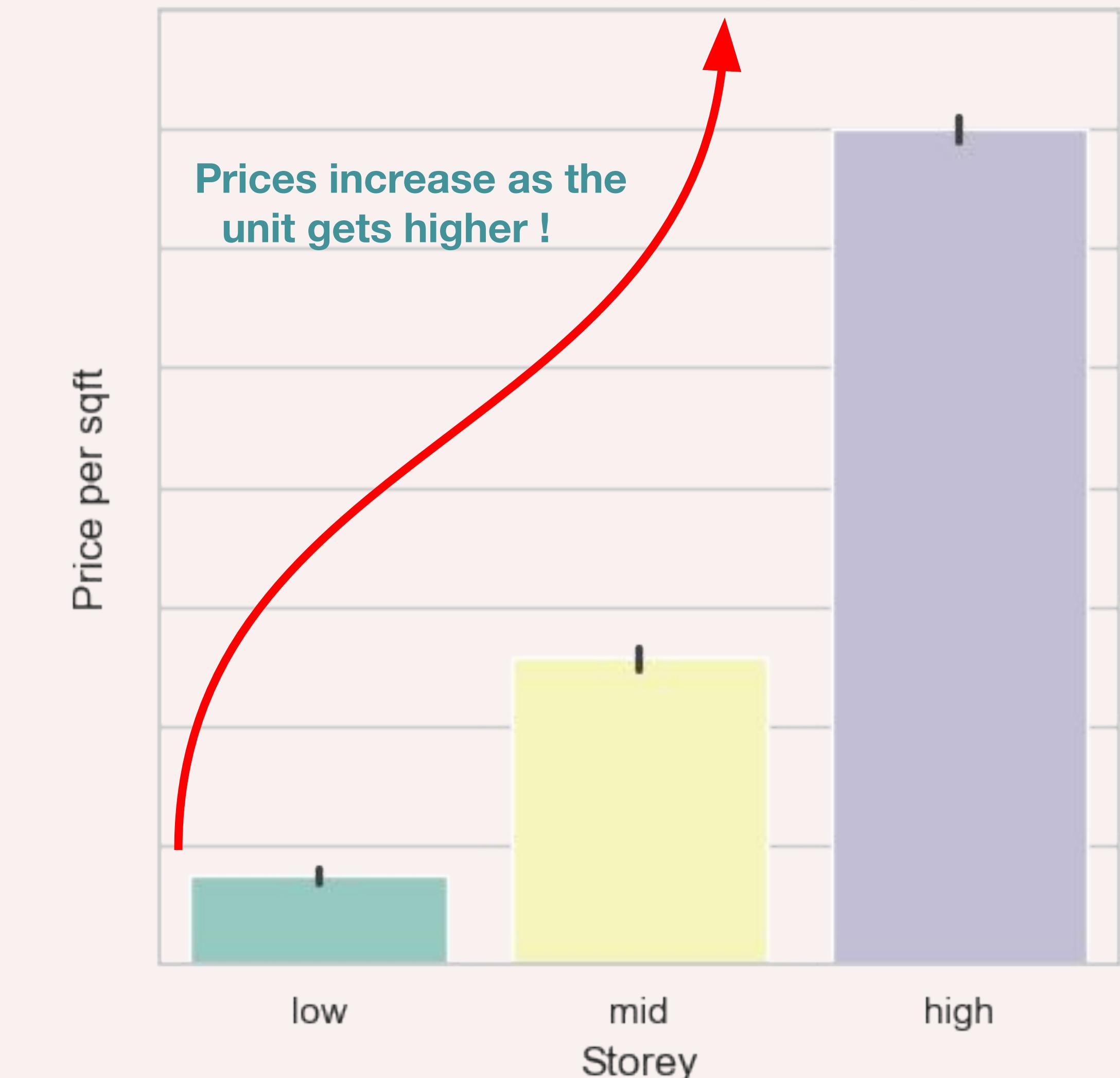


High floor units

Units on higher floors are generally more expensive due to:

