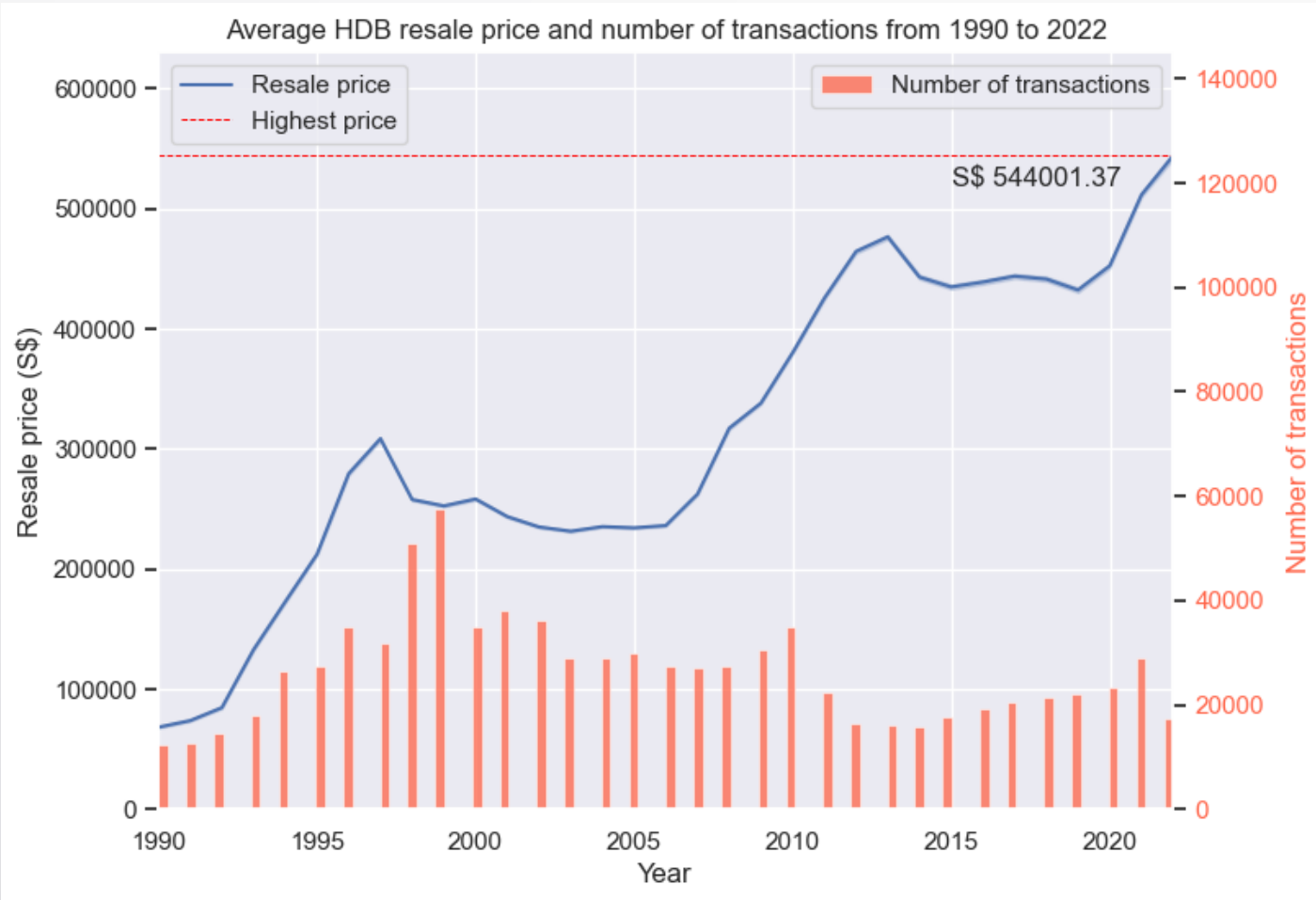


DS102 and DS104 Final project presentation

Singapore's HDB increasing price



- HDB prices been increasing since 1990
- Aim to find out what factors are affecting HDB prices
- From the factors, decide from a buyer point from view which flats can be purchase at a good price
- From a investor point of view, decide which flats can be purchase

Dataset taken is Singapore's HDB resale prices from 1990 to 2022

- Data taken from:
 - <https://data.gov.sg/dataset/resale-flat-prices>
- 11 attributes
- Total of 880371 records as of 27th Aug 2022
- After removing duplicates, 871606 records

	month	town	flat_type	block	street_name	storey_range	floor_area_sqm	flat_model	lease_commence_date	remaining_lease	resale_price
0	2017-01	ANG MO KIO	2 ROOM	406	ANG MO KIO AVE 10	10 TO 12	44.0	Improved	1979	61 years 04 months	232000.0
1	2017-01	ANG MO KIO	3 ROOM	108	ANG MO KIO AVE 4	01 TO 03	67.0	New Generation	1978	60 years 07 months	250000.0
2	2017-01	ANG MO KIO	3 ROOM	602	ANG MO KIO AVE 5	01 TO 03	67.0	New Generation	1980	62 years 05 months	262000.0
3	2017-01	ANG MO KIO	3 ROOM	465	ANG MO KIO AVE 10	04 TO 06	68.0	New Generation	1980	62 years 01 month	265000.0
4	2017-01	ANG MO KIO	3 ROOM	601	ANG MO KIO AVE 5	01 TO 03	67.0	New Generation	1980	62 years 05 months	265000.0

