

DATA VISUALISATION (ST1502) CA1

Town-Based Insights into Singapore's HDB Resale Market: A Data-Driven Analysis of Pricing, Value, and Affordability

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OBJECTIVE OF ANALYSIS

The primary objective of this dashboard is to empower prospective homebuyers with town-level intelligence on Singapore's HDB resale market. By visualising pricing trends, value-for-money patterns, affordability gaps, and lifestyle-related factors across different towns, the dashboard enables users to make strategic, data-driven decisions about where they can realistically buy a flat and what trade-offs they may face.



RESEARCH QUESTION

How do different HDB towns compare in terms of lifestyle preferences, affordability, and value-for-money, and what insights can help buyers select the most suitable town based on their budget and housing priorities?



DATA QUALITY (PROVIDED DATA)

Field Name	Rows Affected	Actions Taken
ALL	303	Dropping Duplicated Data
month	1	Data entry error of '2024-02, woodlands' Changed to '2024-02'
month	8	Inconsistent Data (2023-0113) Changed to '2023-01'
town	48	Data Entry error (e.g. 'ANG MO KIOO', SENG-KANG, CCK, AMK, etc) Corrected to the intended town (e.g. 'Ang Mo Kio', 'Sengkang', etc)
town	202461	Changed full-capitalised format to first-letter capitalisation format
flat_type	39	Data entry error / inconsistencies (e.g. '3 ROOMS', '3 ROOMSs', etc) Corrected to intended room type (e.g. '3 Room', '4 Room', etc)
flat_type	202461	Changed full-capitalised format to first-letter capitalisation format

DATA QUALITY (PROVIDED DATA)

Field Name	Rows Affected	Actions Taken
block	28	Removed all special characters and ‘_BLK’
street_name	202461	Standardised all naming to full term (e.g. ‘CeRL’ to ‘Central’, ‘RD’ to ‘Road’)
street_name	202461	Changed full-capitalised format to first-letter capitalisation format
storey_range	26	Replaced special characters with ‘To’
storey_range	202461	Changed full-capitalised format to no capitalisation format (‘TO’ to ‘to’)
flat_model	21	Data entry error / inconsistencies (e.g. ‘NG’, ‘Improvedv1’, etc) Corrected to intended room type (e.g. ‘New Generation’, ‘Improved’, etc)
remaining_lease	202461	Standardised format to include 0 months & no ‘0’ in front of single digit months
resale_price	1	Changed ‘285-000’ to ‘285000’

DATA QUALITY (PROVIDED DATA)

Field Name	Rows Affected	Actions Taken
resale_price	9	Changed negative values to positive
floor_area_sqm	2	Winsorised extreme values (>150% increase to peer mean) to 200 sqm
resale_price	3	Winsorised extreme values (>150% increase to peer mean) to \$1.5 Million

DATA QUALITY (ADDITIONAL DATA)

Field Name	Rows Affected	Actions Taken
ALL	306	Removed duplicated data
town	216695	Changed full-capitalised format to first-letter capitalisation format
road_name	216695	Changed full-capitalised format to first-letter capitalisation format
building	216695	Changed full-capitalised format to first-letter capitalisation format
storey_range	216695	Changed full-capitalised format to no capitalisation format ('TO' to 'to')
flat_type	216695	Changed full-capitalised format to first-letter capitalisation format
planning_area_ura	216695	Changed full-capitalised format to first-letter capitalisation format
region_ura	216695	Changed full-capitalised format to first-letter capitalisation format

DATA QUALITY (ADDITIONAL DATA)

Field Name	Rows Affected	Actions Taken
closest_pri_school	216695	Changed full-capitalised format to first-letter capitalisation format

DATA WRANGLING (PROVIDED DATA)

Data Loading

	month	town	flat_type	block	street_name	storey_range	floor_area_sqm	flat_model	lease_commence_date	remaining_lease	resale_price
0	2017-01	AMK	3-ROOM	601	ANG MO KIO AVE 5	01 TO 03	67.000000	New Generation	1980	62 y 05 months	265000.000000
1	2017-01	AMK	3 ROOM	534	ANG MO KIO AVE 10	01@03	68.000000	New Generation	1980	62 years 01 month	288500.000000
2	2017-01	AMK	3 ROOM	233	ANG MO KIO AVE 3	10@12	67.000000	New-Generation	1977	59 ys 08 months	295000.000000
3	2017-01	AMK	3 ROOM	235	ANG MO KIO AVE 3	04 TO 06	67.000000	New-Generation	1977	59 years 08 months	295000.110000
4	2017-01	AMK	3 ROOM	219	ANG MO KIO AVE 1	07 TO 09	67.000000	New-Generation	1977	59 years 06 months	297000.000000
5	2017-01	AMK	3 ROOM	536	AMK AVE 10	07@@09	68.000000	New-Generation	1980	62 years 01 month	298000.000000
6	2017-01	AMK	3 ROOM	@@230	ANG MO KIO AVE 3	04 TO 06	67.000000	New-Generation	1978	60 years	298000.000000
7	2017-01	AMK	3 ROOM	570	ANG MO KIO AVE 3	10 TO 12	67.000000	New-Generation	1979	61 years 04 months	300000.000000
8	2017-01	ANG MO KIO	2 ROOM	@406	AMK AVE 10	10 TO 12	44.000000	Improved	1979	61 years 04 months	232000.000000
9	2017-01	ANG MO KIO	3 ROOM	108	ANG MO KIO AVE 4	01 TO 03	67.000000	New-Generation	1978	60 years 07 months	250000.000000

Missing Value Check

	column	Missing Data Count	Percentage Missing (%)
0	month	0	0.00%
1	town	0	0.00%
2	flat_type	0	0.00%
3	block	0	0.00%
4	street_name	0	0.00%
5	storey_range	0	0.00%
6	floor_area_sqm	0	0.00%
7	flat_model	0	0.00%
8	lease_commence_date	0	0.00%
9	remaining_lease	0	0.00%
10	resale_price	0	0.00%

Duplicated Data Addressment

	Metric	Count
0	Duplicated Rows	0
1	Rows Before	202764
2	Rows After	202461
3	Rows Removed	303

DATA WRANGLING (PROVIDED DATA)