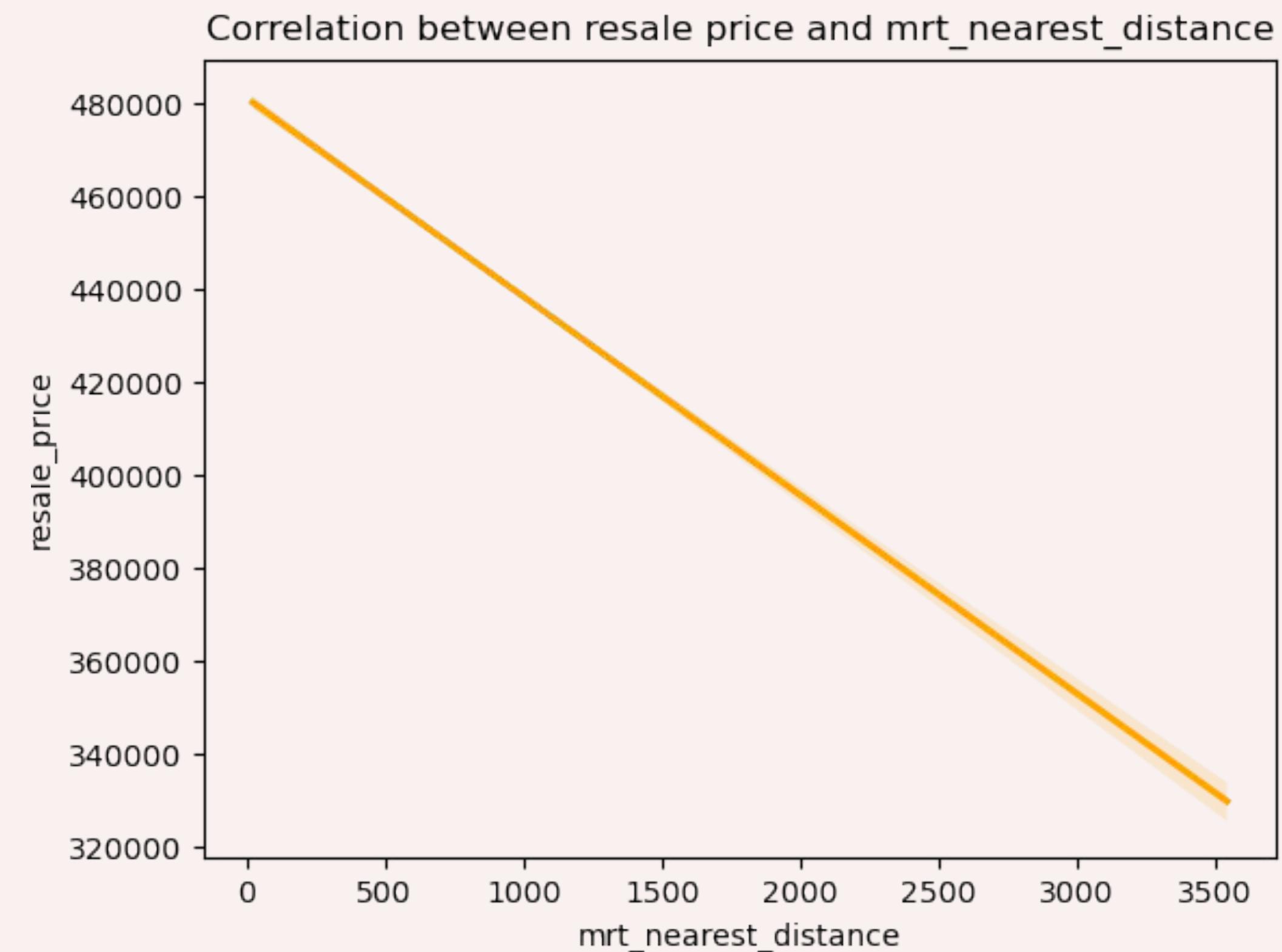


Price per sqft by Storey Category

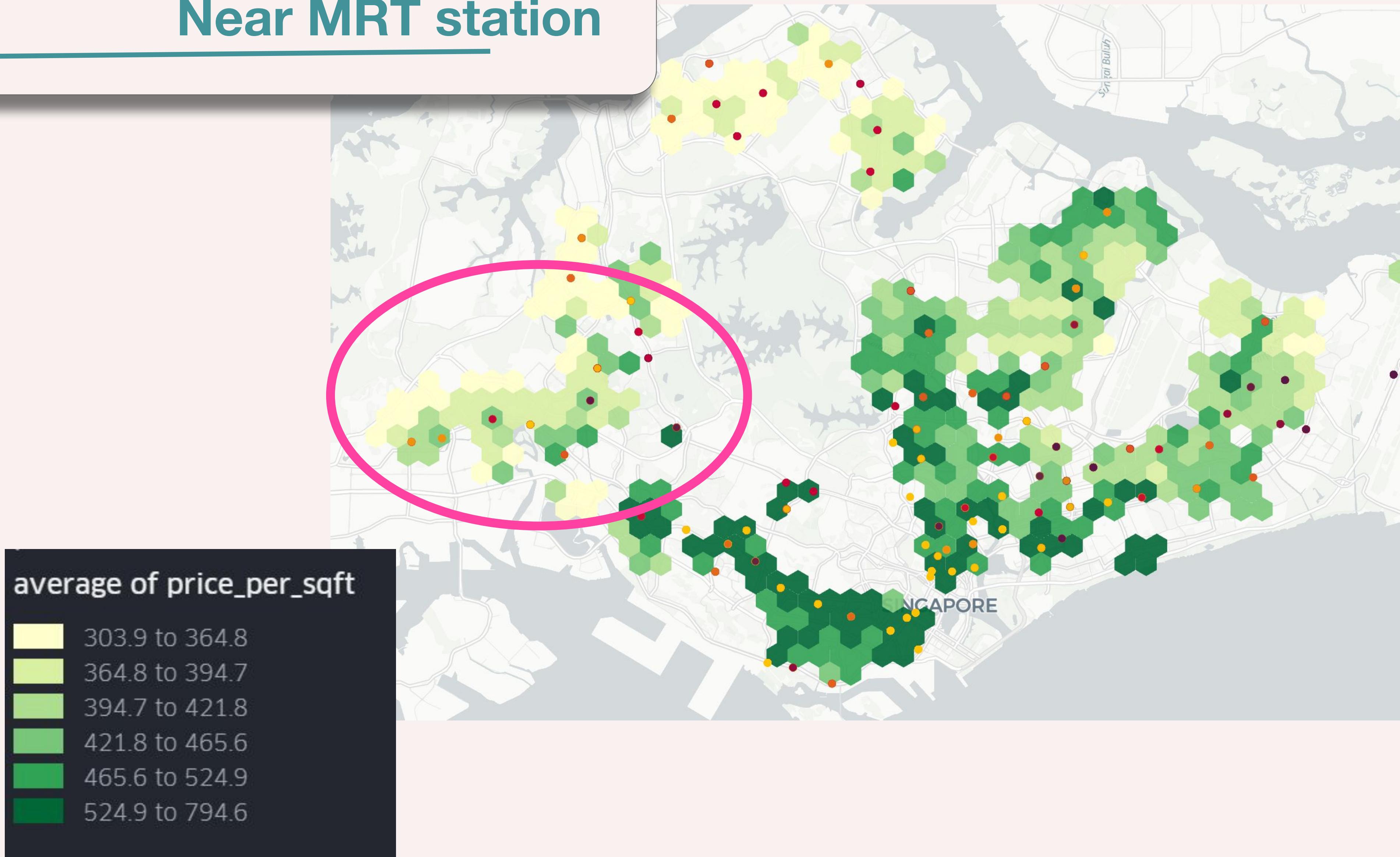


Near MRT station

- Price tends to decrease as the distance increases



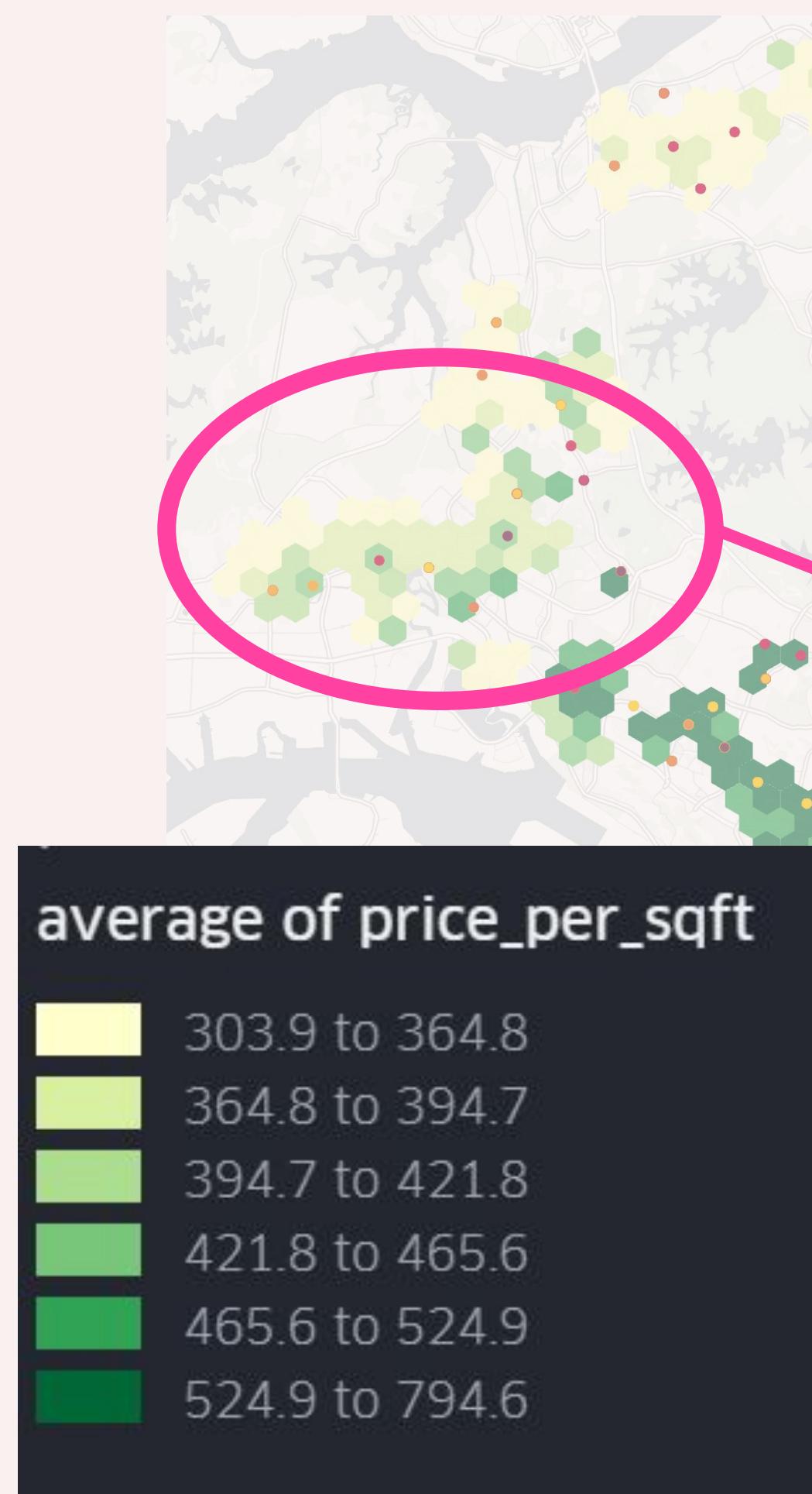
Near MRT station



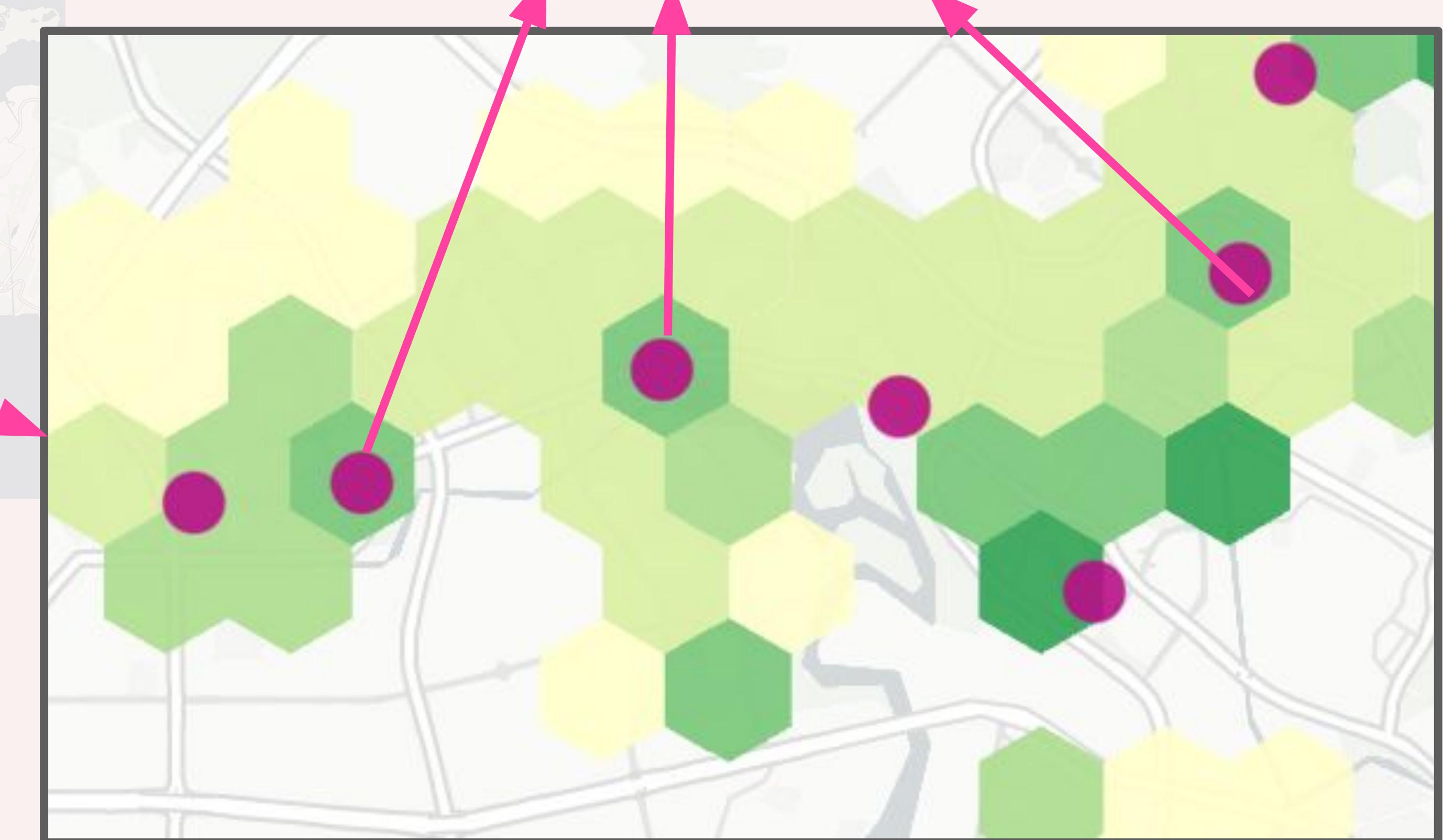
Near MRT station



Near MRT station



Prices tend to be higher in areas near surrounding MRT stations



Primary Schools

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

BUT IS IT REALLY TRUE?



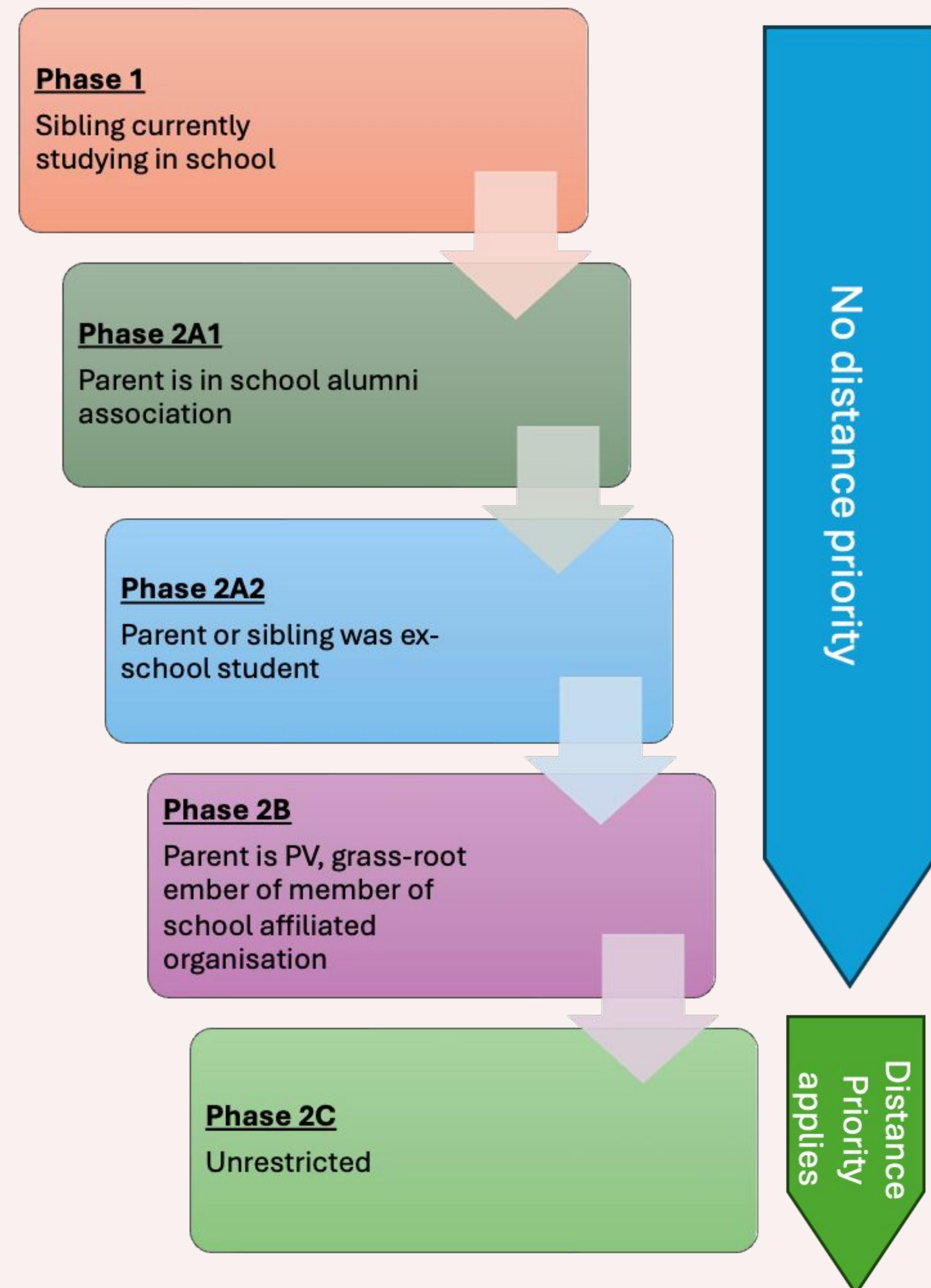
Primary Schools

Based on our qualitative and quantitative research

Unable to derive conclusive results due to:

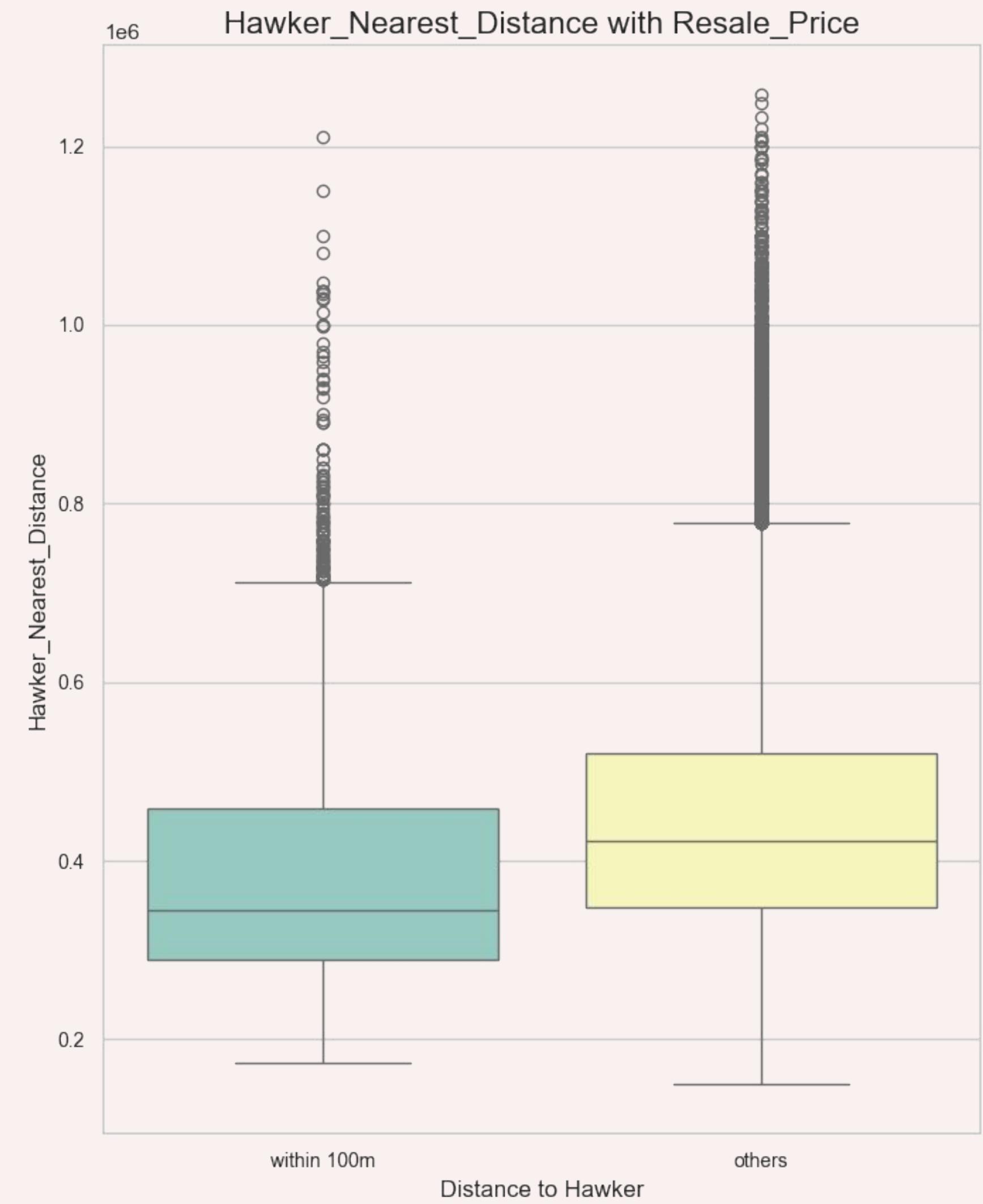
- a. Difficulty in isolating this against other factors
- b. Registration before phase 2C is more important
- c. Some people HATE living near schools due to noise pollution.

[Stacked homes, 2023](#)



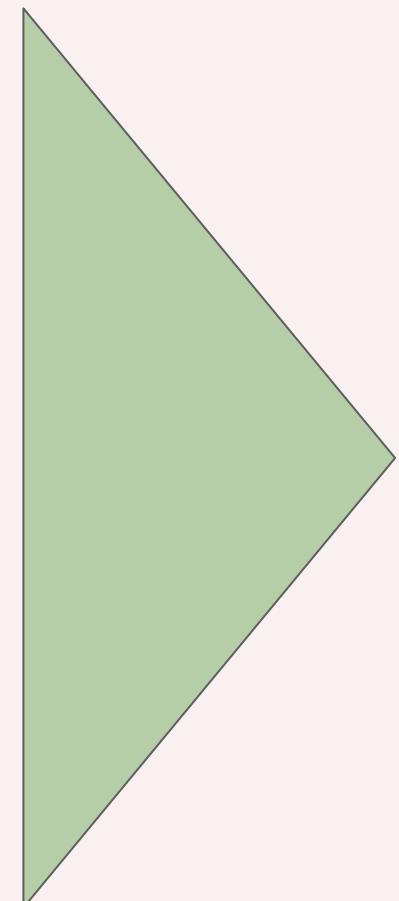
Hawkers

- 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

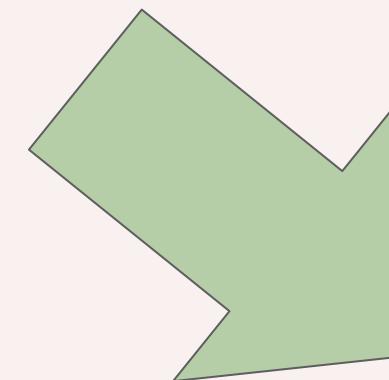


George now receives consistent, data driven information from our agents

HDB Price Predictor

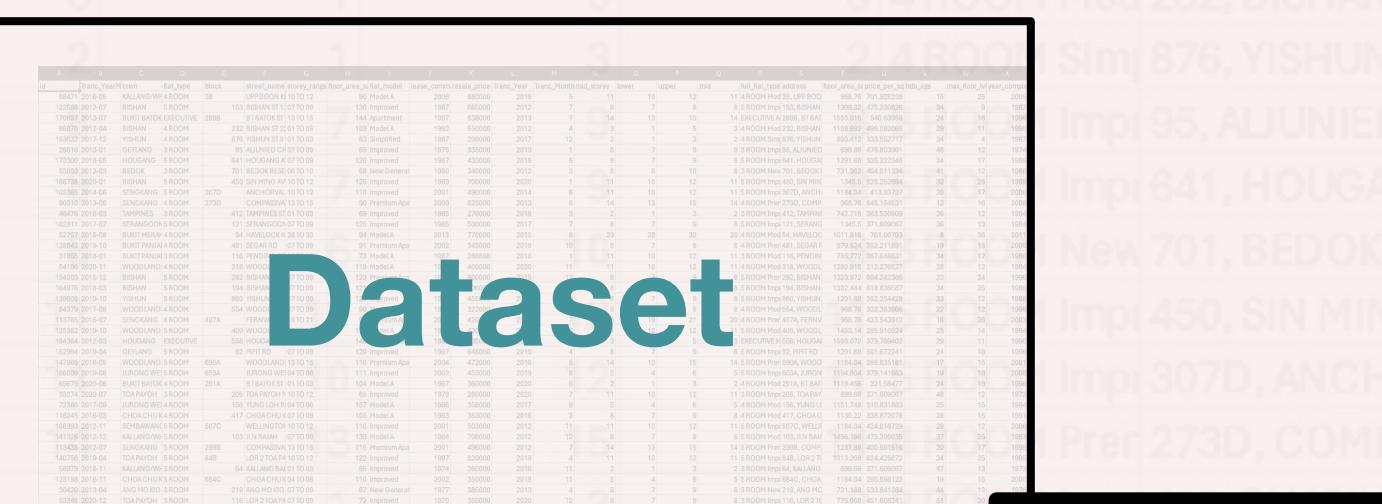


“The general information is consistent. The pricing provides by our agents **differs!!!!”**



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	Month	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 Simj 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	641	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	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	307D	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	6	5	7	273D	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	412	3 ROOM 742.716	742.716	363.530609	
7-07		SERANGOON	5 ROOM	121	SERANGOON	07 TO 09	125	Improved	1985	500000	2017	7	7	6	8	121	SERANGOON	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	54	HAVELOCK R	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	54	HAVELOCK R	979.524	352.211891	
29-08		JURONG WE	5 ROOM	653A	JURONG WE	04 TO 06	111	Improved	2002	453000	2019	8	5	4	6	653A	JURONG WE	785.772	367.648631	
20-06		BUKIT BATOK	4 ROOM	291A	BT BATOK ST	01 TO 03	104	Model A	1997	360000	2020	6	2	1	3	291A	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	205	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	156	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	417	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	507C	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	1496.196	473.200035	
2-07		SENGKANG	5 ROOM	299B	COMPASSVA	13 TO 15	115	PremiumApa	2001	496000	2012	7	14	13	15	299B	5 ROOM Prer 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	848	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	64	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	684C	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	219	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	116	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	137	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	208	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	112A	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	325	5 ROOM Imp 325, SEMBAV	1291.68	305.803295	



Predicted result:
\$642,088

Selecting Features

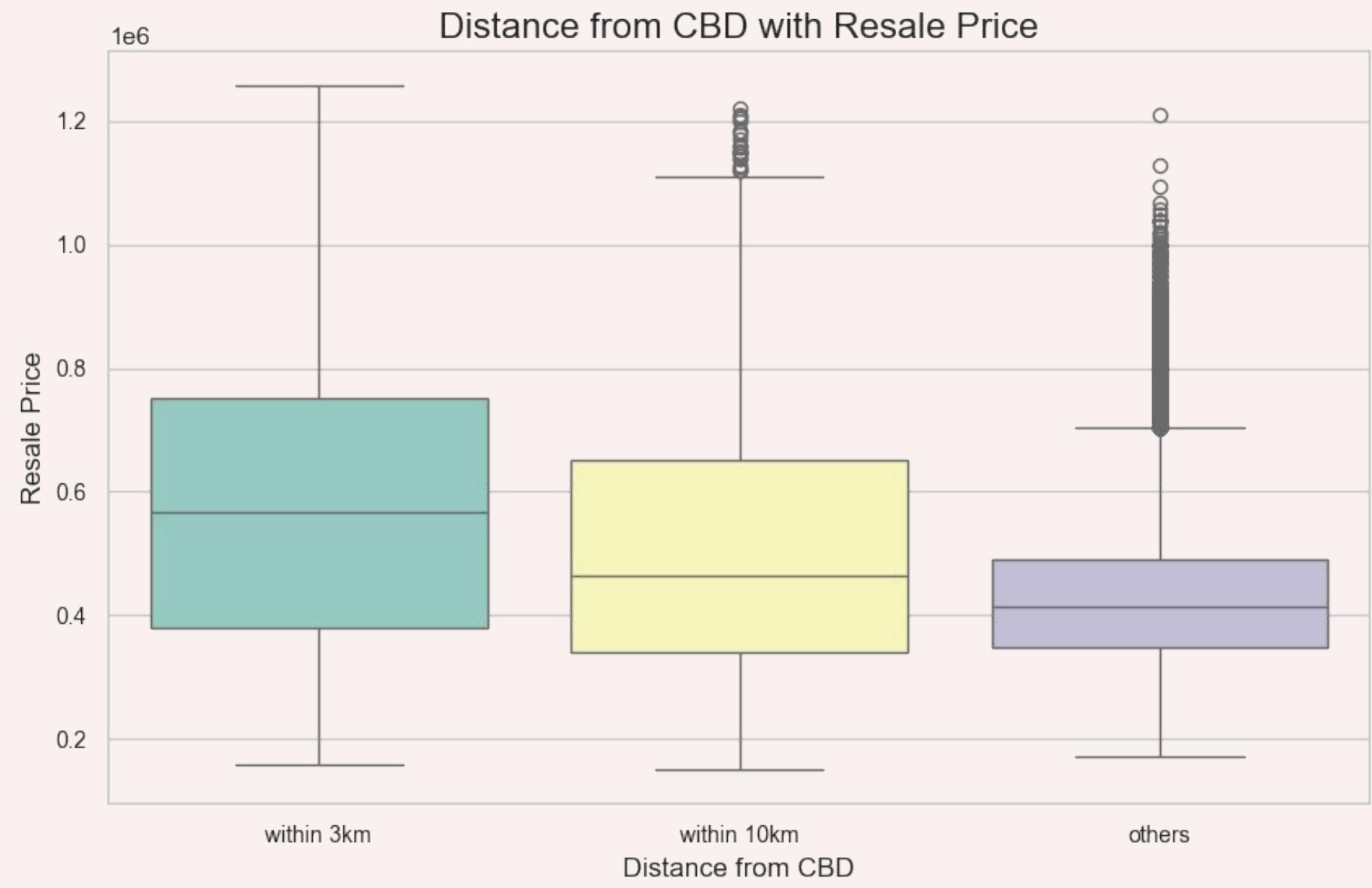
- Floor level
- Distance to nearest MRT
- Mature / Non- Mature Estate
- Transaction Year
- Age of houses as of transaction year
- Flat Type
- Flat Model
- Planning Area