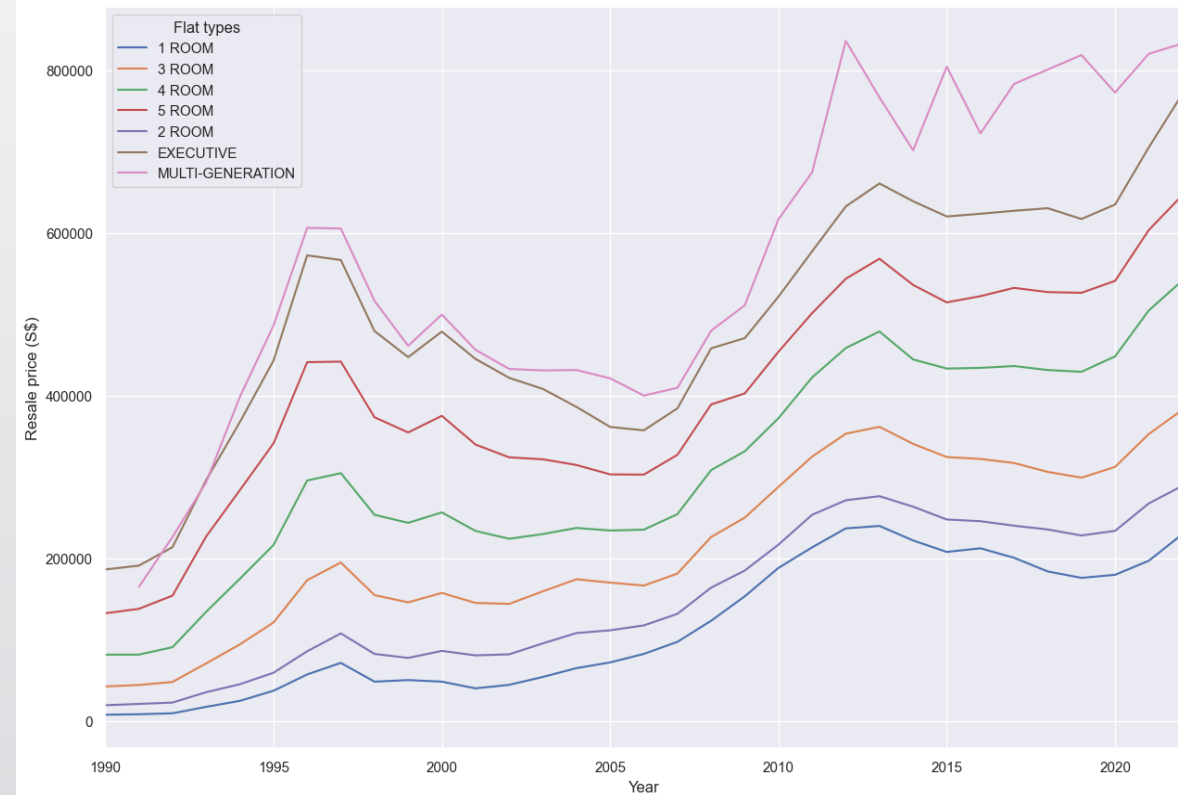


Questions to answer

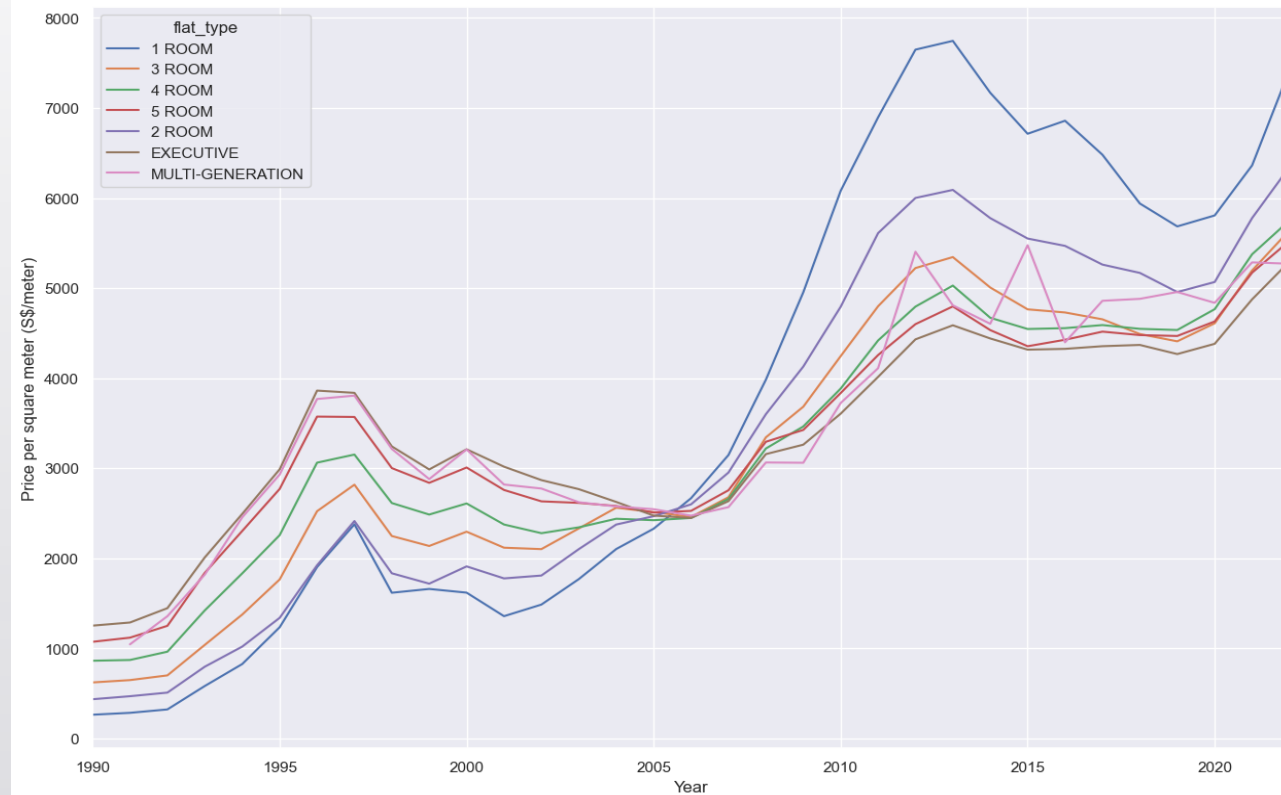
- How does flat types, floor area, remaining lease, town affect resale price?
- Which top five towns has the highest/ lowest resale price?
- Would price be increasing at a different rate for the highest/ lowest towns?
- In terms of price per square meter, do all flat types have the same price range?
- Which flat types has the best or worse price in term of price per square meter?
- In terms of price per square meter, which towns have the best/worst price?
- Which towns and flat types gives the best return of investment(ROI)?

Average price and price per square meter for each flat type

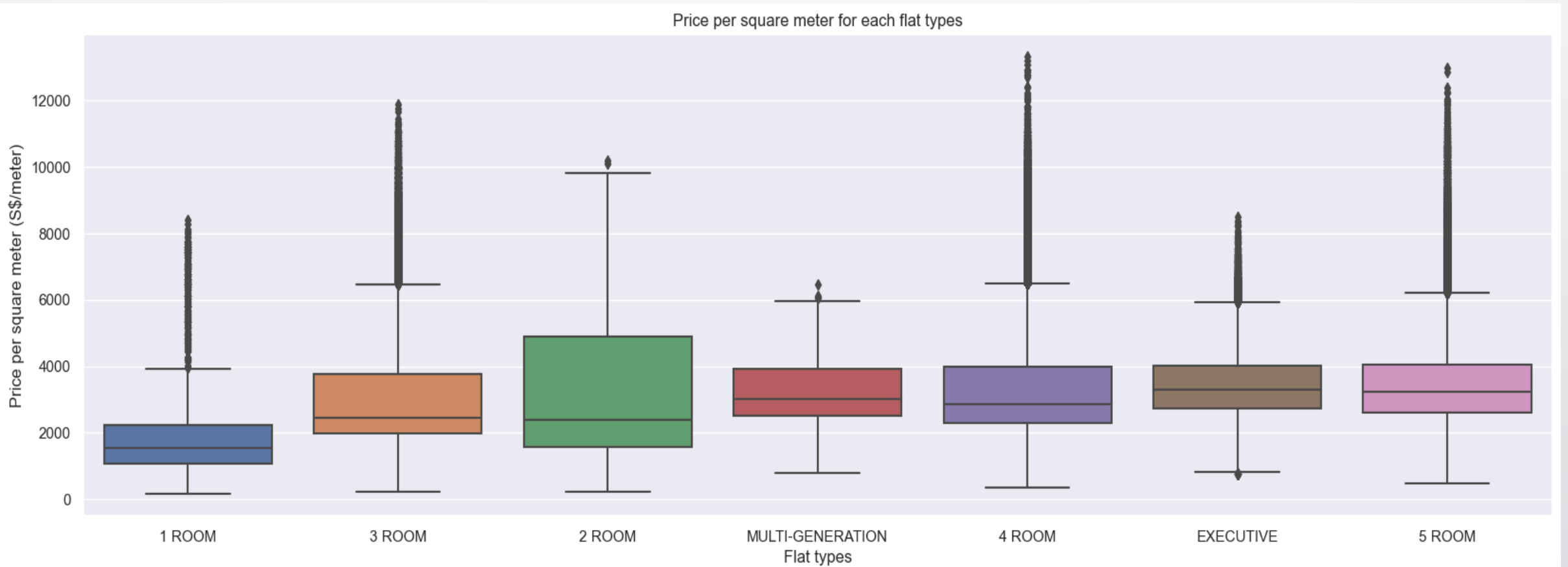
Average HDB resale price each flat types



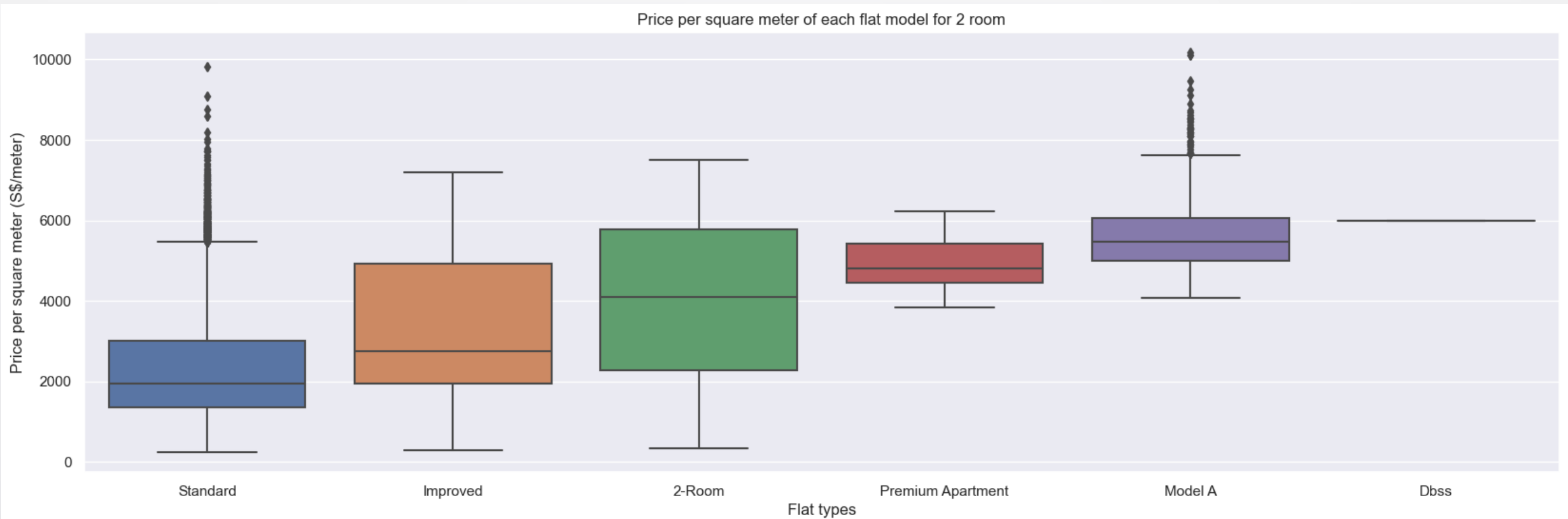
Average HDB price per square meter for each flat types