Abnormalies Inspection

month

	month	count
0	2024-02, woodlands	1
1	2023-0113	8
2	2020-05	363
3	2020-04	423
4	2018-01	1,072
5	2017-02	1,080
6	2017-01	1,176
7	2018-02	1,182
8	2019-02	1,304
9	2025-03	1,358
10	2018-12	1,423
11	2019-01	1,549
12	2017-12	1,573
13	2019-03	1,650
14	2020-02	1,661
15	2017-09	1,665
16	2017-06	1,733
17	2018-05	1,740
18	2017-07	1,765
19	2017-10	1,767
20	2017-04	1,821
21	2019-09	1,827

town

	town	count
0	ANG MO KIOO	7
1	CCK	8
2	SENG-KANG	8
3	AMK	8
4	SENGKANG North	8
5	TAMPINES Park	9
6	BUKIT TIMAH	500
7	MARINE PARADE	1,240
8	CENTRAL AREA	1,596
9	BISHAN	3,574
10	SERANGOON	3,640
11	JURONG EAST	4,130
12	CLEMENTI	4,508
13	GEYLANG	4,989
14	QUEENSTOWN	5,552
15	SEMBAWANG	5,837
16	PASIR RIS	5,876
17	KALLANG/WHAMPOA	6,167
18	TOA PAYOH	6,362

flat_type

	flat_type	count
0	3 ROOMS	1
1	3 ROOMs	1
2	4 ROOMSS	1
3	4 ROOMS	1
4	3-ROOM	2
5	3 ROOMATES	3
6	5-RM	5
7	44 ROOM	6
8	EXECUTIVE part 1	6
9	3 RM	13
10	1 ROOM	75
11	MULTI-GENERATION	80
12	2 ROOM	3,859
13	EXECUTIVE	14,779
14	3 ROOM	48,123
15	5 ROOM	49,957
16	4 ROOM	85,549

block

	block	count
0	858B	1
1	@160	1
2	795A	1
3	162A_BLK	1
4	271C_BLK	1
5	333%	1
6	#332	1
7	@@230	1
8	***588C	1
9	***646	1
10	@304	1
11	860A	1
12	994A	1
13	478B	1
14	860B	1
15	#321	1
16	&219	1
17	241%	1
18	220%	1

street_name

	street_name	count
0	YISHUN ST 44	1
1	TAMPINES CeRL 7	1
2	TAMPINES CTerL 1	1
3	SENGKANG EAST WAY LINK	1
4	TAMPINES CTerL 7	1
5	CANTONMENT CL CL	1
6	JLN BT MERAH BT MERAH	1
7	LOR 2 TP	1
8	ALJUNIED AVE 2	1
9	LOR 7 TP	1
10	KIM TIAN RD Spore	1
11	FERNVALE LINK LINK	1
12	MARINE PARADE CTRL	1
13	LOR 8 TP	2
14	GEYLANG EAST AVE 2	2
15	SEMBAWANG WAY	5
16	SENG POH RD	6
17	BT MERAH LANE 1	7
18	KRETA AYER RD	8
19	CLEMENTI ST 12	10
20	ALKAFF CRES	11

storey_range

	storey_range	count
0	01@@03	1
1	07@@09	1
2	10-12	1
3	07 — 09	1
4	01 —03	1
5	13 - 15	1
6	10-Dec	1
7	01—03	1
8	04—06	1
9	01@03	1
10	10@12	1
11	04 TO 06-10	1
12	13 TO 15-9	1
13	01 — 03	1
14	22 — 24	1
15	22 — 24	1
16	4-Jun	2
17	07 — 09	2
18	19 — 21	2

flat_model

	flat_model	count
0	NG	1
1	Improvedv1	3
2	Model -A	4
3	Model A_B	4
4	New-Generation	9
5	Premium Maisonette	16
6	Improved-Maisonette	28
7	3Gen	51
8	Multi Generation	80
9	Terrace	107
10	Premium Apartment Loft	110
11	Type S2	174
12	2-room	220
13	Type S1	330
14	Adjoined flat	346
15	Model A-Maisonette	361
16	Model A2	2,309
17	DBSS	3,299
18	Standard	5,472
19	Maisonette	5,653
20	Apartment	7,420
21	Simplified	7,772

DATA WRANGLING (PROVIDED DATA)

Abnormalies Inspection

remaining_lease

	remaining_lease	count
0	40 years 01 month	1
1	96 years 10 months	1
2	93 years 0 months	1
3	97 years 01 month	1
4	97 years 09 months	1
5	97 years 03 months	1
6	97 years 05 months	1
7	97 years 07 months	1
8	59 ys 08 months	1
9	62 y 05 months	1
10	66 years 0 months	1
11	95 years 0 months	1
12	40 years 11 months	2
13	97 years 04 months	2
14	96 years 03 months	3
15	97 years 02 months	3
16	96 years 11 months	3
17	97 years	4
18	96 years 09 months	5
19	41 years 04 months	5
20	96 years 06 months	6

resale_price

Non-numeric resale_price entries found: 1

	resale_price_raw	count
0	285-000	1

Negative resale_price values found: 9

	town	block	flat_type	resale_price
88522	Kallang/Whampoa	75	3 Room	-255000
88523	Kallang/Whampoa	6	3 Room	-262000
88524	Kallang/Whampoa	43	3 Room	-275000
88525	Kallang/Whampoa	72	3 Room	-276000
198999	Yishun	871	5 Room	-7458000.000000
199000	Yishun	851	5 Room	-740000.000000
199002	Yishun	352	Executive	-1008000.000000
202457	Yishun	758	5 Room	-700000.000000
202459	Yishun	820	5 Room	-685000.000000

DATA WRANGLING (PROVIDED DATA)

Outlier Detection



DATA WRANGLING (PROVIDED DATA)

Outlier Inspection

Winsorise to 200 sqm

floor_area_sqm

	town	block	flat_type	flat_model	floor_area_sqm	resale_price	local_count	local_mean_area	local_std_area	area_diff_%	local_z_score
0	Kallang/Whampoa	65	3 Room	Terrace	249.000000	1053888.000000	60	70.250000	24.910000	254.45	7.170000
1	Kallang/Whampoa	53	3 Room	Terrace	366.700000	1568000.000000	23	123.070000	53.770000	197.95	4.530000
2	Kallang/Whampoa	41	3 Room	Terrace	237.000000	1185000.000000	10	106.100000	46.000000	123.37	2.850000
3	Bishan	454	Executive	Maisonette	243.000000	1001000.000000	18	124.780000	39.320000	94.75	3.010000
4	Kallang/Whampoa	46	3 Room	Terrace	241.000000	1235000.000000	28	127.210000	38.800000	89.44	2.930000
5	Choa Chu Kang	641	Executive	Premium Maisonette	215.000000	888000.000000	25	113.800000	23.940000	88.93	4.230000
6	Kallang/Whampoa	38	3 Room	Terrace	215.000000	830000.000000	38	116.430000	23.440000	84.66	4.200000
7	Kallang/Whampoa	39	3 Room	Terrace	210.000000	1268000.000000	33	114.680000	19.970000	83.13	4.770000
8	Choa Chu Kang	639	Executive	Premium Maisonette	215.000000	900000.000000	10	120.700000	35.050000	78.13	2.690000
9	Kallang/Whampoa	61	3 Room	Terrace	222.000000	1100000.000000	4	126.000000	64.000000	76.19	1.500000
10	Bishan	446	Executive	Maisonette	243.000000	1092888.000000	13	140.230000	48.830000	73.29	2.100000
11	Kallang/Whampoa	58	3 Room	Terrace	208.000000	1280000.000000	10	126.900000	35.960000	63.91	2.260000