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?

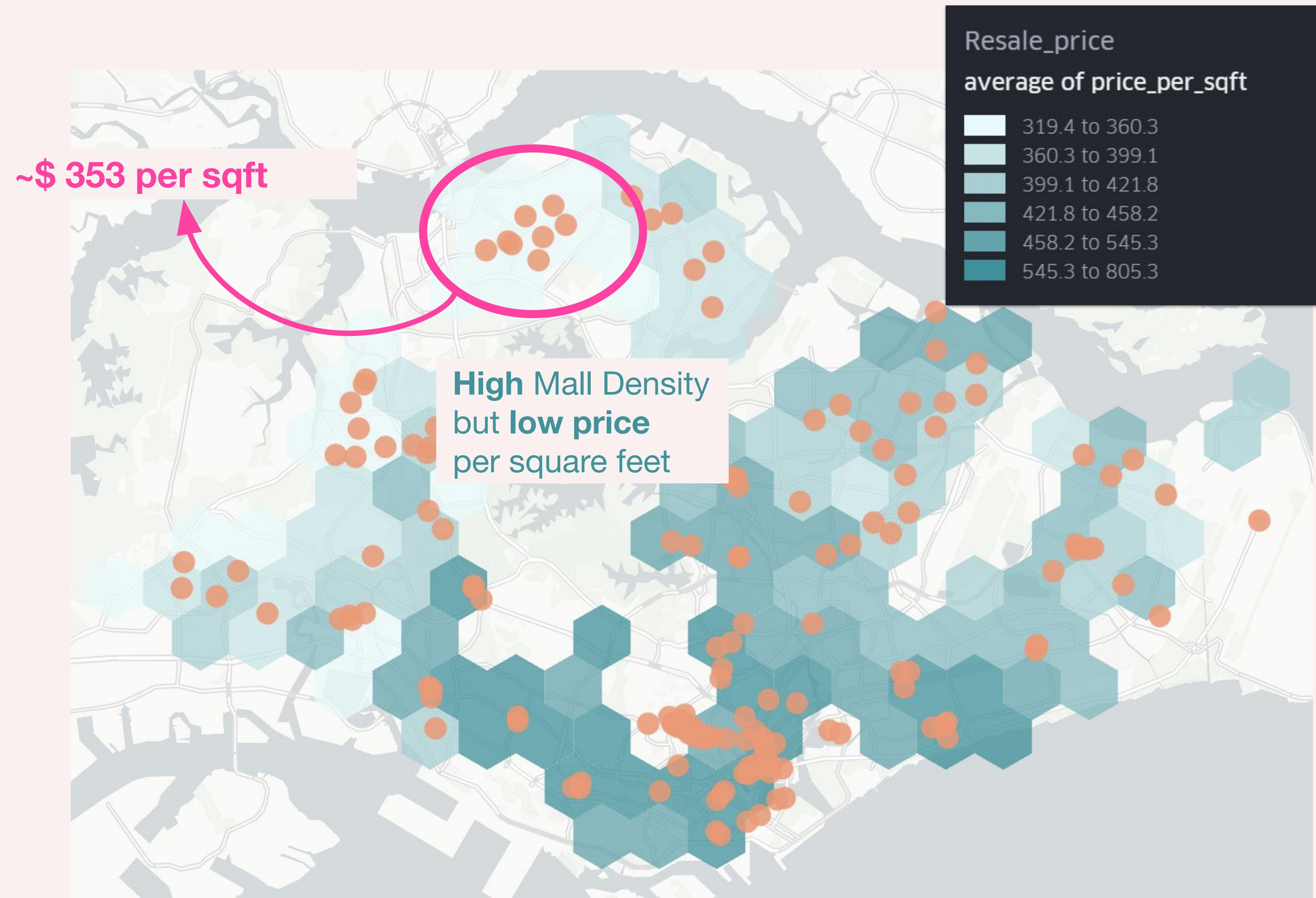


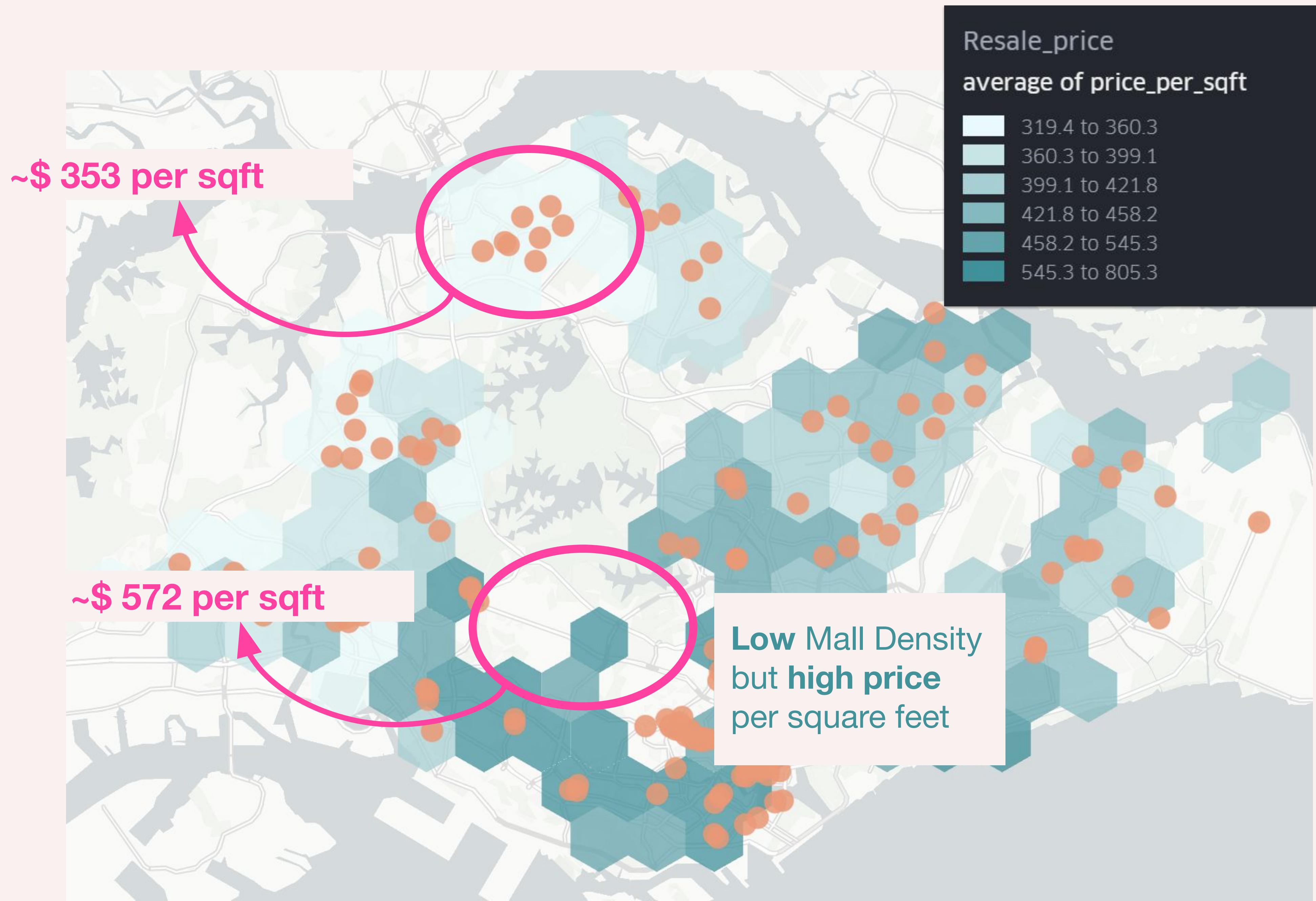
Joo Chiat Complex

VS



Paya Lebar Quarter





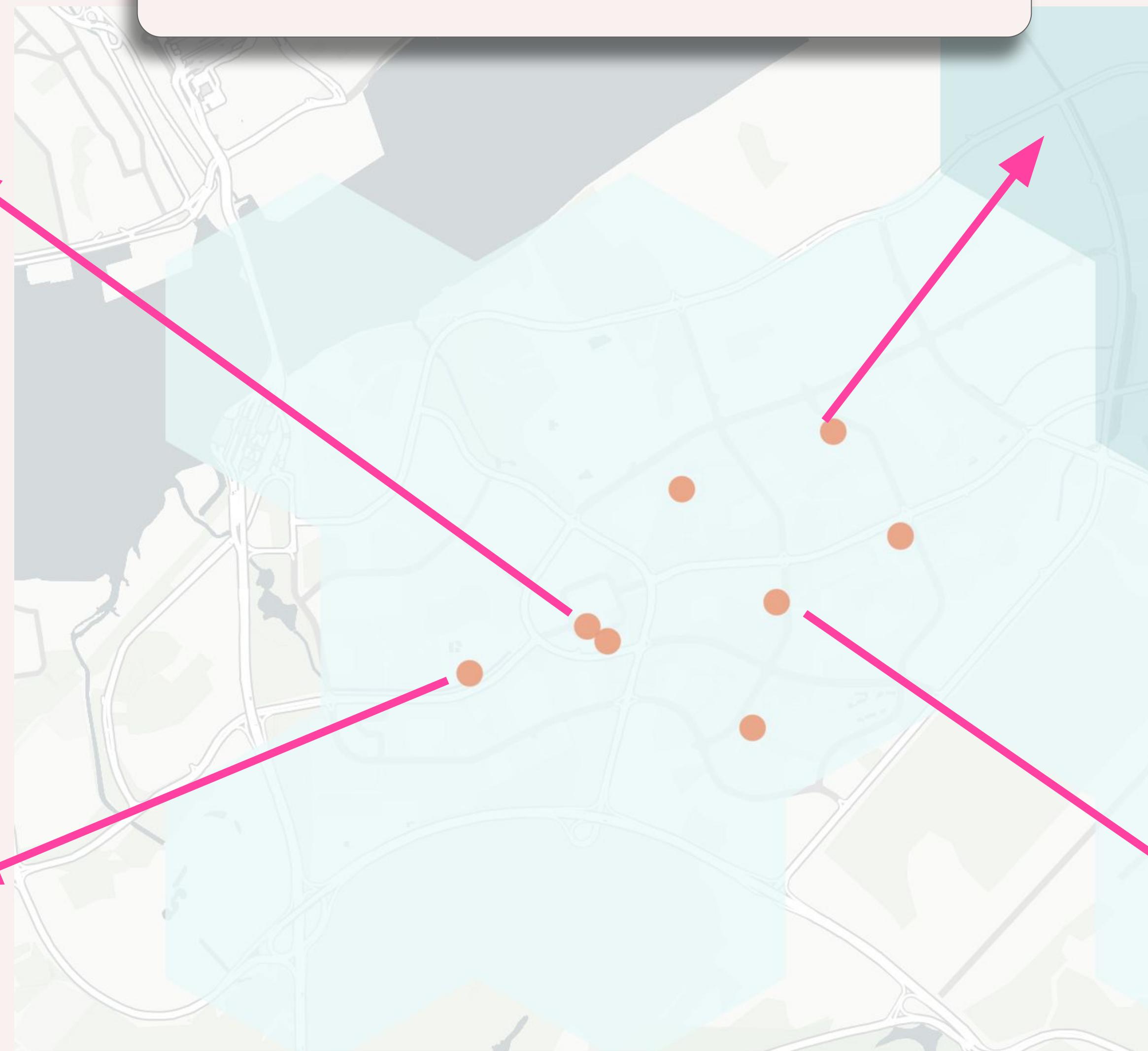
Malls? Or pseudo Malls?