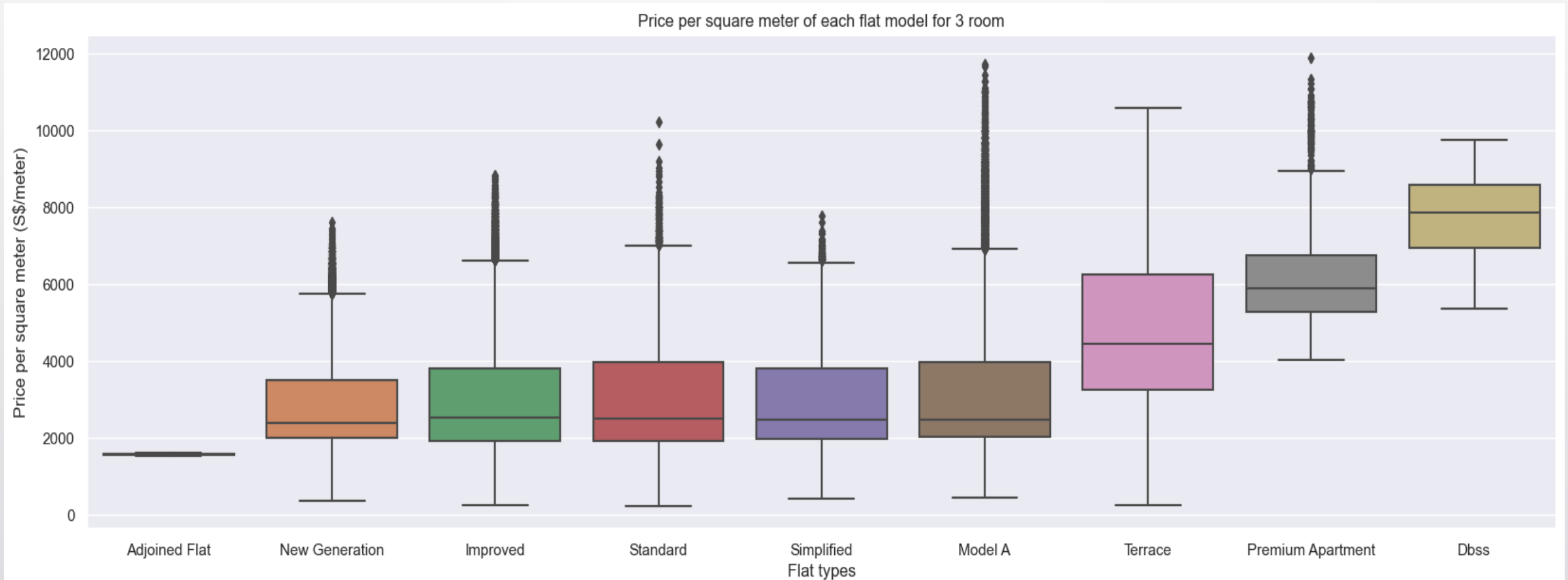
Price per square meter for each flat type from 1990 to current



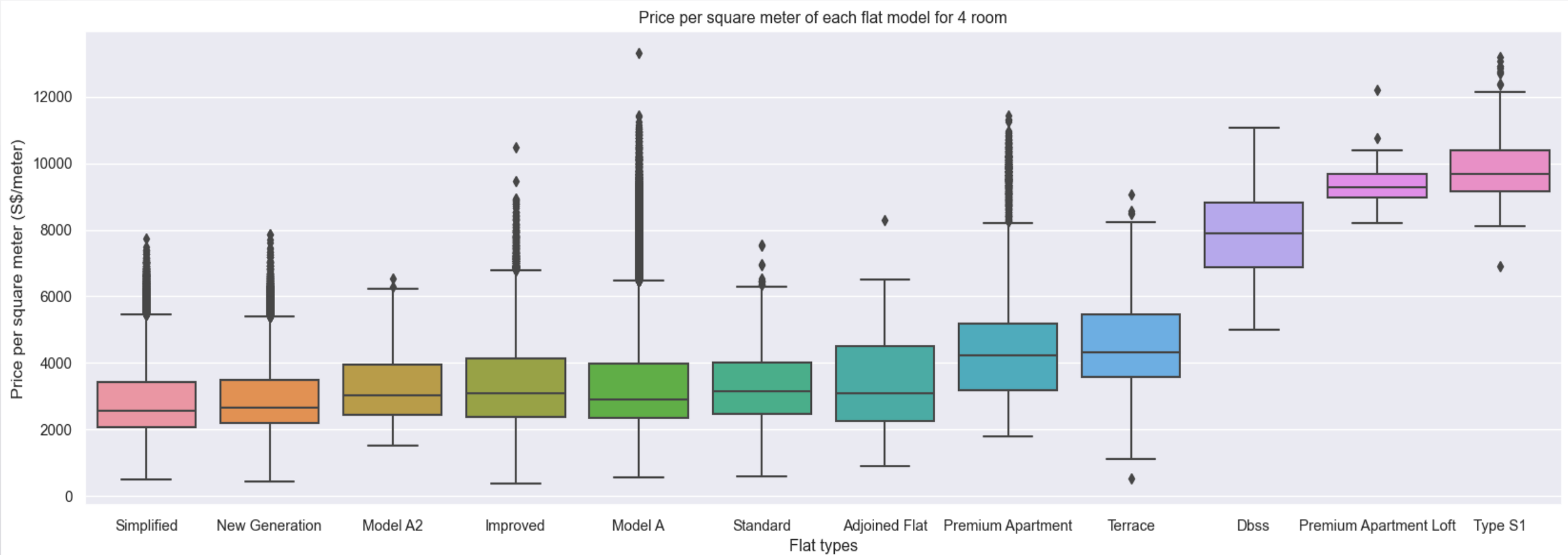
Price of 2 room per square meter for each flat model