	Metric	Value
0	Max Floor Area (Before)	366.70
1	Rows Above 200 sqm (Before)	12.00
2	Rows Eligible to Cap	2.00
3	Total Rows	202,461.00
4	Max Floor Area (After)	366.70
5	Rows Above 200 sqm (After)	12.00
6	Rows Winsorised	2.00

DATA WRANGLING (PROVIDED DATA)

Outlier Inspection

resale_price

Winsorise to \$1.5M

	town	block	flat_type	flat_model	floor_area_sqm	resale_price	local_count	local_mean_price	local_std_price	price_diff_%	local_z_score
0	Yishun	871	5 Room	Improved	122.000000	7458000.000000	17	899222.120000	1694239.190000	729.38	3.870000
1	Sengkang	336C	4 Room	Premium Apartment	92.000000	5525000.000000	35	742301.260000	840571.920000	644.31	5.690000
2	Sengkang	288C	4 Room	Premium Apartment	93.000000	5525000.000000	35	748685.490000	834099.500000	637.96	5.730000
3	Kallang/Whampoa	53	3 Room	Terrace	366.700000	1568000.000000	23	703125.570000	243538.520000	123.0	3.550000
4	Queenstown	28A	5 Room	Improved	124.000000	1550000.000000	28	878603.070000	193435.020000	76.42	3.470000
5	Bukit Merah	126A	5 Room	Improved	113.000000	1580000.000000	36	917413.560000	182524.390000	72.22	3.630000
6	Toa Payoh	138A	5 Room	DBSS	117.000000	1600000.000000	90	948527.690000	192526.720000	68.68	3.380000
7	Toa Payoh	139A	5 Room	DBSS	117.000000	1568888.000000	125	944478.750000	206460.500000	66.11	3.020000
8	Toa Payoh	138C	5 Room	DBSS	117.000000	1558000.000000	106	944752.550000	197124.690000	64.91	3.110000
9	Toa Payoh	139A	5 Room	DBSS	117.000000	1540000.000000	125	944478.750000	206460.500000	63.05	2.880000
10	Toa Payoh	138C	5 Room	DBSS	117.000000	1540000.000000	106	944752.550000	197124.690000	63.01	3.020000
11	Toa Payoh	138C	5 Room	DBSS	114.000000	1503888.000000	106	944752.550000	197124.690000	59.18	2.840000
12	Toa Payoh	139A	5 Room	DBSS	117.000000	1500888.000000	125	944478.750000	206460.500000	58.91	2.690000
13	Bishan	275A	5 Room	DBSS	120.000000	1568000.000000	70	1038606.290000	204986.100000	50.97	2.580000
14	Central Area	1D	5 Room	Type S2	106.000000	1550000.000000	62	1036879.740000	175796.310000	49.49	2.920000
15	Central Area	1D	5 Room	Type S2	105.000000	1542880.000000	62	1036879.740000	175796.310000	48.8	2.880000
16	Bishan	275A	5 Room	DBSS	120.000000	1539000.000000	70	1038606.290000	204986.100000	48.18	2.440000
17	Bishan	275A	5 Room	DBSS	120.000000	1538000.000000	70	1038606.290000	204986.100000	48.08	2.440000
18	Central Area	1D	5 Room	Type S2	107.000000	1515000.000000	62	1036879.740000	175796.310000	46.11	2.720000
19	Bukit Merah	9B	5 Room	Improved	112.000000	1588000.000000	26	1108049.080000	181138.410000	43.31	2.650000
20	Central Area	1E	5 Room	Type S2	107.000000	1540000.000000	67	1077509.390000	175449.970000	42.92	2.640000

	Metric	Value
0	Max Price (Before)	7,458,000.00
1	Rows Above \$1.5M (Before)	24.00
2	Rows Eligible to Cap	3.00
3	Total Rows	202,461.00
4	Max Price (After)	1,600,000.00
5	Rows Above \$1.5M (After)	21.00
6	Rows Winsorised	3.00

DATA WRANGLING (PROVIDED DATA)

Data Export

	Metric	Value
0	Export Path	/content/drive/MyDrive/Colab Notebooks/DAVI CA1/HDB_Resale_Flat_Prices_clean.csv
1	Rows Exported	202,461
2	Columns	12
3	File Size (MB)	20.77

DATA WRANGLING (ADDITIONAL DATA)

Loading Data

	month	town	blk_no	road_name	building	postal	resale_price	storey_range	flat_type	flat_model	lease_commence_date	remaining_lease_years	remaining_lease_months	floor_are
0	2017-01-01	ANG MO KIO	406	ANG MO KIO AVENUE 10	NIL	560406	232000.000000	10 TO 12	2 ROOM	Improved	1979-05-01	61	4	44.
1	2017-01-01	ANG MO KIO	108	ANG MO KIO AVENUE 4	KEBUN BARU HEIGHTS	560108	250000.000000	01 TO 03	3 ROOM	New Generation	1978-08-01	60	7	67.
2	2017-01-01	ANG MO KIO	602	ANG MO KIO AVENUE 5	YIO CHU KANG GREEN	560602	262000.000000	01 TO 03	3 ROOM	New Generation	1980-06-01	62	5	67.
3	2017-01-01	ANG MO KIO	465	ANG MO KIO AVENUE 10	TECK GHEE HORIZON	560465	265000.000000	04 TO 06	3 ROOM	New Generation	1980-02-01	62	1	68.
4	2017-01-01	ANG MO KIO	601	ANG MO KIO AVENUE 5	YIO CHU KANG GREEN	560601	265000.000000	01 TO 03	3 ROOM	New Generation	1980-06-01	62	5	67.
5	2017-01-01	ANG MO KIO	150	ANG MO KIO AVENUE 5	YIO CHU KANG GROVE	560150	275000.000000	01 TO 03	3 ROOM	New Generation	1981-01-01	63	0	68.

Missing Data Check

	column	Missing Data Count	Percentage Missing (%)
0	month	0	0.00%
1	town	0	0.00%
2	blk_no	0	0.00%
3	road_name	0	0.00%
4	building	0	0.00%
5	postal	0	0.00%
6	resale_price	0	0.00%
7	storey_range	0	0.00%
8	flat_type	0	0.00%
9	flat_model	0	0.00%
10	lease_commence_date	0	0.00%
11	remaining_lease_years	0	0.00%
12	remaining_lease_months	0	0.00%
13	floor_area_sqm	0	0.00%
14	floor_area_sqft	0	0.00%
15	price_per_sqft	0	0.00%
16	planning_area_ura	0	0.00%
17	region_ura	0	0.00%
18	x	0	0.00%
19	y	0	0.00%
20	latitude	0	0.00%
21	longitude	0	0.00%
22	closest_mrt_station	0	0.00%
23	distance_to_mrt_meters	0	0.00%
24	transport_type	0	0.00%
25	line_color	0	0.00%
26	distance_to_cbd	0	0.00%
27	closest_pri_school	0	0.00%
28	distance_to_pri_school_meters	0	0.00%