Woodlands North Plaza



Marsiling Mall



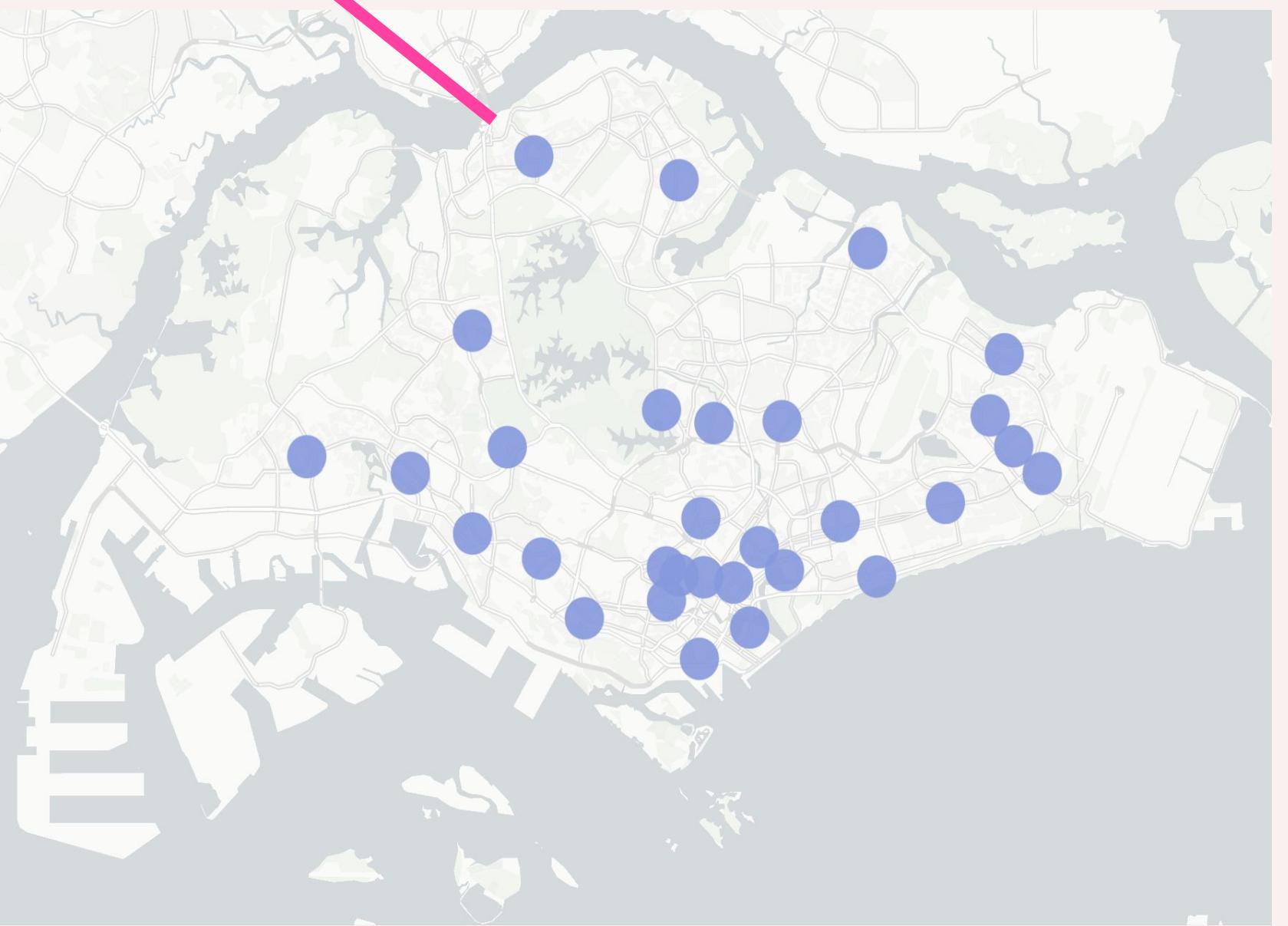
Woodlands Mart



888 Plaza



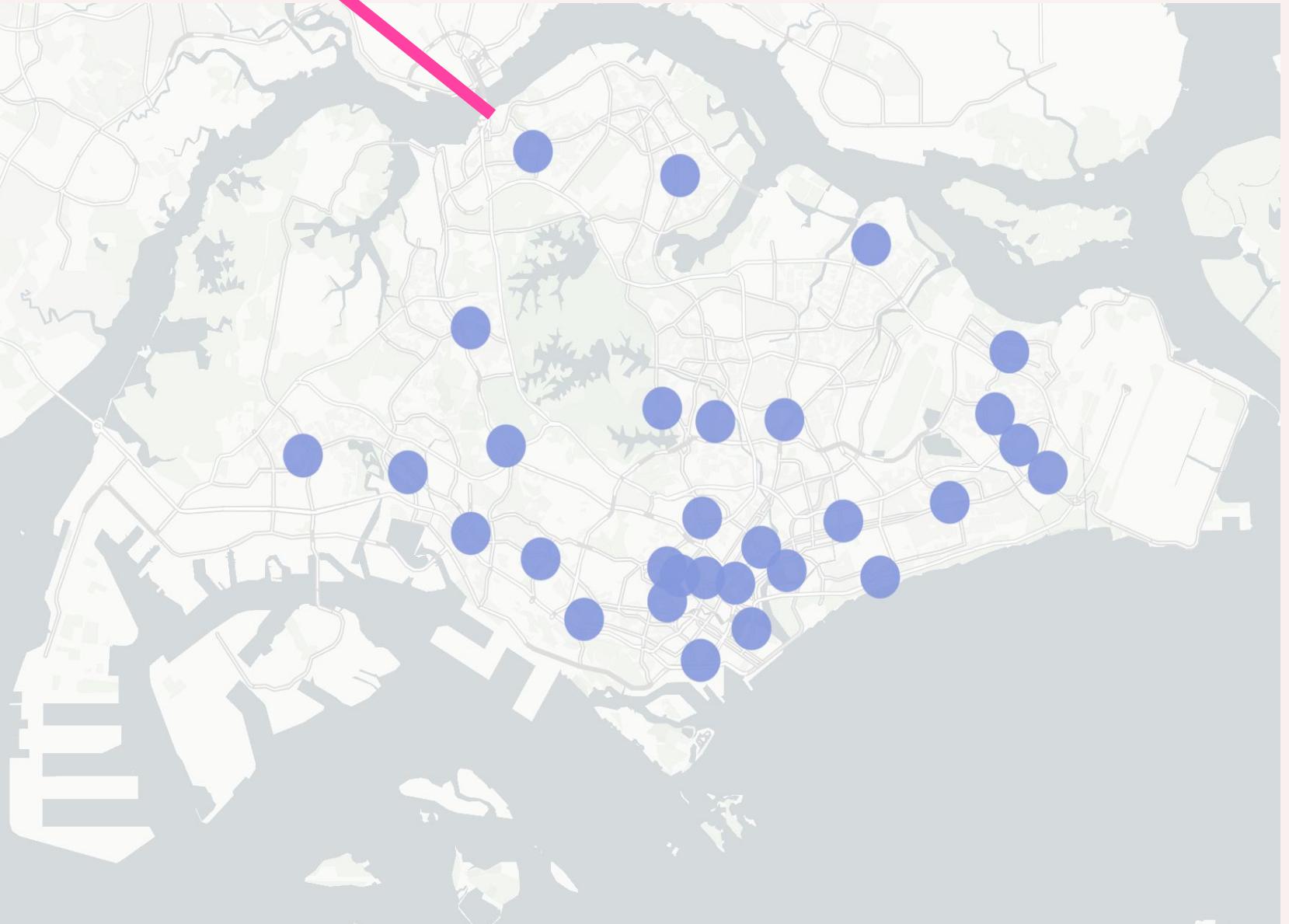
**Causeway
Point**



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



Causeway
Point



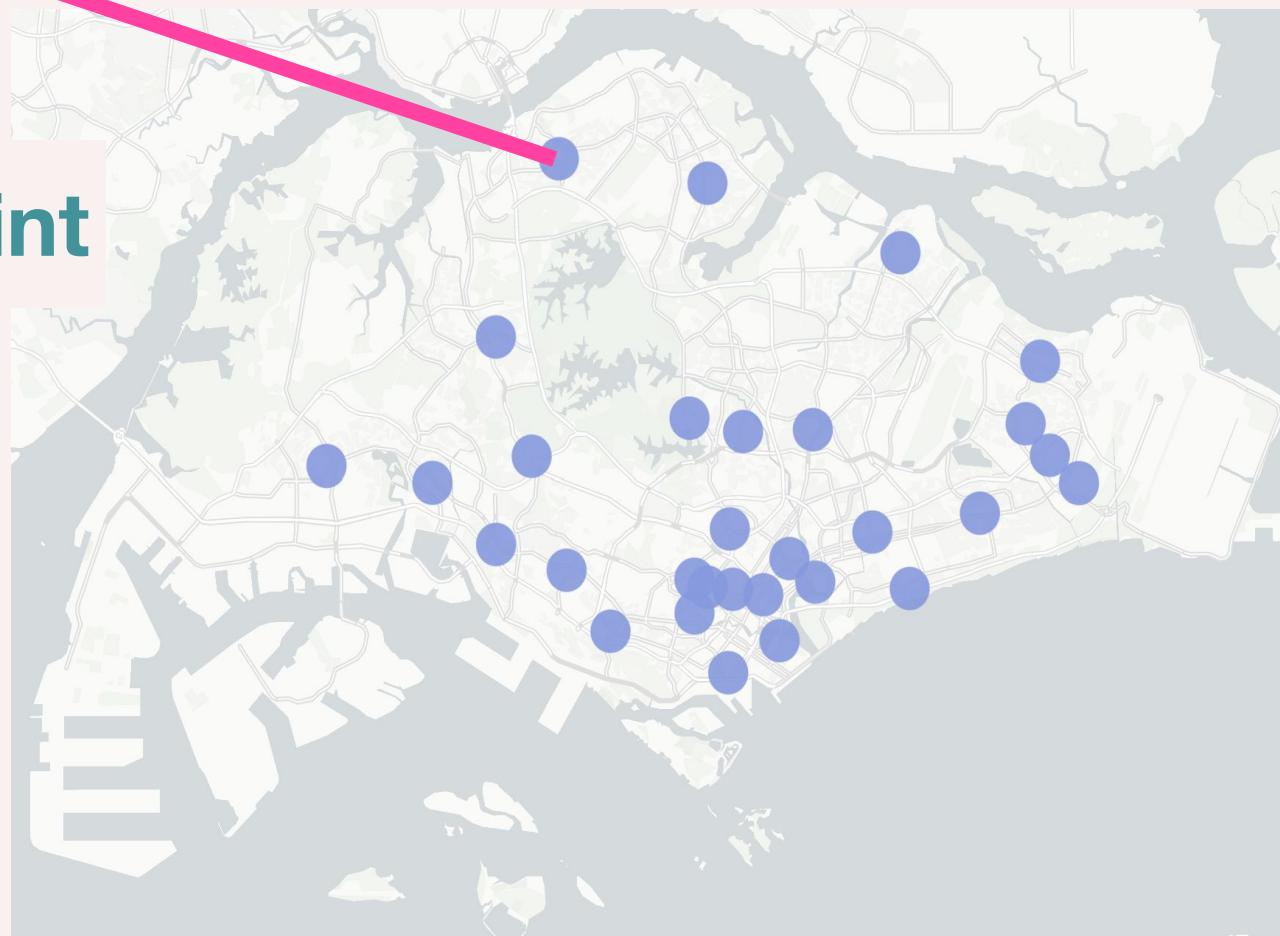
Reduce shopping malls to a few based on domain knowledge