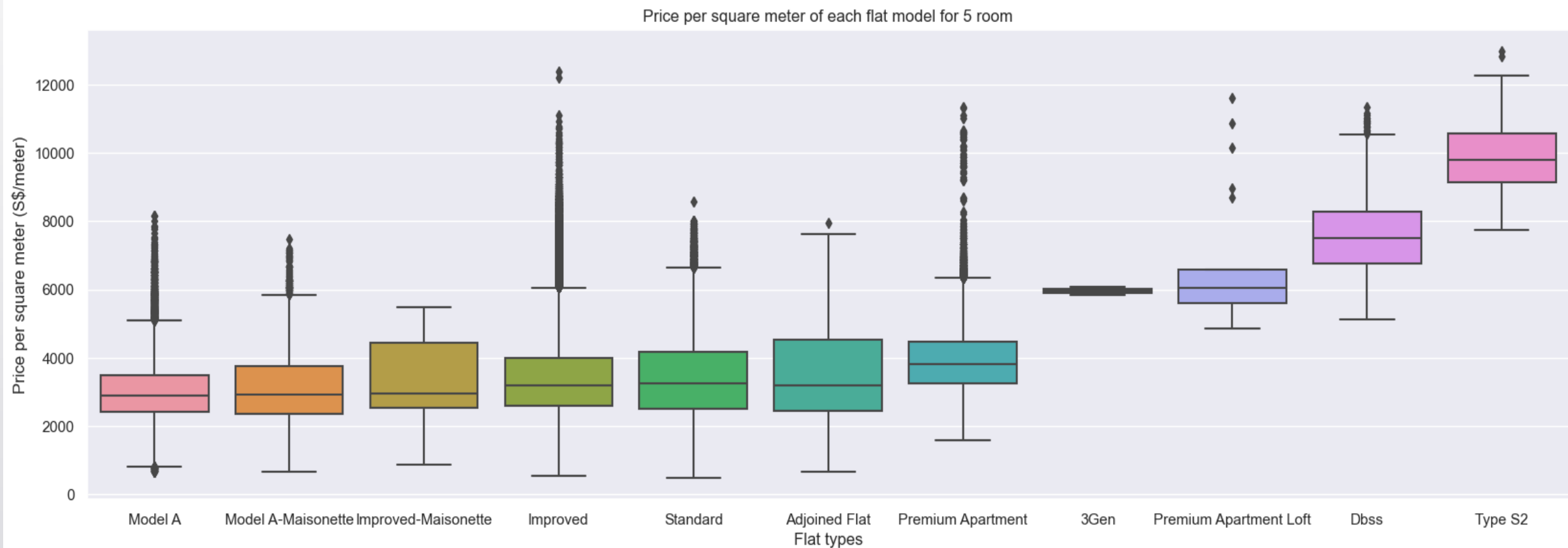
Price of 3 room per square meter for each flat model



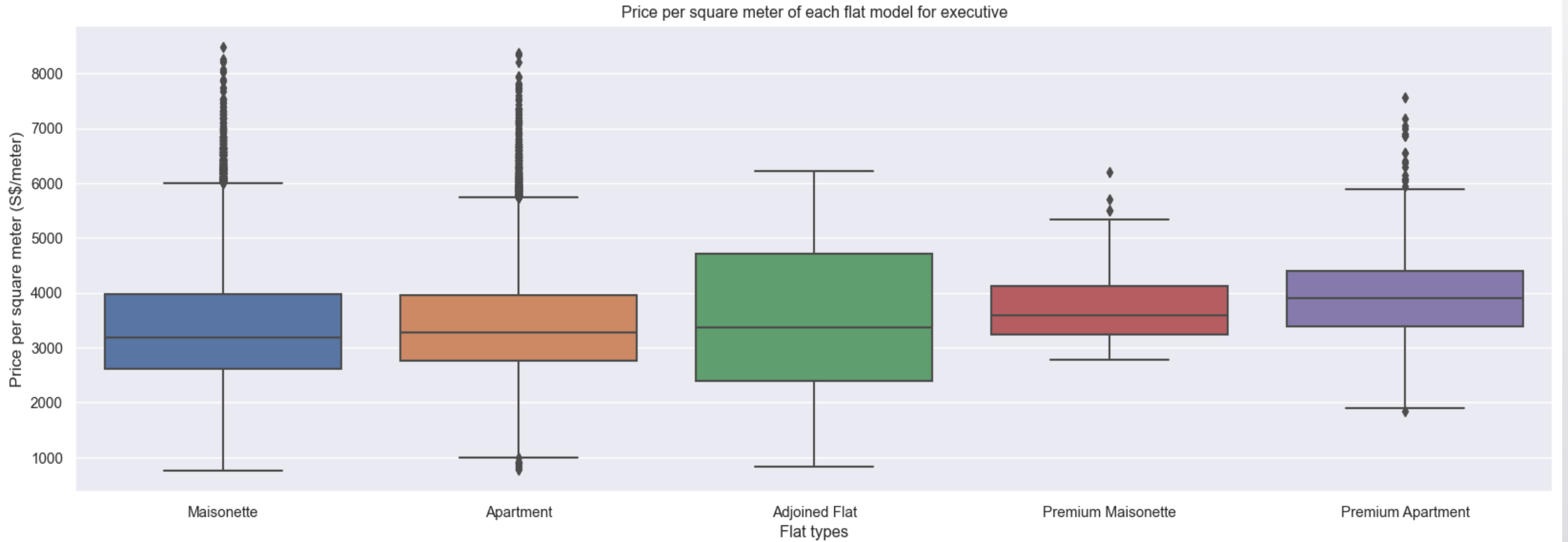
Price of 4 room per square meter for each flat model



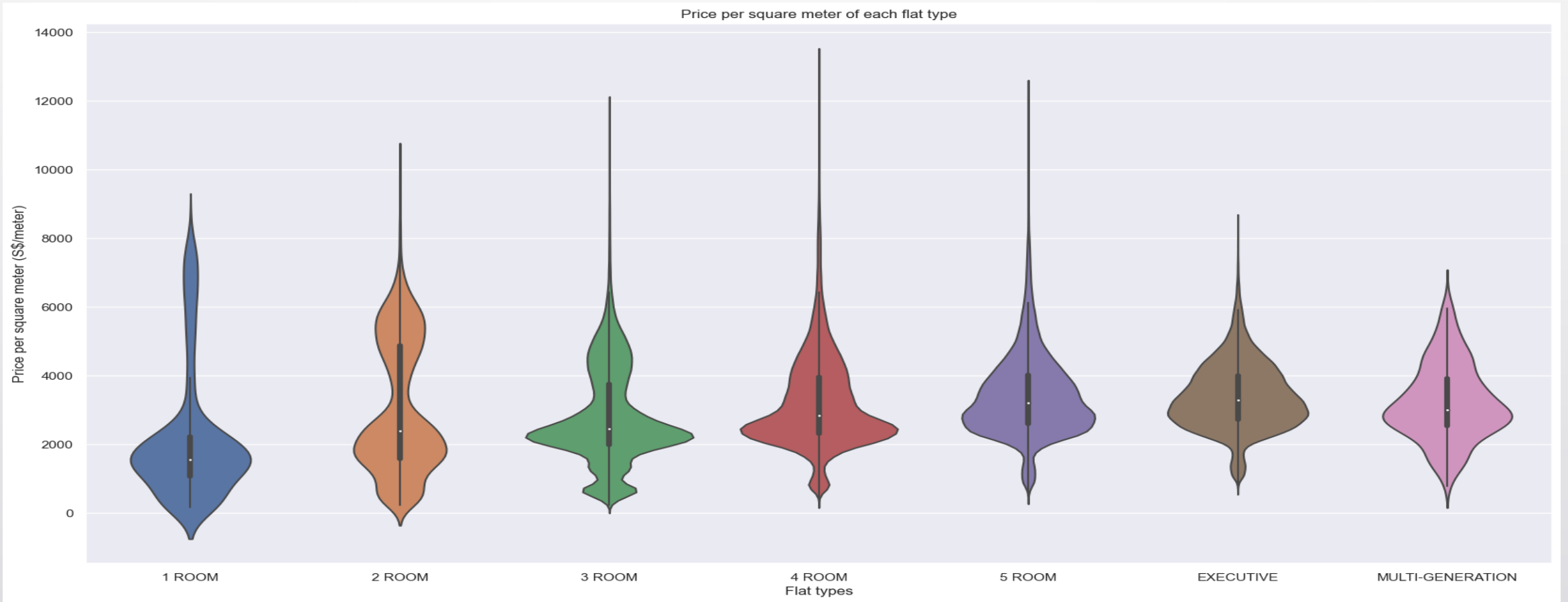
Price of 5 room per square meter for each flat model