Duplicated Data Addressment

	Metric	Count
0	Duplicated Rows	0
1	Rows Before	217001
2	Rows After	216695
3	Rows Removed	306

DATA WRANGLING (ADDITIONAL DATA)

Abnormalies Inspection

town

	town	count
0	BUKIT TIMAH	530
1	MARINE PARADE	1,328
2	CENTRAL AREA	1,694
3	BISHAN	3,802
4	SERANGOON	3,860
5	JURONG EAST	4,413
6	CLEMENTI	4,829
7	GEYLANG	5,326
8	QUEENSTOWN	5,871
9	PASIR RIS	6,229
10	SEMBAWANG	6,496
11	KALLANG/WHAMPOA	6,626
12	TOA PAYOH	6,964
13	BUKIT PANJANG	7,776
14	BUKIT MERAH	8,276
15	ANG MO KIO	8,855
16	BUKIT BATOK	8,955
17	CHOA CHU KANG	9,820
18	HOUGANG	10,952
19	BEDOK	11,289
20	JURONG WEST	14,330
21	TAMPINES	14,751
22	YISHUN	14,794
23	WOODLANDS	15,362
24	PUNGGOL	15,801
25	SENGKANG	17,766

road_name

	road_name	count
0	ALJUNIED AVENUE 2	1
1	MARINE PARADE CENTRAL	1
2	MARGARET DRIVE	1
3	GEYLANG EAST AVENUE 2	2
4	SEMBAWANG WAY	5
5	SENG POH ROAD	6
6	BUKIT MERAH LANE 1	7
7	KRETA AYER ROAD	8
8	CLEMENTI STREET 12	10
9	MACPHERSON LANE	13
10	KIM PONG ROAD	14
11	JALAN BERSEH	14
12	CLEMENTI STREET 11	14
13	CHANDER ROAD	15
14	JURONG WEST STREET 51	17
15	TESSENSOHN ROAD	17
16	MOULMEIN ROAD	18
17	NEW MARKET ROAD	19
18	CHIN SWEE ROAD	20
19	KAMPONG KAYU ROAD	21
20	LOWER DELTA ROAD	21
21	OWEN ROAD	21
22	ZION ROAD	23
23	FRENCH ROAD	23
24	YISHUN STREET 42	23
25	LORONG 3 GEYLANG	24

flat_type

	flat_type	count
0	1 ROOM	78
1	MULTI-GENERATION	84
2	2 ROOM	4,323
3	EXECUTIVE	15,666
4	3 ROOM	51,562
5	5 ROOM	53,257
6	4 ROOM	91,725

building

	building	count
0	MARINE PARADE PROMENADE	1
1	SKYOASIS @ DAWSON	1
2	CHENG SAN CENTRE	1
3	SKYPARC @ DAWSON	2
4	TECK GHEE SQUARE	2
5	KEBUN BARU MALL	2
6	BOON LAY SHOPPING CENTRE	7
7	TECK WHYE SHOPPING CENTRE	7
8	YUHUA PLACE	8
9	NORTHSHORE RESIDENCES II	8
10	KAHTIB CENTRAL	11
11	HDB PUBLIC SHELTERS	12
12	MACPHERSON VIEW	13
13	JURONG EAST VISTA	13
14	SHERWINN EDUCATION CENTRE (TAMPINES ST 33)	15
15	CLEMENTI VIEW	15
16	TEBAN GARDENS	16
17	KOVAN CITY	17
18	KHATIB CENTRAL	18
19	MOULMEIN VIEW	18
20	CLEMENTI AVENUE 2 SHOPPING CENTRE	19
21	CHENG YAN COURT	22
22	CLEMENTI CREST	23
23	RESERVOIR VILLAGE	23
24	BUKIT PANJANG NEIGHBOURHOOD CENTRE	25
25	CLEMENTI HAVEN	25

region_ura

	region_ura	count
0	EAST REGION	32,269
1	NORTH REGION	36,652
2	CENTRAL REGION	40,417
3	WEST REGION	50,123
4	NORTH-EAST REGION	57,234

storey_range

	storey_range	count
0	49 TO 51	19
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		

	closest_pri_school	count	g_area_ura	count
0	ST. GABRIEL'S PRIMARY SCHOOL	16	TANGLIN	1,328
1	NORTHSHORE PRIMARY SCHOOL	43	ITOWN CORE	1,694
2	ST. JOSEPH'S INSTITUTION JUNIOR	81	CHANGI	3,802
3	ST. STEPHEN'S SCHOOL	151	BUKIT TIMAH	530
4	NANYANG PRIMARY SCHOOL	195	ROCHOR	3,860
5	RIVER VALLEY PRIMARY SCHOOL	211	OUTRAM	4,413
6	CHIJ OUR LADY OF GOOD COUNSEL	244	MARINE PARADE	1,328
7	PIONEER PRIMARY SCHOOL	282	NOVENA	1,776
8	PEI HWA PRESBYTERIAN PRIMARY SCHOOL	335	BISHAN	3,802
9	ST. MARGARET'S PRIMARY SCHOOL	347	SERANGOON	3,860
10	TEMASEK PRIMARY SCHOOL	361	JURONG EAST	4,413
11	YISHUN PRIMARY SCHOOL	391	CLEMENTI	4,829
12	NGEE ANN PRIMARY SCHOOL	396	KALLANG	6,626
13	MARYMOUNT CONVENT SCHOOL	397	GEYLANG	5,326
14	CHIJ (KELLOCK)	424	QUEENSTOWN	5,871
15	ANDERSON PRIMARY SCHOOL	492	PASIR RIS	6,229
16	KRANJI PRIMARY SCHOOL	516	SEMBAWANG	6,496
17	CEDAR PRIMARY SCHOOL	520	TOA PAYOH	6,964
18	CHIJ PRIMARY (TOA PAYOH)	533	BUKIT PANJANG	7,776
19	NORTHOAKS PRIMARY SCHOOL	548	BUKIT MERAH	8,276
20	YEW TEE PRIMARY SCHOOL	562	ANG MO KIO	8,855
21	HAIG GIRLS' SCHOOL	567	BUKIT BATOK	8,955
22	NAN HUA PRIMARY SCHOOL	573	CHOA CHU KANG	9,820
23	PASIR RIS PRIMARY SCHOOL	582	HOUGANG	10,952
24	SI LING PRIMARY SCHOOL	594	BEDOK	11,289
25	QIHUA PRIMARY SCHOOL	625	JURONG WEST	14,330
26	INNOVA PRIMARY SCHOOL	645	TAMPINES	14,751
27	YU NENG PRIMARY SCHOOL	650	YISHUN	14,794

DATA WRANGLING (ADDITIONAL DATA)