ID	Trans_YearMonth	Block	Street_Name	Block_Floor_Area_sq_ft	Floor_Level	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 ROOM 6 10 TO 12	90	Model A	2006	680000	2016	5	11	8	11-4 ROOM Mod 58, UPP BOO	965.76	701.925238	15	24
122589	2012-07	BISHAN 5 ROOM	153	RISHAN ST 1 07 TO 09	130	Improved	1987	665000	2012	7	8	7	8-5 ROOM Imp 58, BISHAN	1398.32	475.230282	34	9
170897	2013-07	BUKIT BATOK EXECUTIVE	209B	BT BATOK ST 1 13 TO 15	140	Apartment	1987	638000	2013	7	14	13	14 EXECUTIVE A/288B, BT BAT	1550.016	540.630558	24	18
86070	2012-04	BISHAN 4 ROOM	232	BISHAN ST2 01 TO 05	189	Model A	1982	550000	2012	4	3	1	3-4 ROOM Mod 232, BISHAN	1108.892	496.080068	29	11
103860	2013-07	TOA PAYOH 4 ROOM	299	TOA PAYOH ST 1 01 TO 03	120	Improved	1987	600000	2013	2	12	8	2-4 ROOM Imp 299, TOA PAY	1000.00	400.000000	34	18
28610	2010-01	GEYLANG 3 ROOM	95	ALUNING CH 07 TO 09	60	Improved	1975	335000	2013	1	8	7	8-3 ROOM Imp 95, ALUNING	899.86	478.020881	40	12
173300	2018-08	HOUDANG 3 ROOM	641	HOUJIANG A 07 TO 09	120	Improved	1987	435000	2018	6	8	7	9-5 ROOM Imp 641, HOUJIA	1391.68	335.222348	34	17
65093	2012-03	BEDOK 3 ROOM	701	BEDOK RES 06 TO 10	68	New General	1987	340000	2012	3	8	6	10-3 ROOM New 701, BEDOK	731.852	484.511334	41	12
169723	2020-01	BISHAN 3 ROOM	450	SIN MIN AV 10 TO 12	120	Improved	1987	700000	2020	1	11	10	11-5 ROOM Imp 450, SIN MIN	1345.5	520.202694	32	25
103861	2013-07	TOA PAYOH 4 ROOM	307D	TOA PAYOH ST 1 01 TO 03	120	Improved	1987	600000	2013	6	14	13	14-4 ROOM Imp 307D, TOA PAY	1744.00	577.000000	20	17
901010	2013-06	SENKOANG 4 ROOM	273D	COMPASSIA 13 TO 15	90	Premium/Apt	2008	625000	2013	6	14	13	14-4 ROOM Per 273D, COMP	965.76	645.154631	12	16
46479	2018-03	TAMPINES 3 ROOM	412	TAMPINES ST 01 TO 03	60	Improved	1985	270000	2018	3	2	1	3-2 ROOM Imp 412, TAMPIN	742.716	383.530009	36	12
162311	2017-07	SERANGOON 5 ROOM	121	SERANGOON 07 TO 09	120	Improved	1985	500000	2017	7	8	7	9-5 ROOM Imp 121, SERANG	1345.5	371.609057	36	13
52787	2018-08	BUKIT MERAH 4 ROOM	54	HARLOCK 28 TO 30	94	Model A	2013	770000	2015	8	29	28	30-4 ROOM Mod 54, HARLO	1011.816	761.000793	8	36
120586	2018-08	TOA PAYOH 4 ROOM	467	TOA PAYOH ST 1 01 TO 03	120	Improved	1987	570000	2018	7	10	9	9-4 ROOM Imp 467, TOA PAY	979.500	499.500000	19	20
21885	2018-01	BUKIT PANJU 4 ROOM	116	PROVIDE 07 TO 10 TO 12	73	Model A	1987	288000	2018	1	11	10	12-11 ROOM Mod 116, PANJU	777.772	367.648631	34	12
64196	2020-11	WOODLAND 4 ROOM	318	WOODLAND 10 TO 12	110	Model A	1993	400000	2020	11	10	10	11-4 ROOM Mod 318, WOODL	1280.016	312.270237	28	12
154005	2015-12	BISHAN 5 ROOM	292	BISHAN ST2 07 TO 10	120	Premium/Apt	1985	600000	2015	12	8	7	9-5 ROOM Per 292, BISHAN	1323.972	604.242386	23	24
164979	2019-03	BISHAN 5 ROOM	194	BISHAN ST 1 07 TO 09	121	Improved	1987	800000	2018	3	8	7	9-5 ROOM Imp 194, BISHAN	1320.444	618.836597	34	25
138680	2017-12	WOODLAND 4 ROOM	980	WOODLAND 07 TO 10	120	Improved	1988	400000	2017	10	11	10	11-4 ROOM Imp 980, WOODL	7291.08	332.000425	31	12
44379	2017-04	WOODLAND 4 ROOM	354	WOODLAND 07 TO 09	30	Model A	1985	220000	2017	8	8	7	9-4 ROOM Mod 354, WOODL	1322.000	332.000425	22	12
113705	2015-07	SENKOANG 4 ROOM	407C	FERNAVIL RI 19 TO 21	90	Premium/Apt	2005	420000	2015	7	20	19	21-4 ROOM Per 407C, FERN	968.76	433.543912	16	26
125382	2019-10	WOODLAND 4 ROOM	409	WOODLAND 10 TO 12	130	Model A	1985	430000	2019	10	11	10	12-5 ROOM Mod 409, WOODL	1453.14	285.310024	25	14
164364	2019-03	HOUDANG 3 ROOM	558	HOUJIANG 0 9 TO 10	140	Modellette	1982	605000	2012	3	1	5	3-4 ROOM Exec 558, HOUD	1593.072	379.760402	29	11
103862	2019-04	TOA PAYOH 4 ROOM	92	PTT RD 07 TO 10	120	Improved	1987	540000	2015	4	10	9	10-4 ROOM Imp 92, PTT RD	1011.816	507.00241	24	18
147905	2019-04	TOA PAYOH 4 ROOM	299	TOA PAYOH ST 01 TO 15	111	Model A	1987	520000	2019	5	14	13	15-4 ROOM Imp 299, TOA PAY	1144.000	577.000000	17	20
166009	2019-08	JURONG WEST 5 ROOM	653A	JURONG WE 04 TO 06	111	Improved	2002	465000	2019	5	4	6	5-5 ROOM Imp 653A, JURON	1194.004	379.141983	19	16
68973	2020-08	BUKIT BATOK 4 ROOM	291A	BT BATOK ST 01 TO 03	104	Model A	1987	360000	2020	6	2	1	3-4 ROOM Mod 291A, BT BAT	1119.456	321.584777	24	19
35372	2020-07	TOA PAYOH 3 ROOM	205	TOA PAYOH 10 TO 12	85	Improved	1973	260000	2020	7	11	10	12-3 ROOM Imp 205, TOA PAY	699.86	371.609067	48	12
72362	2017-09	TOA PAYOH 3 ROOM	156	TOA PAY OH 04 TO 06	107	Model A	1986	350000	2017	9	5	4	5-3 ROOM Imp 156, TOA PAY	1111.748	338.000001	25	10
112030	2019-03	CHOA CHU KUAH 4 ROOM	417	CHOA CHU KUAH 01 TO 03	102	Model A	2001	200000	2019	3	7	6	8-4 ROOM Mod 417, CHOA CH	1130.000	338.872078	20	13
108303	2012-11	SEMAWAN 5 ROOM	507C	WELLINGTON 10 TO 12	110	Improved	2001	600000	2012	11	11	10	12-5 ROOM Imp 507C, WELLI	1184.04	424.810279	20	12
141326	2012-12	KALLANG W 5 ROOM	103	JN RAJAH 07 TO 09	130	Model A	1985	708000	2012	12	8	7	9-5 ROOM Mod 103, JN RAJ	1496.196	473.200035	37	20
113403	2012-07	SENGKANG 5 ROOM	299B	COMPASSIA 13 TO 15	115	Premium/Apt	2001	490000	2012	7	14	13	15-4 ROOM Imp 299B, COMP	1237.86	305.891516	20	17
140705	2019-04	TOA PAYOH 4 ROOM	648	LOPDAKA 10 TO 12	120	Improved	1987	520000	2019	4	11	10	12-4 ROOM Imp 648, LOPDA	1512.000	624.425072	24	26
155900	2019-04	TOA PAYOH 4 ROOM	649A	TOA PAYOH 01 TO 03	120	Improved	1987	520000	2019	2	11	10	12-4 ROOM Imp 649A, TOA PAY	1044.000	507.00241	47	12
123158	2018-11	CHOA CHU KUAH 4 ROOM	684C	CHOA CHU KUAH 04 TO 06	111	Improved	2002	350000	2018	11	5	4	6-5 ROOM Imp 684C, CHOA	1184.04	295.590122	19	15
304038	2013-04	ANG MO KIO 3 ROOM	219	ANG MO KIO 07 TO 09	67	New General	1977	385000	2013	4	8	7	9-3 ROOM New 219, ANG M	771.188	533.841384	4	