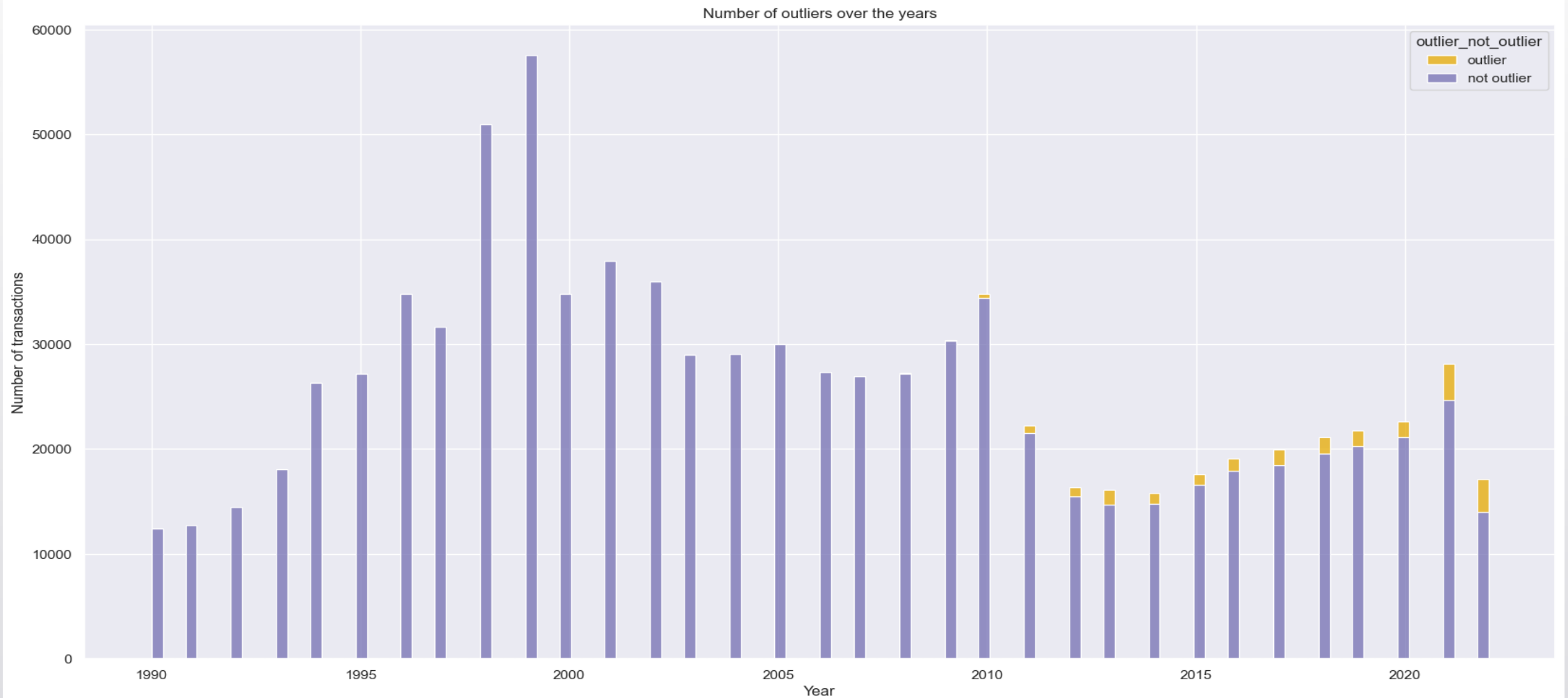
Price of executive per square meter for each flat model



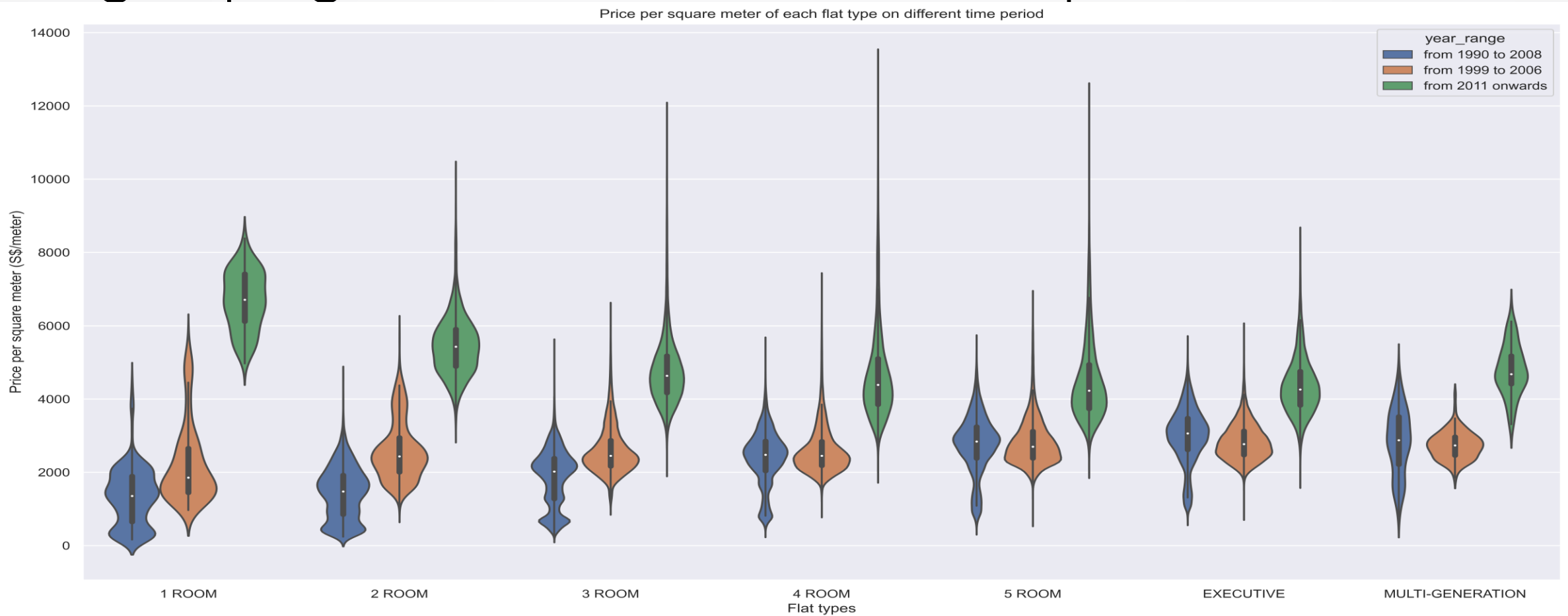
Price per square meter for each flat types from 1990 to current after removing certain flat models



Outliers for all flat types only appear from 2010 onwards

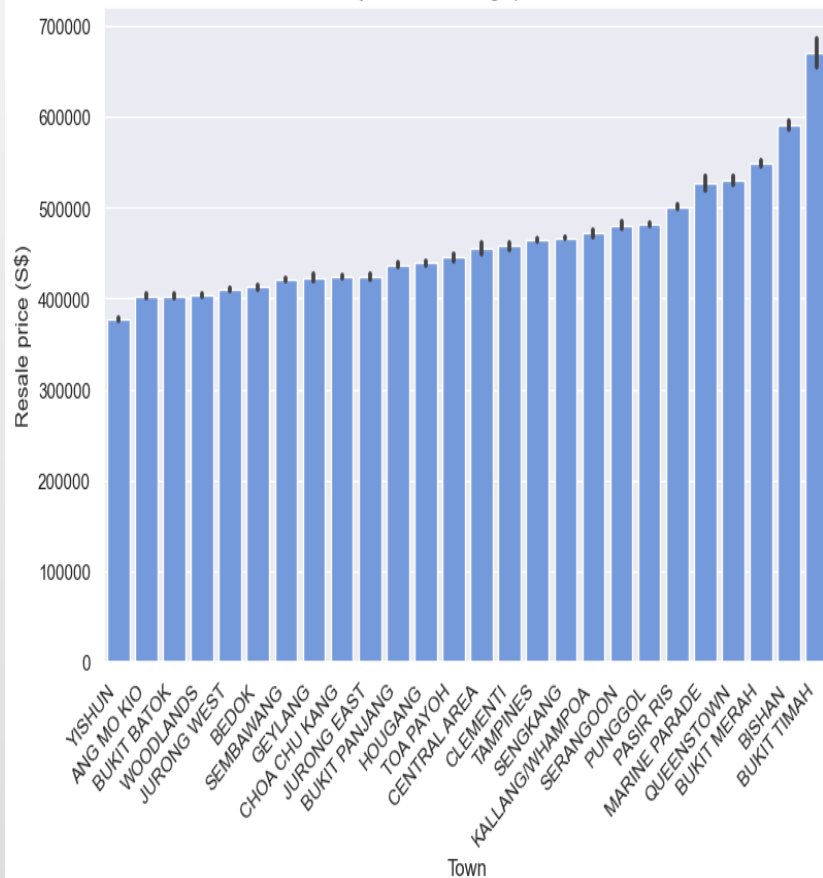


Price per square meter for each flat type after grouping them into 3 different time periods