Abnormalies Inspection

closest_pri_school

	closest_pri_school	count
0	ST. GABRIEL'S PRIMARY SCHOOL	16
1	NORTHSHORE PRIMARY SCHOOL	43
2	ST. JOSEPH'S INSTITUTION JUNIOR	81
3	ST. STEPHEN'S SCHOOL	151
4	NANYANG PRIMARY SCHOOL	195
5	RIVER VALLEY PRIMARY SCHOOL	211
6	CHIJ OUR LADY OF GOOD COUNSEL	244
7	PIONEER PRIMARY SCHOOL	292
8	PEI HWA PRESBYTERIAN PRIMARY SCHOOL	335
9	ST. MARGARET'S PRIMARY SCHOOL	347
10	TEMASEK PRIMARY SCHOOL	361
11	YISHUN PRIMARY SCHOOL	391
12	NGEE ANN PRIMARY SCHOOL	396
13	MARYMOUNT CONVENT SCHOOL	397
14	CHIJ (KELLOCK)	424
15	ANDERSON PRIMARY SCHOOL	492
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21	HAIG GIRLS' SCHOOL	567
22	NAN HUA PRIMARY SCHOOL	573
23	PASIR RIS PRIMARY SCHOOL	582
24	SI LING PRIMARY SCHOOL	594
25	QIHUA PRIMARY SCHOOL	625
26	INNOVA PRIMARY SCHOOL	645
27	YU NENG PRIMARY SCHOOL	650
28	WEST SPRING PRIMARY SCHOOL	656

planning_area_ura

	planning_area_ura	count
0	TANGLIN	34
1	DOWNTOWN CORE	40
2	CHANGI	46
3	BUKIT TIMAH	496
4	ROCHOR	617
5	OUTRAM	1,037
6	MARINE PARADE	1,328
7	NOVENA	1,703
8	BISHAN	3,802
9	SERANGOON	3,860
10	JURONG EAST	4,413
11	CLEMENTI	4,829
12	KALLANG	4,923
13	GEYLANG	5,326
14	QUEENSTOWN	5,871
15	PASIR RIS	6,183
16	SEMBAWANG	6,496
17	TOA PAYOH	6,964
18	BUKIT PANJANG	7,776
19	BUKIT MERAH	8,276
20	ANG MO KIO	8,855
21	BUKIT BATOK	8,955
22	CHOA CHU KANG	9,820
23	HOUGANG	10,952
24	BEDOK	11,289
25	JURONG WEST	14,330
26	TAMPINE S	14,751
27	YISHUN	14,794
28	WOODLAND S	15,362

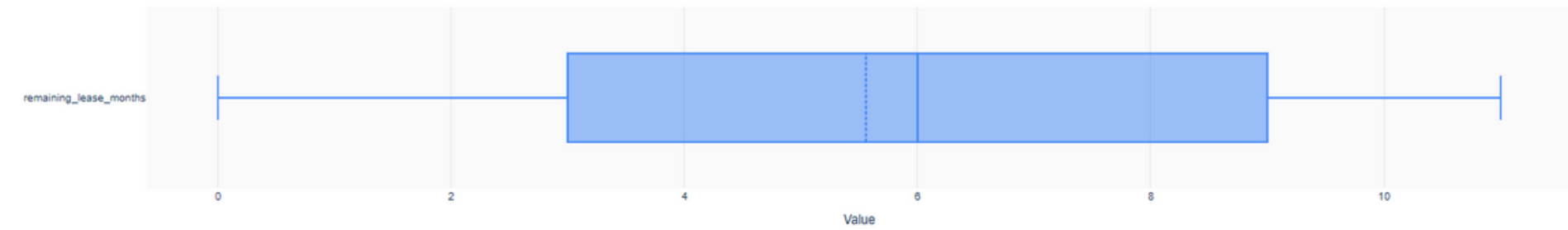
DATA WRANGLING (ADDITIONAL DATA)

Outlier Detection

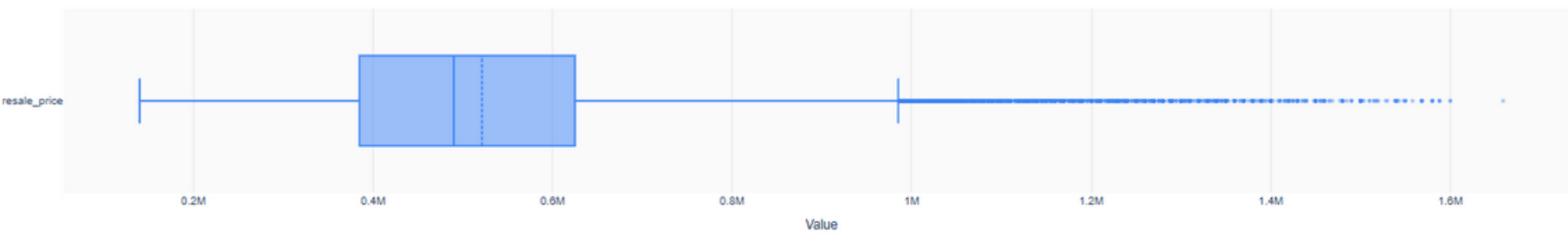
Distribution of **postal**



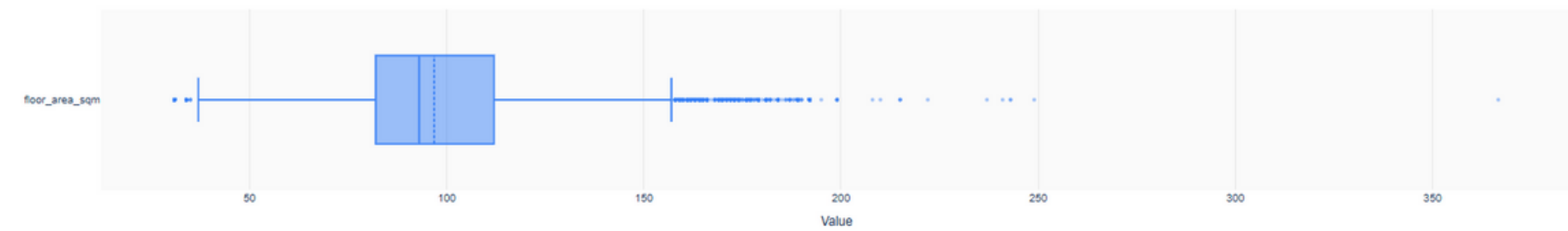
Distribution of **remaining_lease_months**