Causeway Point



Reduce shopping malls to a few based on domain knowledge

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	X
Id	Trans_Year	Mtown	flat_type	block	street_name	storey_range	floor_area_sqft	flat_model	lease_comm	lease_price	Trans_Year	Trans_Month	mid_storey	lower	upper	mid	full.flat_type.address	floor_area_sqft_per_sqft	beds	age	max.floor_lv	year_comple
88471	2016-05	KALLANG/W 4 ROOM	3B	UPP BOON KI 10 TO 12	90	Model A	2006	680000	2016	5	11	10	12	11	11-4 ROOM Mod 35, UPP BOO	968.76	701.928238	15	25	2005		
122598	2012-07	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	745.203062	34	9	1987	
170897	2015-07	BUKIT BATOK EXECUTIVE	28B8	BT BATOK ST 13 TO 15	144	Apartment	1997	838000	2013	7	14	13	15	14	EXECUTIVE A 28B8, BT BATOK	1501.01	540.935958	24	16	1996		
86070	2012-04	BISHAN	4 ROOM	232	BISHAN ST 02 TO 05	103	Model A	1992	550000	2012	4	3	1	5	3	4 ROOM Mod 232, BISHAN	1109.62	498.005096	29	11	1990	
156382	2012-12	YISHUN	4 ROOM	876	YISHUN ST 01 TO 03	83	Simplified	1987	298000	2017	12	2	1	3	2	4 ROOM Imp 876, YISHUN	689.412	335.522717	34	4	1987	
268610	2015-01	GEYLANG	3 ROOM	95	AJUNIED CI 07 TO 09	65	Improved	1975	335000	2013	1	6	7	9	8	3 ROOM Imp 95, AJUNIED	699.66	478.030991	46	12	1974	
173309	2016-05	HOUGAII	5 ROOM	641	HOUGAII A 07 TO 09	120	Improved	1987	433000	2016	5	6	7	9	8	5 ROOM Imp 641, HOUGAI	1291.68	335.222346	34	17	1986	
655093	2012-03	BEDOK	3 ROOM	701	BEDOK RESE 06 TO 10	68	New General	1980	340000	2012	3	6	6	10	10	8 ROOM New 701, BEDOK I	731.95	464.511334	41	12	1986	
166789	2020-01	BISHAN	5 ROOM	450	SIN HENG AV 10 TO 12	125	Improved	1989	700000	2020	1	11	10	12	11	5 ROOM Imp 450, SIN MIN	1345.5	520.252694	32	25	1988	
103385	2016-04	SENGKANG	5 ROOM	307D	ANCHORAL 10 TO 12	110	Improved	2001	490000	2014	6	11	10	12	12	11.5 ROOM Imps 307D, ANCHI	1184.04	413.337377	20	17	2000	
90310	2015-06	SENGKANG	4 ROOM	273D	COMPASSIVA 13 TO 15	90	Premium Apa	2009	625000	2013	6	14	13	15	14	4 ROOM Per 273D, COMP	968.76	645.154631	12	16	2008	
46476	2016-03	TAMPINES	3 ROOM	412	TAIMPINES ST 01 TO 03	69	Improved	1985	270000	2018	3	2	1	3	3	2 ROOM Imp 412, TAMPINI	742.711	363.530969	36	12	1984	
162311	2017-07	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	371.809097	36	13	1984		
82779	2018-08	BUTTERFIELD 4 ROOM	54	HAWLOCK R 28 TO 30	94	Model A	2013	770000	2015	8	29	28	30	29	4 ROOM Mod 54, HAVLOC	1011.81	761.070973	8	36	2011		
128843	2013-09	BUTTERFIELD 4 ROOM	481	SEGAR RD 07 TO 09	91	Premium Apa	2002	345000	2019	10	8	7	9	8	4 ROOM Per 481, SEGAR	978.524	352.211891	19	15	2000		
31855	2016-01	BUTTERFIELD 3 ROOM	116	PENDING 10 TO 12	73	Model A	1987	288888	2018	1	11	10	12	11	3 ROOM Mod 116, PENDING	785.777	367.646633	34	12	1986		
54196	2020-11	WOODLAND 4 ROOM	318	WOODLAND 10 TO 12	119	Model A	1993	400000	2020	11	11	10	12	11	4 ROOM Mod 318, WOODL	1208.91	312.276527	28	28	1984		
154003	2012-12	BISHAN	5 ROOM	292	BISHAN ST 02 TO 09	123	Premium Apa	1998	800000	2015	12	8	7	9	8	5 ROOM Per 292, BISHAN	1323.972	604.242386	23	24	1995	
164978	2018-03	BISHAN	5 ROOM	194	BISHAN ST 07 TO 09	121	Improved	1987	806000	2018	3	8	7	9	8	5 ROOM Imp 194, BISHAN	1320.44	618.836957	34	25	1988	
136805	2019-10	YISHUN	5 ROOM	889	YISHUN AVE 07 TO 09	120	Improved	1988	455000	2019	10	8	7	9	9	5 ROOM Imp 889, YISHUN	1291.68	352.254248	33	12	1986	
84379	2017-08	WOODLAND 4 ROOM	554	WOODLAND 07 TO 09	90	Model A2	1999	322000	2017	8	8	7	9	8	4 ROOM Mod 554, WOODL	966.76	332.383686	22	12	1986		
113785	2015-07	SENGKANG 4 ROOM	407A	FERNAHL R 19 TO 21	90	Premium Apa	2005	420000	2015	7	20	19	21	20	4 ROOM Per 407A, FERN	966.76	345.539192	16	26	2011		
125382	2015-10	WOODLAND 5 ROOM	409	WOODLAND 10 TO 12	135	Model A	1996	430000	2019	10	11	10	12	11	5 ROOM Mod 409, WOODL	1403.14	295.910524	25	14	1994		
184364	2012-03	HOUGAII 4 ROOM	588	HOUGLAND S 01 TO 05	148	Haltonette	1992	605000	2012	3	3	1	5	3	3 ROOM EXECUTIVE 588, HOUGLA	1598.072	376.769402	29	11	1990		
152924	2019-04	GEYLANG	5 ROOM	92	PITRD 07 TO 09	120	Improved	1987	648000	2019	4	8	7	9	8	5 ROOM Imp 92, PITRD	1291.68	501.672241	24	18	1994	
147995	2018-05	WOODLAND 5 ROOM	690A	WOODLAND 13 TO 15	110	Premium Apa	2004	472000	2016	5	14	13	15	15	14 ROOM Per 690A, WOODL	1164.04	365.851801	17	15	2001		
166008	2019-08	JURONG WE 5 ROOM	653A	JURONG WE 04 TO 06	111	Improved	2002	453000	2019	8	5	4	6	5	5 ROOM Imps 653A, JURON	1154.86	378.141683	19	16	2000		
60679	2020-06	BUTTERFIELD 4 ROOM	291A	BUTTATOK ST 01 TO 03	164	Model A	1987	360000	2020	6	2	1	3	2	4 ROOM Mod 291A, BUTTATOK	1110.86	321.84477	24	19	1995		
35374	2016-05	TOA PAYOH	205	TOA PAYOH 04 TO 06	65	Improved	1975	260000	2020	7	11	10	12	11	3 ROOM Imp 205, TOA PAY	1099.66	309.809067	46	12	1975		
72299	2017-09	JURONG W 4 ROOM	150	YOUNG LIOH 04 TO 06	107	Model A	1986	363000	2017	9	5	4	6	6	4 ROOM Mod 150, YOUNG LIOH	1151.748	310.530563	25	15	1991		
110425	2016-03	CHOA CHUAH 4 ROOM	417	CHOA CHUAH 07 TO 09	105	Model A	1986	363000	2016	3	7	6	9	8	4 ROOM Mod 417, CHOACHUAH	1132.62	388.270728	28	15	1991		
102330	2012-11	SHENGWAH 5 ROOM	507C	WELINGTON 10 TO 12	110	Improved	2001	502000	2012	11	11	10	12	11	5 ROOM Imp 507C, WELLI	1154.04	424.816729	21	20	2000		
141236	2012-12	KALLANG/W 5 ROOM	103	JLN RAJAH 07 TO 09	131	Model A	1984	708000	2012	12	8	7	9	8	5 ROOM Mod 103, JLN RAJAH	1466.19	472.003005	37	25	1983		
113423	2017-02	SENGKANG 5 ROOM	2089	COMPASSIV 01 TO 12	116	Premium Apa	2001	480000	2016	7	14	13	15	15	4 ROOM Per 2089, COMP	1237.86	400.801818	20	17	1988		
140758	2019-04	TOA PAYOH	848	LOR 10 TO 12	122	Improved	1987	620000	2019	4	11	10	12	12	5 ROOM Imp 848, LOR 10 TO 12	1312.008	424.502702	24	25	1995		
66679	2018-11	KALLANG/W 3 ROOM	64	KALLANG 01 TO 03	65	Improved	1974	260000	2018	11	2	1	3	2	3 ROOM Imp 64, KALLANG	699.66	371.600907	47	13	1972		
123108	2018-11	CHOA CHUAH 5 ROOM	684C	CHOA CHUAH 04 TO 06	110	Improved	2002	350000	2018	11	5	4	6	6	5 ROOM Imp 684C, CHOA	1184.04	295.591282	19	15	2000		
30420	2012-04	AMO HO 3 ROOM	215	AMO HO 02 TO 09	67	New General	1977	385000	2013	4	8	7	9	8	3 ROOM New 215, AMO HO	721.19	523.841384	44	13	1976		
53346	2020-12	TOA PAYOH	3 ROOM	115	LOR 10 TO 12	72	Improved	1970	350000	2020	12	8	7	9	9	3 ROOM Imp 115, LOR 10 TO 12	1307.45	451.802041	51	20	1989	
153598	2013-03	WOODLAND 5 ROOM	137	MARSHAL 07 TO 09	121	Improved	1985	340000	2019	3	8	7	9	8	5 ROOM Imp 137, MARSH	1302.444	261.047692	36	12	1984		
2029	2018-08	BUKIT BATOK 3 ROOM	208	BTBATOK ST 04 TO 06	73	Model A	1983	268000	2019	8	5	4	6	5	3 ROOM Mod 208, BTBATOK	765.772	341.085586	38	13	1982		
110203	2017-04	BUKIT MERAH 4 ROOM	112A	DEPOT R 16 TO 18	115	Improved	2006	708000	2017	4	17	16	18	17	5 ROOM Imp 112A, DEPOT	1375.87	515.954825	15	25	2003		
113106	2016-12	SEMBAWANG 5 ROOM	325	SEMBAWANG 10 TO 12	120	Improved	1999	395000	2016	12	11	10	12	11	5 ROOM Imp 325, SEMBAW	1291.68	305.803295	22	15	1987		
91417	2012-07	WOODLAND 5 ROOM	733	WOODLAND 01 TO 03	122	Improved	1997	380000	2013	8	2	1	3	2	5 ROOM Imp 733, WOODLAND	1313.200	369.367716	24	12	1996		
156500	2021-04	TAMPINES	4 ROOM	216	TAIMPINES ST 10 TO 12	99	New General	1985	486000	2021	4	11	10	12	11	4 ROOM New 216, TAMPI	1065.63	456.538737	36	12	1984	
2324	2012-10	TOA PAYOH	4 ROOM	148	POTONG PAS 01 TO 03	84	Simplified	1998	515000	2012	10	2	1	3	2	4 ROOM Simpl 148, POTON	504.178	569.579374	23	4	1995	

Re-calculate nearest distance to mall

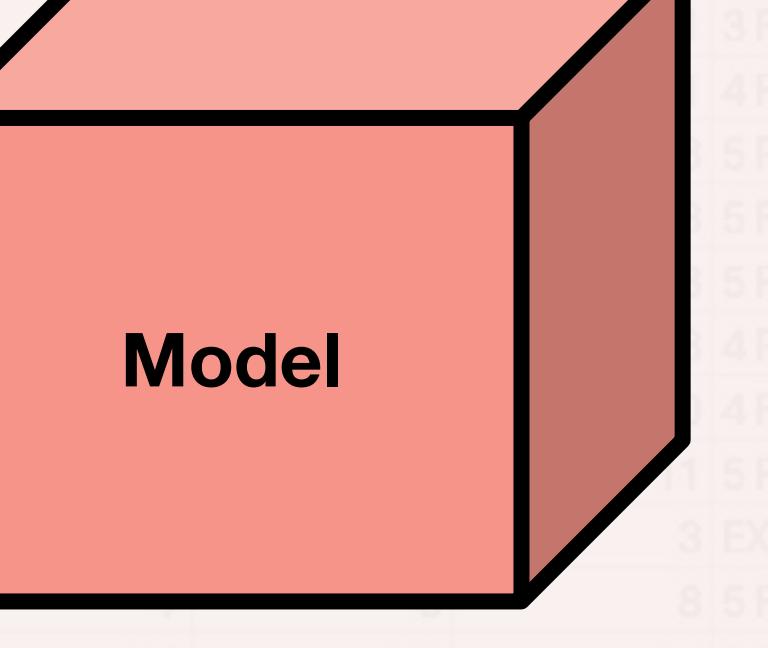
Better performing feature

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



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/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	
4-06	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	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	
9-04	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	1313.208	624.425072	
8-11	KALLANG/WFH	3 ROOM	64	KALLANG BAII	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 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 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.