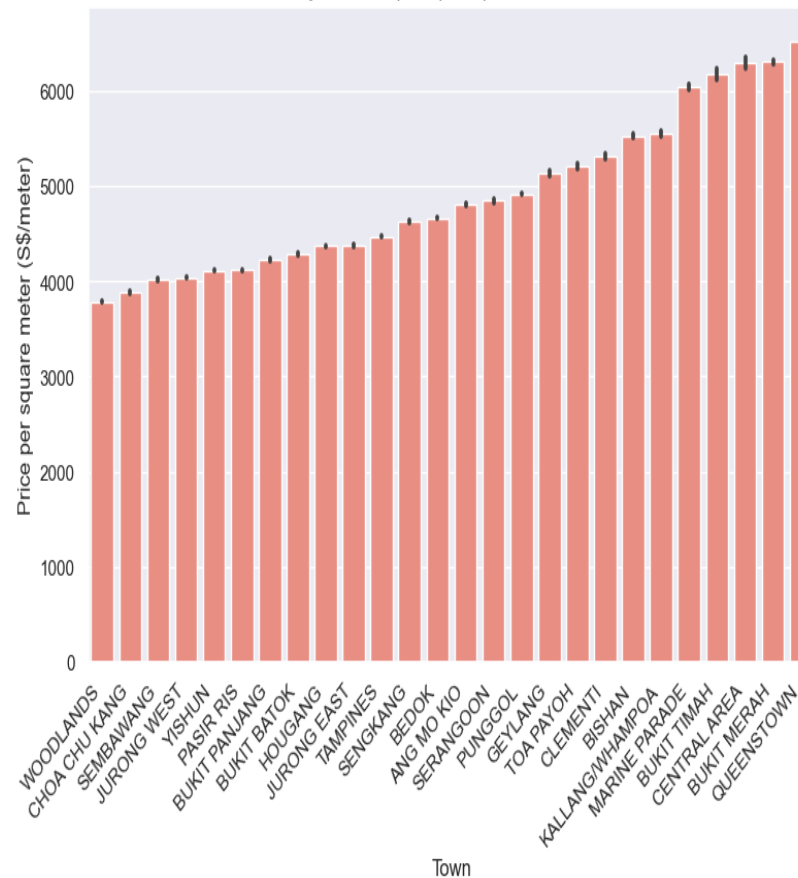


Resale price and price per square meter from 2011 onwards for each towns

Recent 10 years HDB average price for each town



Recent 10 years HDB price per square meter for each town



• Base on resale price

Highest 5 price town

- BUKIT TIMAH
- BISHAN
- BUKIT MERAH
- QUEENSTOWN
- MARINE PARADE

Lowest 5 price town

- YISHUN
- ANG MO KIO
- BUKIT BATOK
- WOODLANDS
- JURONG WEST

• Base on price per sqm

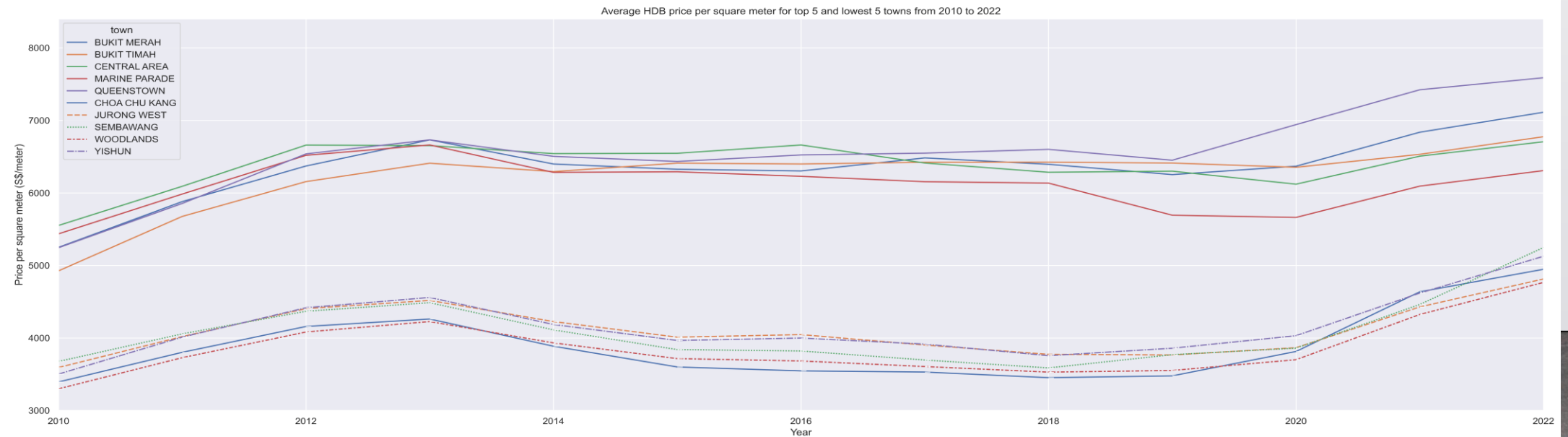
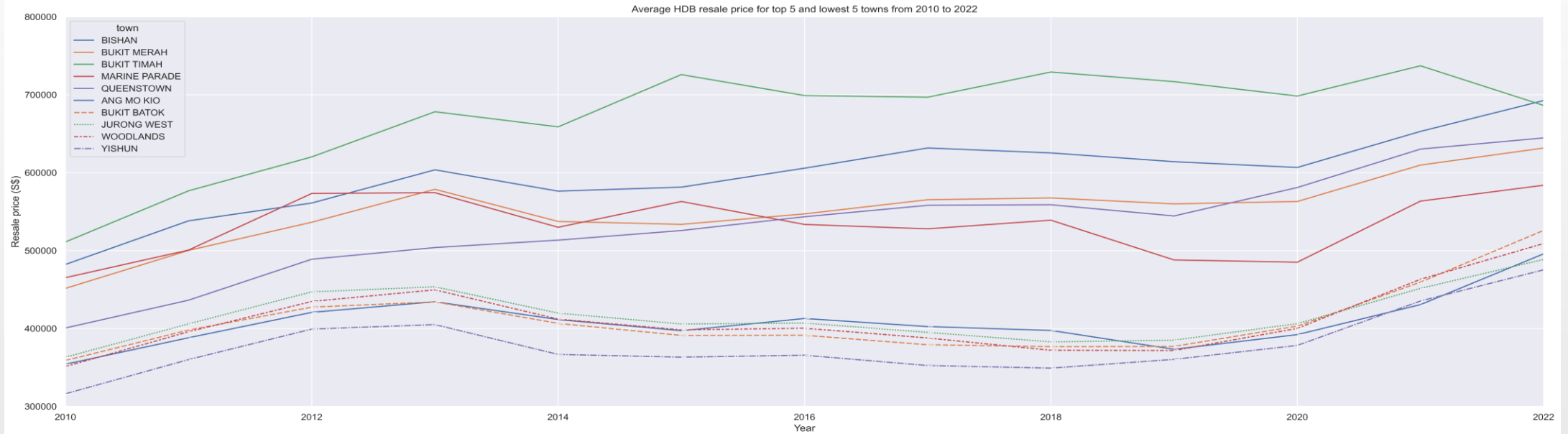
Highest 5 price town