Distribution of **resale_price**



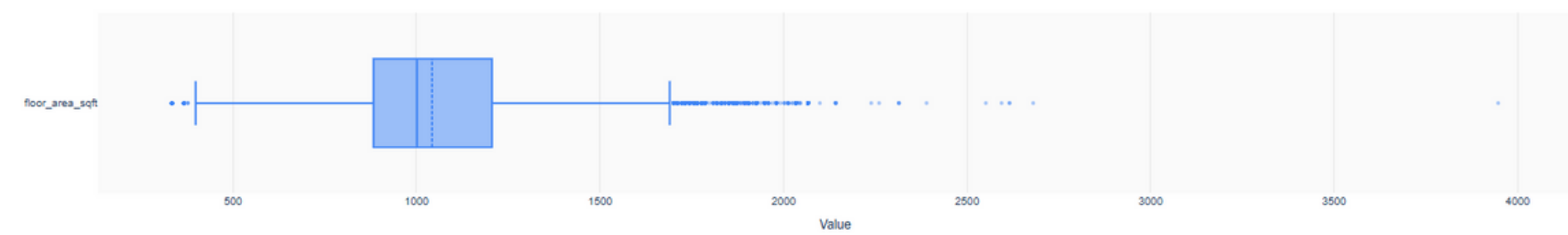
Distribution of **floor_area_sqm**



Distribution of **remaining_lease_years**



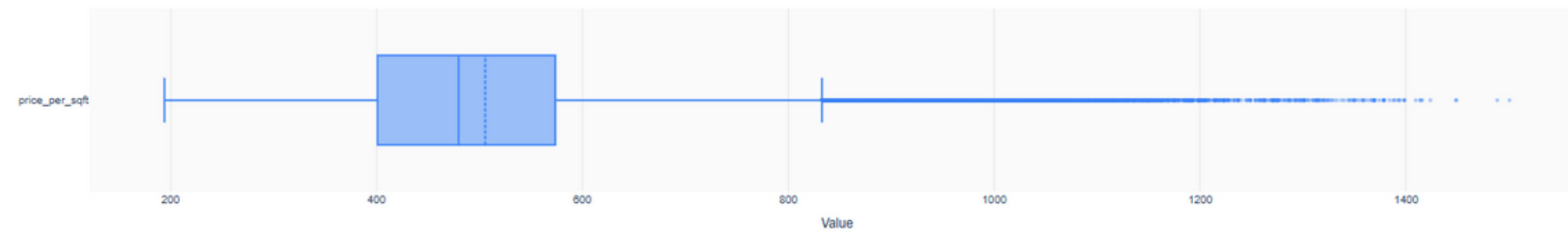
Distribution of **floor_area_sqft**



DATA WRANGLING (ADDITIONAL DATA)

Outlier Detection

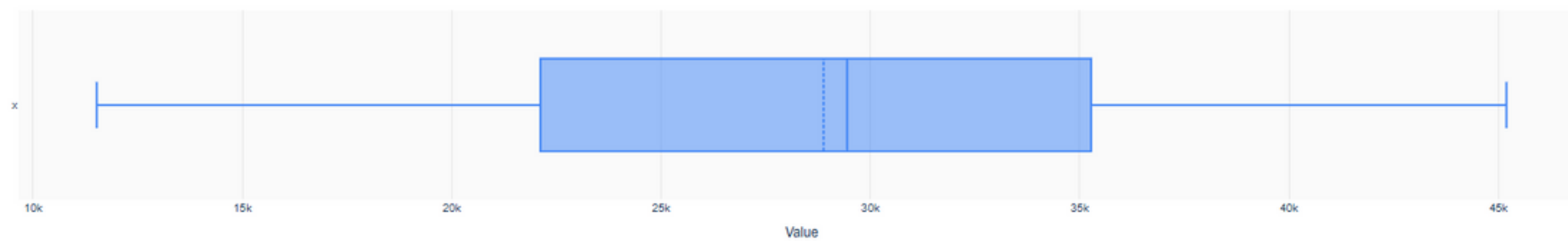
Distribution of **price_per_sqft**



Distribution of **latitude**



Distribution of **x**



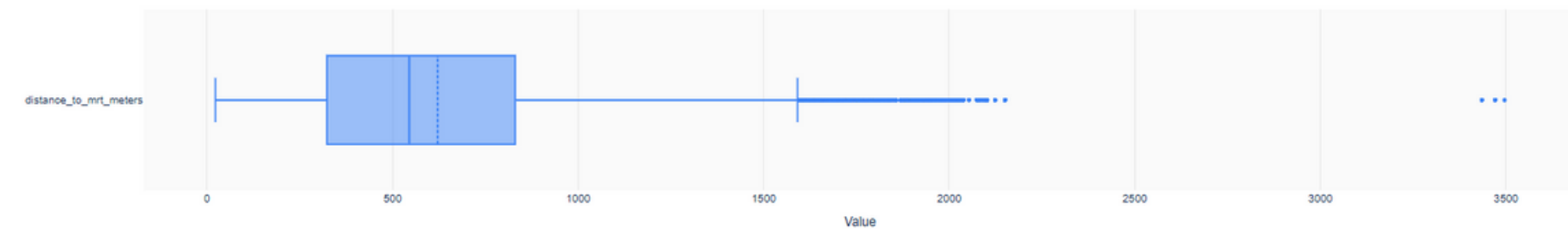
Distribution of **longitude**



Distribution of **y**

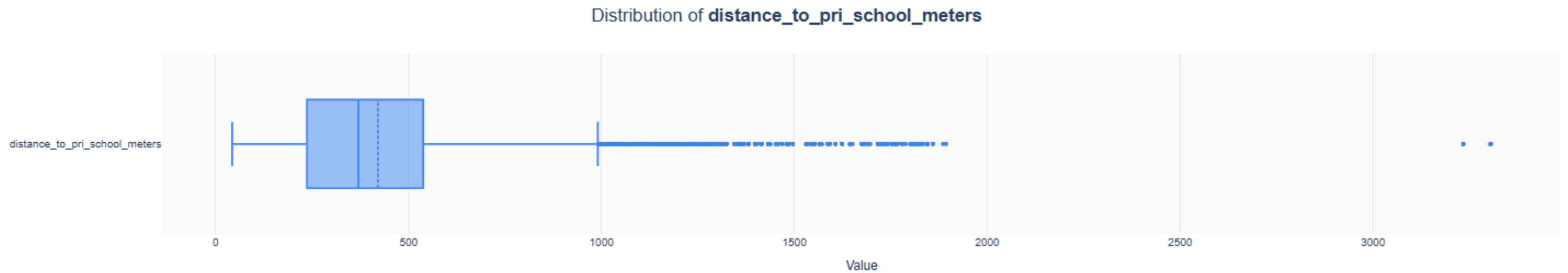
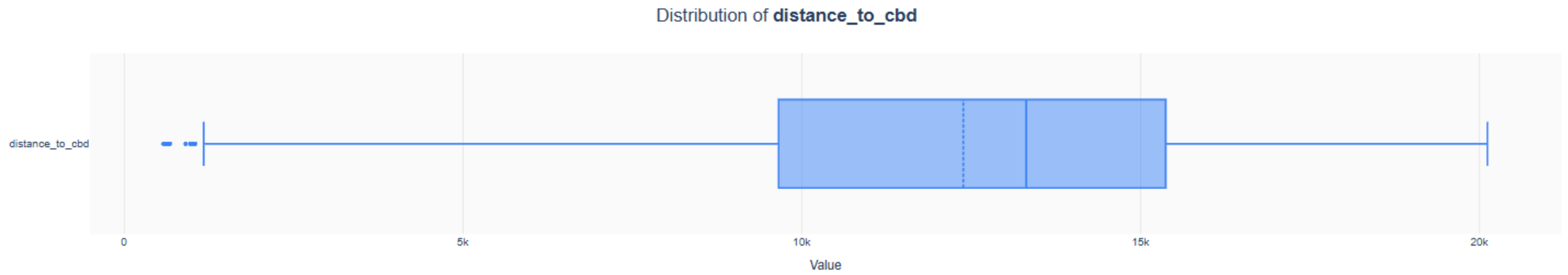