Pre-war HDB Tiong Bahru
Year of completion in 1949

Unique Trends Solutions

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



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	

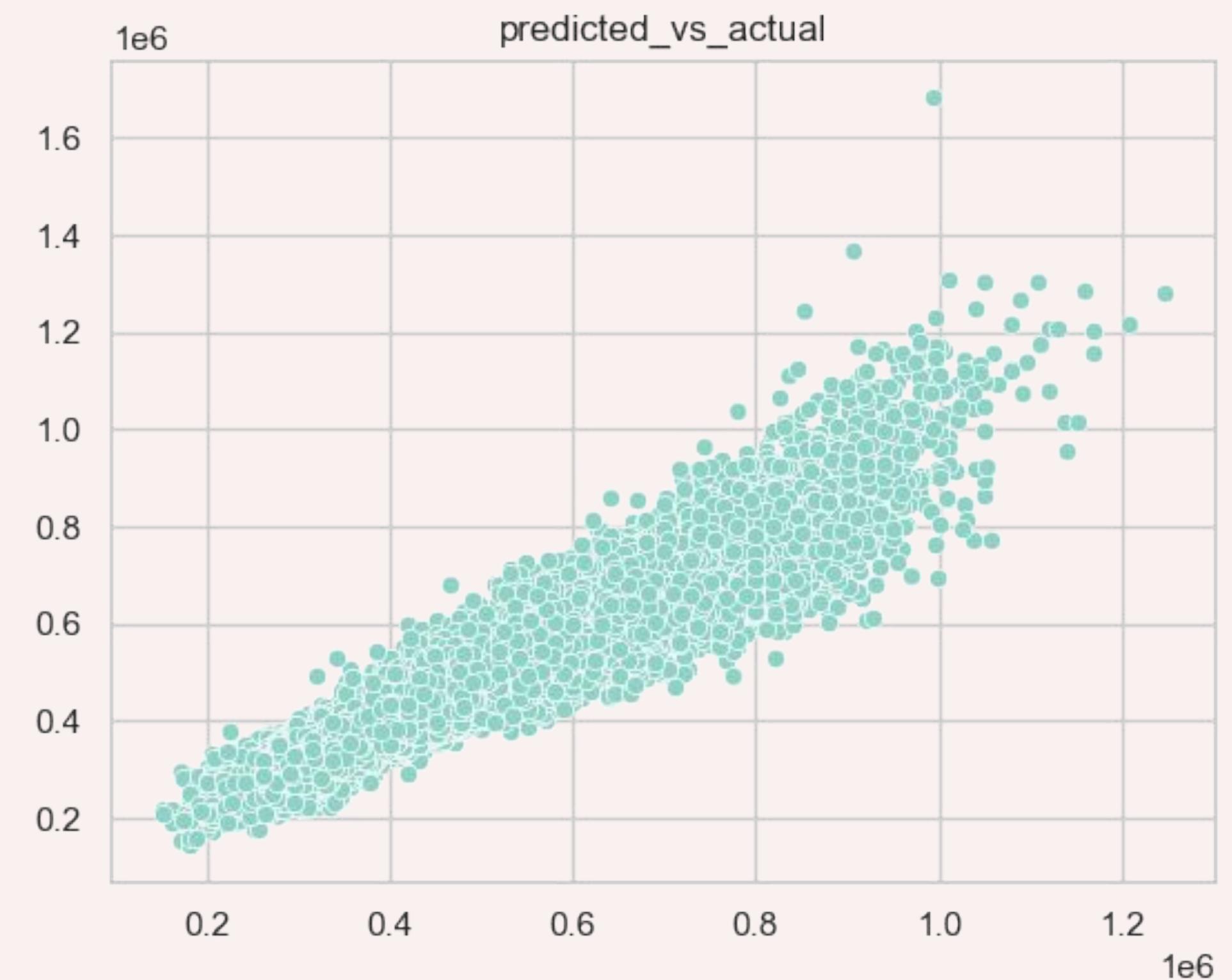
Model Performance

Model

Performance

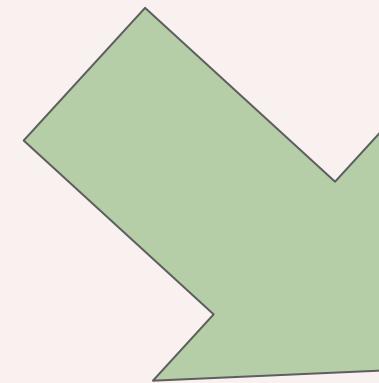
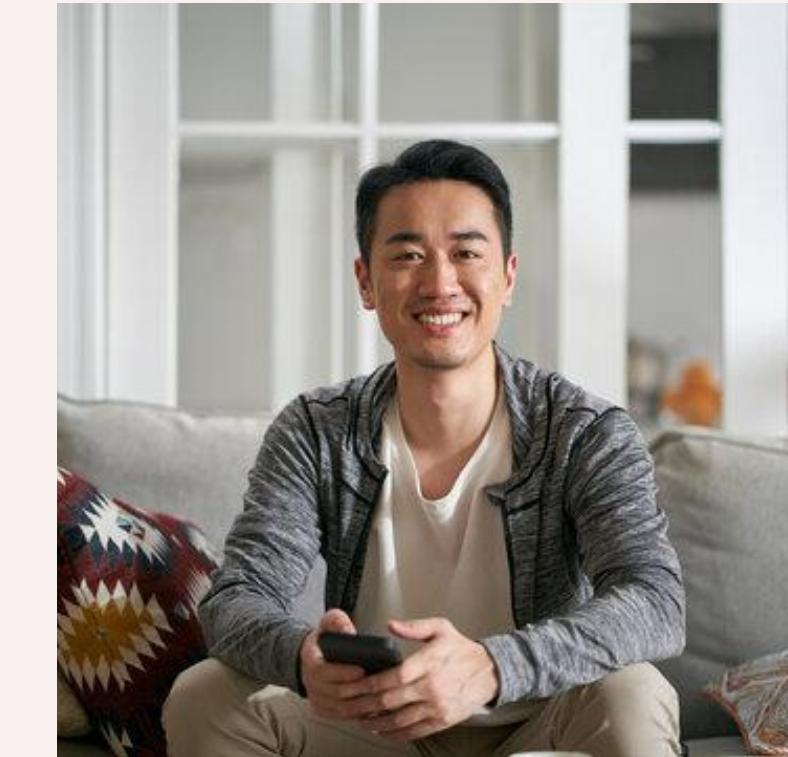
Our model is able to predict up to **90.3% of the variation** in HDB houses

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

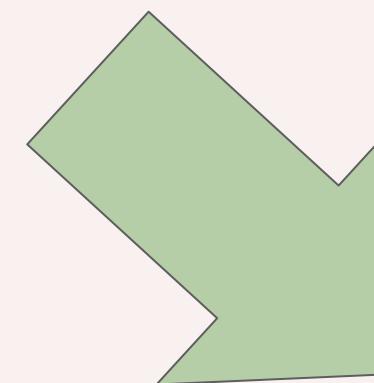


George is now a happy ERA customer as

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

- 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:

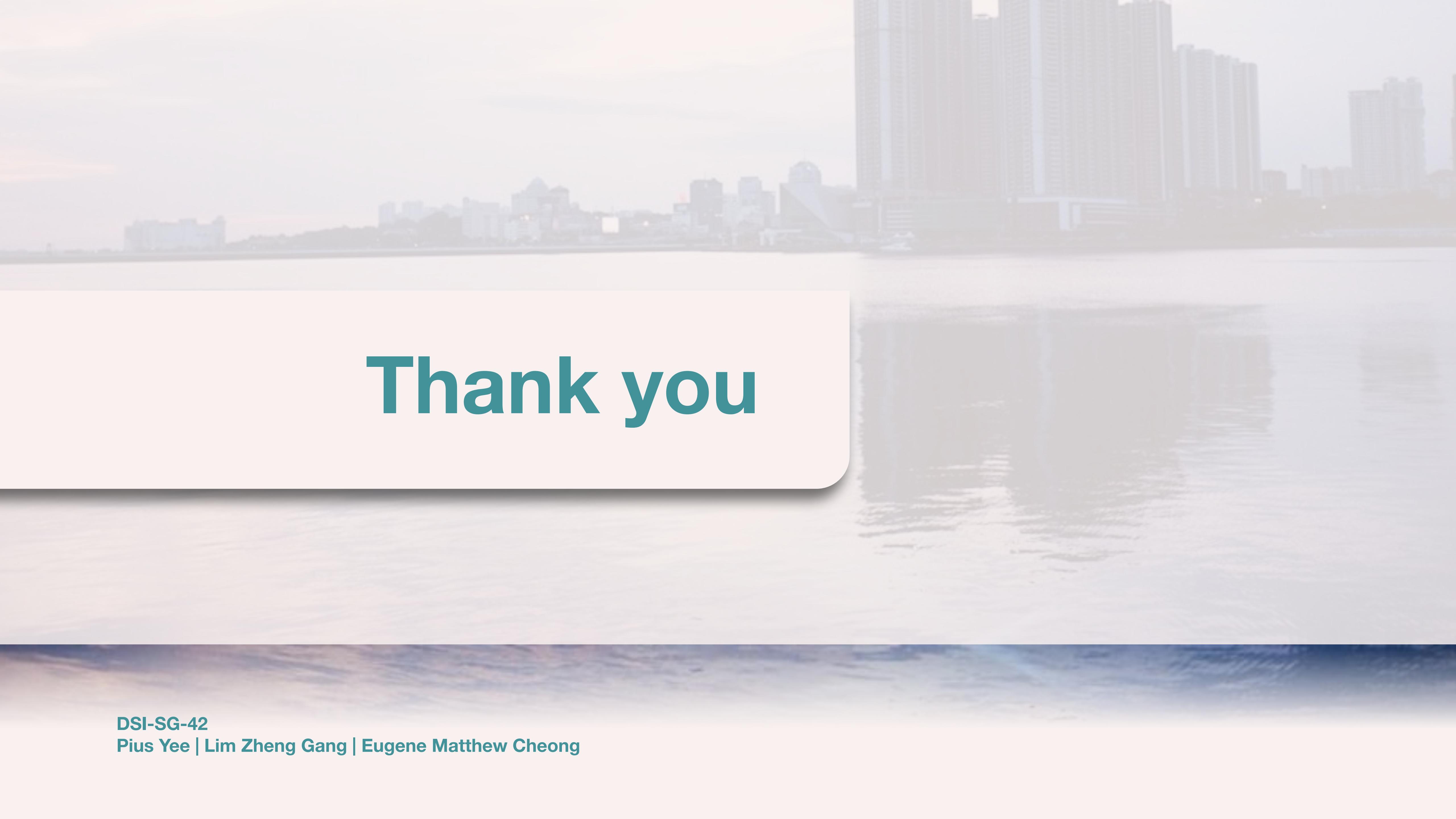
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What's Next?

With more fundings, 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