- QUEENSTOWN
- BUKIT MERAH
- CENTRAL AREA
- BUKIT TIMAH
- MARINE PARADE

Lowest 5 price town

- WOODLANDS
- CHOA CHU KANG
- SEMBAWANG
- JURONG WEST
- YISHUN

Rate of increase for top and lowest 5 towns

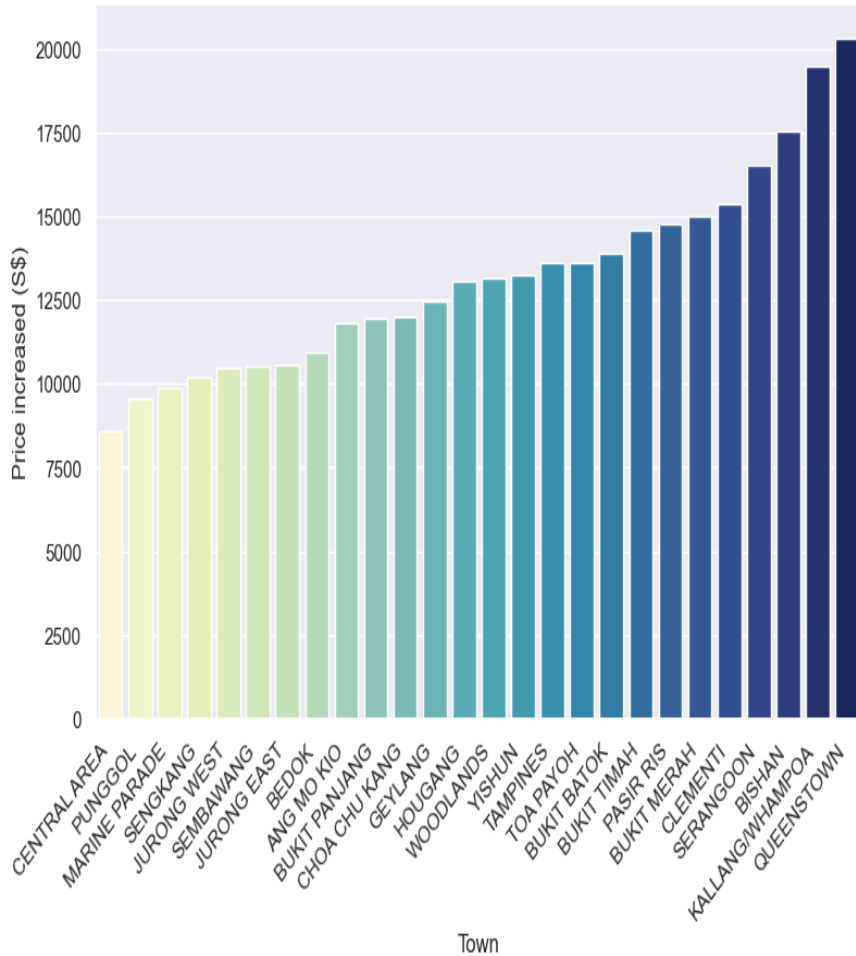


Price and percentage increase per year of each town from 2011

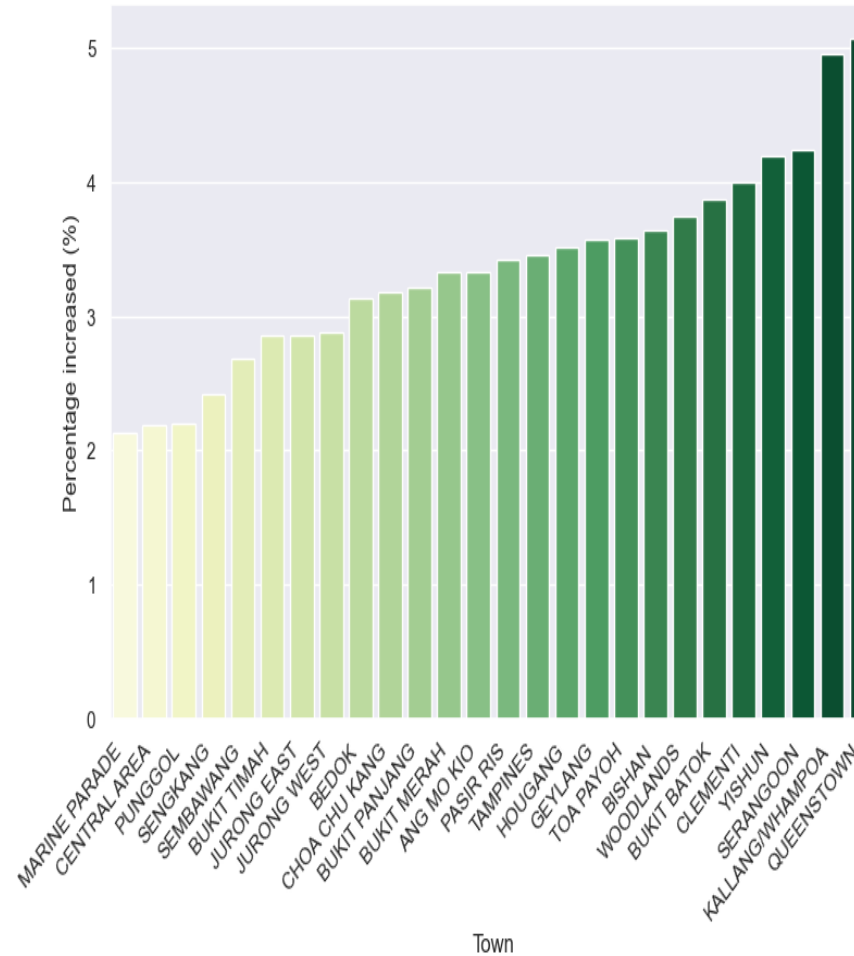
Town	Price increase per year (S\$)	Percent increase (%)
QUEENSTOWN	20328.71	5.07
KALLANG/WHAMPOA	19464.06	4.96
BISHAN	17530.56	3.64
SERANGOON	16543.01	4.24
CLEMENTI	15386.72	4.00
BUKIT MERAH	15012.42	3.33
PASIR RIS	14794.43	3.42
BUKIT TIMAH	14601.84	2.86
BUKIT BATOK	13916.23	3.88
TOA PAYOH	13626.91	3.59
TAMPINES	13601.23	3.46
YISHUN	13260.26	4.19
WOODLANDS	13157.45	3.75
HOUGANG	13085.28	3.51
GEYLANG	12462.69	3.57
CHOA CHU KANG	12007.23	3.18
BUKIT PANJANG	11948.78	3.21
ANG MO KIO	11808.56	3.33
BEDOK	10926.27	3.13
JURONG EAST	10582.60	2.86
SEMBAWANG	10514.25	2.68
JURONG WEST	10461.11	2.88
SENGKANG	10177.44	2.42
MARINE PARADE	9887.17	2.13
PUNGGOL	9541.43	2.19
CENTRAL AREA	8591.00	2.19