Distribution of **distance_to_mrt_meters**



DATA WRANGLING (ADDITIONAL DATA)

Outlier Detection



DATA WRANGLING (ADDITIONAL DATA)

Data Export

	Metric	Value
0	Export Path	/content/drive/MyDrive/Colab Notebooks/DAVI CA1/hdb_resale_flat_transactions_clean.csv
1	Rows Exported	216,695
2	Columns	29
3	File Size (MB)	69.39

DASHBOARD 1

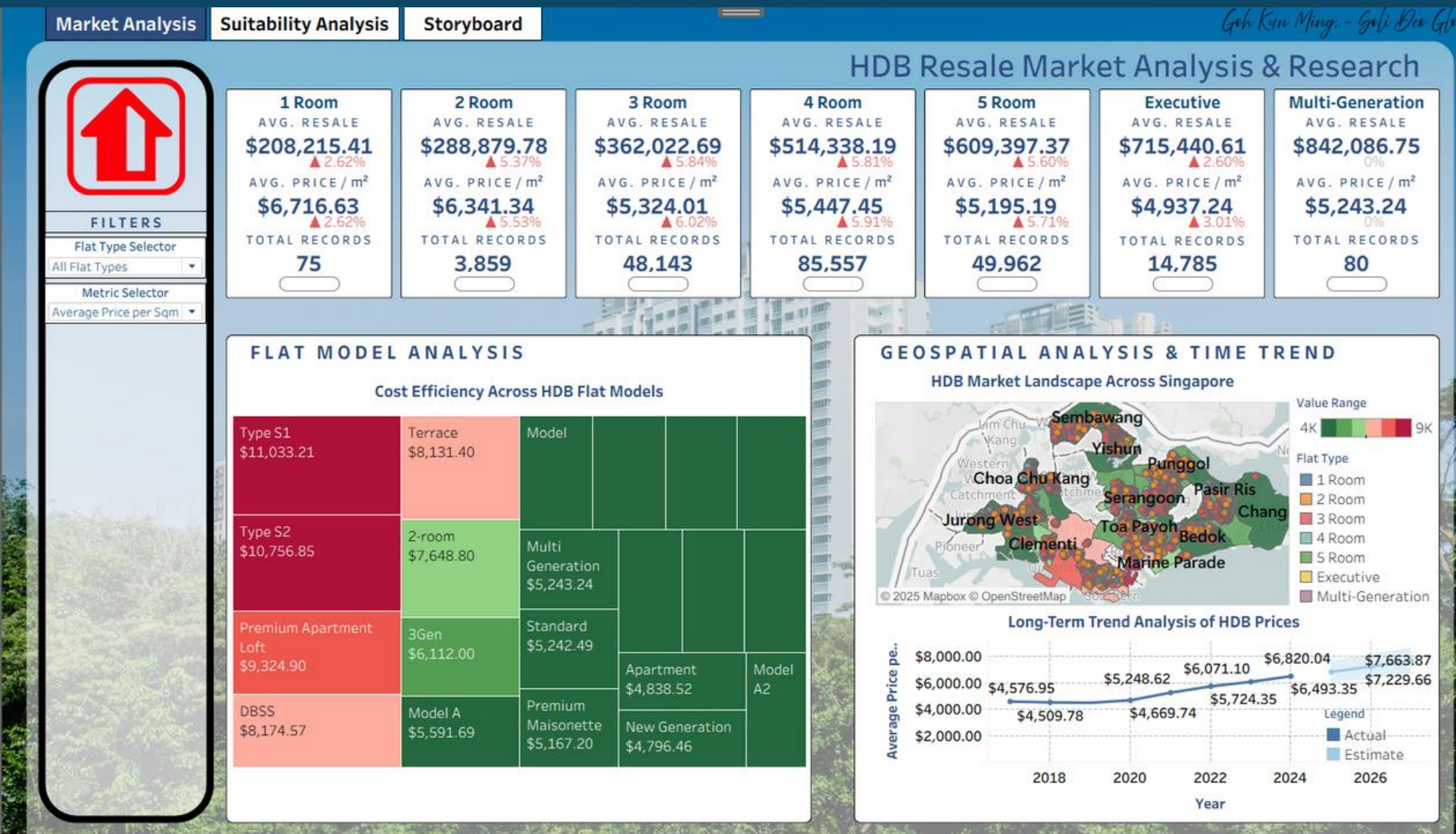
HDB Resale Market Analysis & Research

Purpose of the Dashboard

This dashboard provides a holistic market-level overview of Singapore's HDB resale ecosystem. It consolidates key indicators which are resale prices, price-per-sqm, flat model efficiency, geospatial distribution, and long-term price trends so as to give users a macro-level understanding of how the market behaves across towns and flat types.

Insights

- Prices vary strongly by flat type and model, with premium models and larger units costing significantly more.
- Central and mature towns show higher resale values, while outer towns remain more affordable.
- Long-term prices continue trending upward, and buyers should expect around 6–7% yearly growth.



DASHBOARD 2

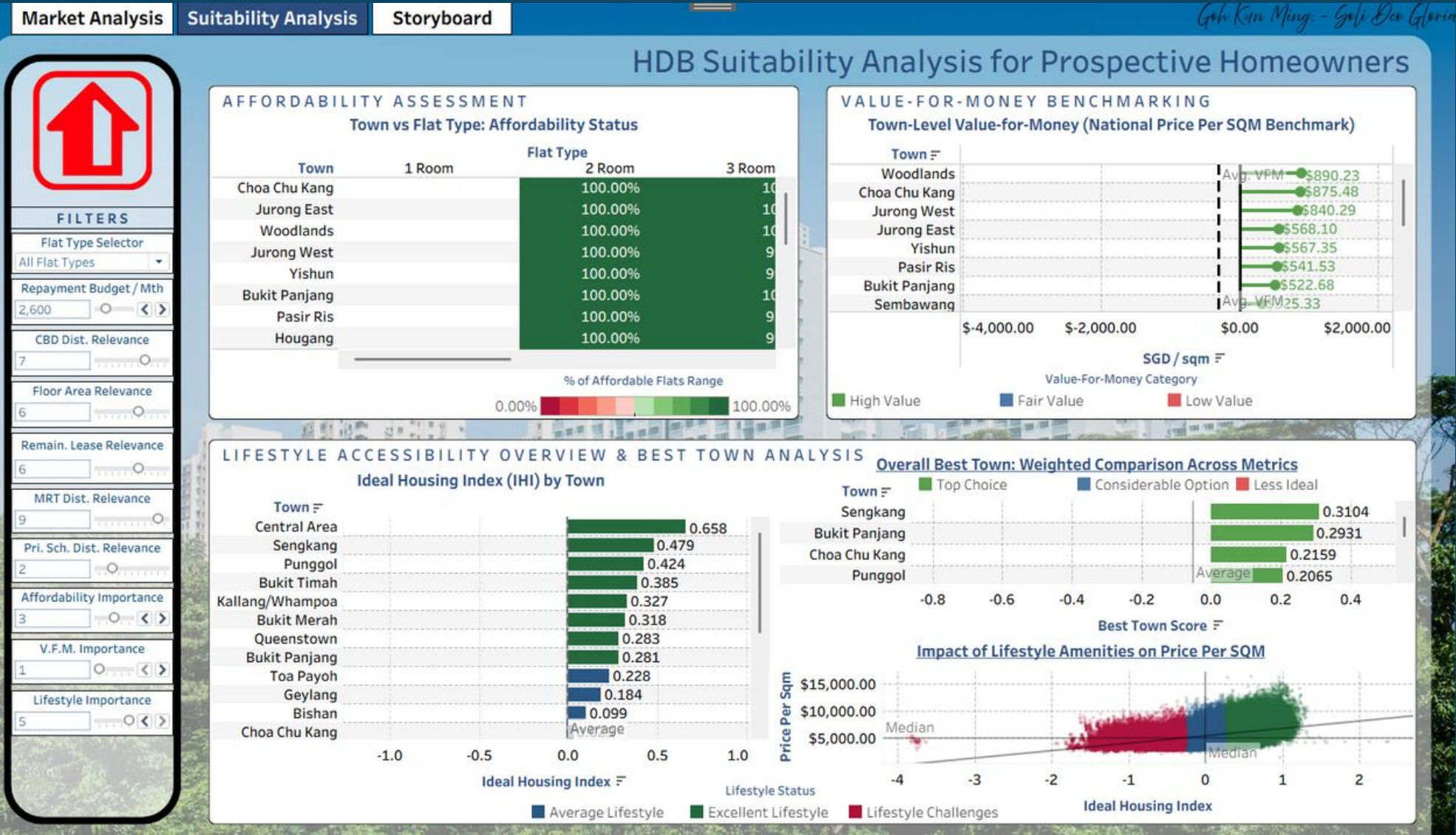
HDB Suitability Analysis For Prospect. Homeowners

Purpose of the Dashboard

This dashboard provides a holistic market-level overview of Singapore’s HDB resale ecosystem. It consolidates key indicators which are resale prices, price-per-sqm, flat model efficiency, geospatial distribution, and long-term price trends so as to give users a macro-level understanding of how the market behaves across towns and flat types.

Insights

- Several towns are fully affordable for smaller flat types, especially in the North and West.
- Woodlands, Choa Chu Kang, and Jurong West offer the strongest value-for-money.
- Sengkang and Bukit Panjang generally rank highest when combining lifestyle, affordability, and overall suitability



RECOMMENDATION SUMMARY

Lower SES – No Children

Recommended Towns:

Woodlands, Jurong West, Choa Chu Kang

Financial

Flat Type: 3 Room

Repayment Budget / Mth: 1200

Relevance (0–10)

CBD Dist. Relevance: 2

Floor Area Relevance: 4

Remaining Lease Relevance: 5

MRT Dist. Relevance: 4

Pri. Sch. Dist. Relevance: 0

Importance (0–5)

Affordability Importance: 5

V.F.M. Importance: 4

Lifestyle Importance: 1

Lower SES – With Children

Recommended Towns:

Woodlands, Choa Chu Kang, Jurong West

Financial

Flat Type: 4 Room

Repayment Budget / Mth: 1200

Relevance (0–10)

CBD Dist. Relevance: 2

Floor Area Relevance: 6

Remaining Lease Relevance: 5

MRT Dist. Relevance: 4

Pri. Sch. Dist. Relevance: 10

Importance (0–5)

Affordability Importance: 5

V.F.M. Importance: 4

Lifestyle Importance: 2

Middle SES – No Children

Recommended Towns:

Bukit Panjang, Choa Chu Kang, Sengkang

Financial

Flat Type: 4 Room

Repayment Budget / Mth: 2200

Relevance (0–10)

CBD Dist. Relevance: 6

Floor Area Relevance: 6

Remaining Lease Relevance: 6

MRT Dist. Relevance: 8

Pri. Sch. Dist. Relevance: 2

Importance (0–5)

Affordability Importance: 3

V.F.M. Importance: 3

Lifestyle Importance: 4

RECOMMENDATION SUMMARY

Middle SES – With Children

Recommended Towns:

Choa Chu Kang, Bukit Panjang, Jurong West

Financial

Flat Type: 4 Room
Repayment Budget / Mth: 2500

Relevance (0–10)

CBD Dist. Relevance: 6
Floor Area Relevance: 6
Remaining Lease Relevance: 8
MRT Dist. Relevance: 2
Pri. Sch. Dist. Relevance: 10

Importance (0–5)

Affordability Importance: 3
V.F.M. Importance: 3
Lifestyle Importance: 4

High SES – No Children

Recommended Towns:

Sengkang, Bukit Panjang, Punggol

Financial

Flat Type: 5 Room
Repayment Budget / Mth: 4500

Relevance (0–10)

CBD Dist. Relevance: 10
Floor Area Relevance: 9
Remaining Lease Relevance: 9
MRT Dist. Relevance: 10
Pri. Sch. Dist. Relevance: 5

Importance (0–5)

Affordability Importance: 1
V.F.M. Importance: 1
Lifestyle Importance: 5

High SES – With Children

Recommended Towns:

Sengkang, Bukit Panjang, Punggol

Financial

Flat Type: 5 Room
Repayment Budget / Mth: 4500

Relevance (0–10)

CBD Dist. Relevance: 10
Floor Area Relevance: 10
Remaining Lease Relevance: 9
MRT Dist. Relevance: 10
Pri. Sch. Dist. Relevance: 10

Importance (0–5)

Affordability Importance: 1
V.F.M. Importance: 1
Lifestyle Importance: 5

RECOMMENDATION SUMMARY

This framework demonstrates how different Singapore towns align with different socio-economic profiles by evaluating affordability, value-for-money, and lifestyle accessibility. These recommendations are intentionally general and should be viewed as guiding insights, not exact prescriptions for real users.

Consistent with the time-series analysis, HDB resale prices continue to rise, with an estimated 6–7% annual increase. Buyers intending to purchase within the next year should plan their budgets accordingly.

Overall, this analysis provides a practical starting point for exploring suitable towns based on individual financial capacity and lifestyle priorities.

REFERENCES

<https://www.kaggle.com/datasets/lzytim/hdb-resale-prices>

A low-angle, upward-looking shot of several modern skyscrapers with glass facades. The buildings are framed against a bright blue sky with scattered white clouds. The perspective creates a sense of height and scale.

THANK YOU

Data Visualisation CA1