Price and percentage increase per year of each town from 2011

Price increase per year for each town



Percentage increase per year for each town



Base on resale price

Highest 5 price town

- QUEENSTOWN
- KALLANG/WHAMPOA
- BISHAN
- SERANGOON
- CLEMENTI

Lowest 5 price town

- CENTRAL AREA
- PUNGGOL
- MARINE PARADE
- SENGKANG
- JURONG WEST

Base on percentage

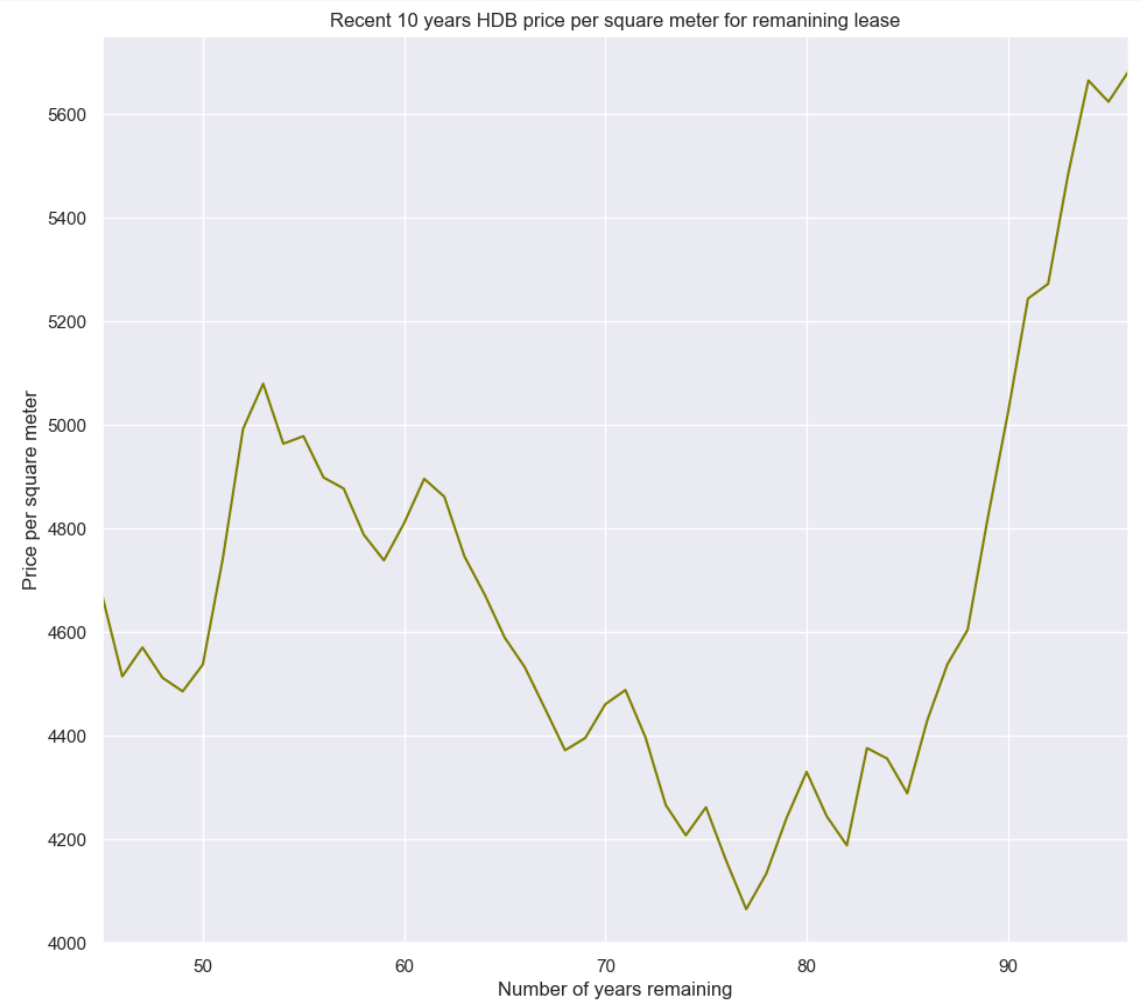
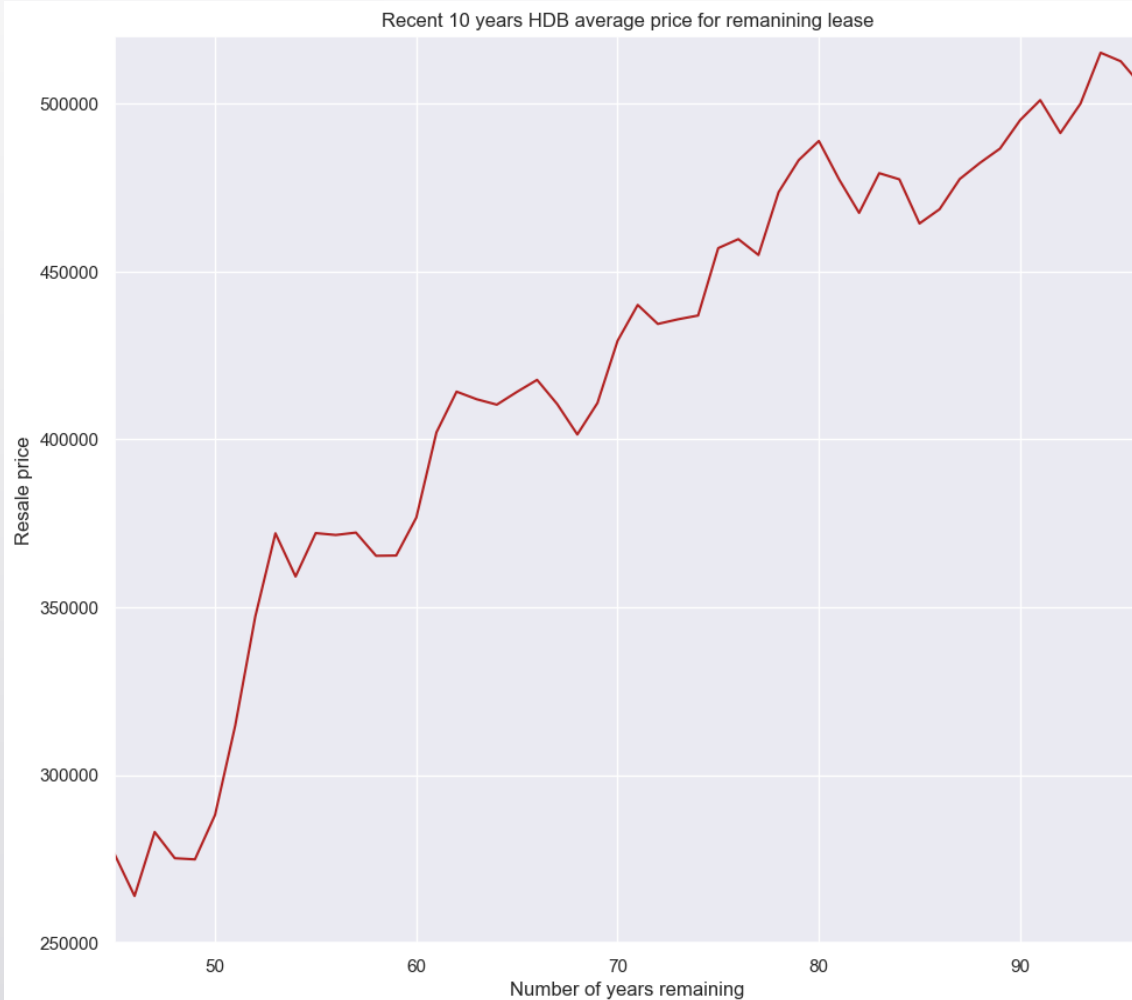
Highest 5 price town

- QUEENSTOWN
- KALLANG/WHAMPOA
- SERANGOON
- YISHUN
- CLEMENTI

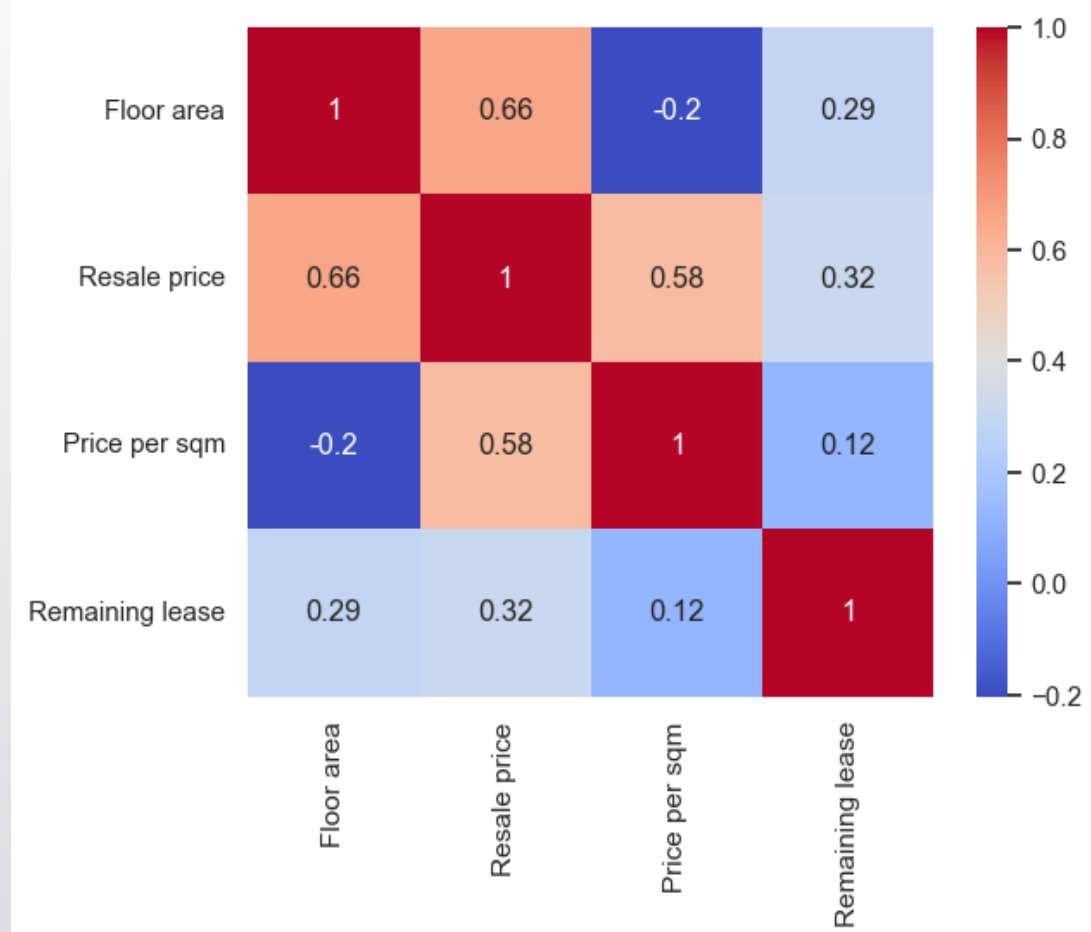
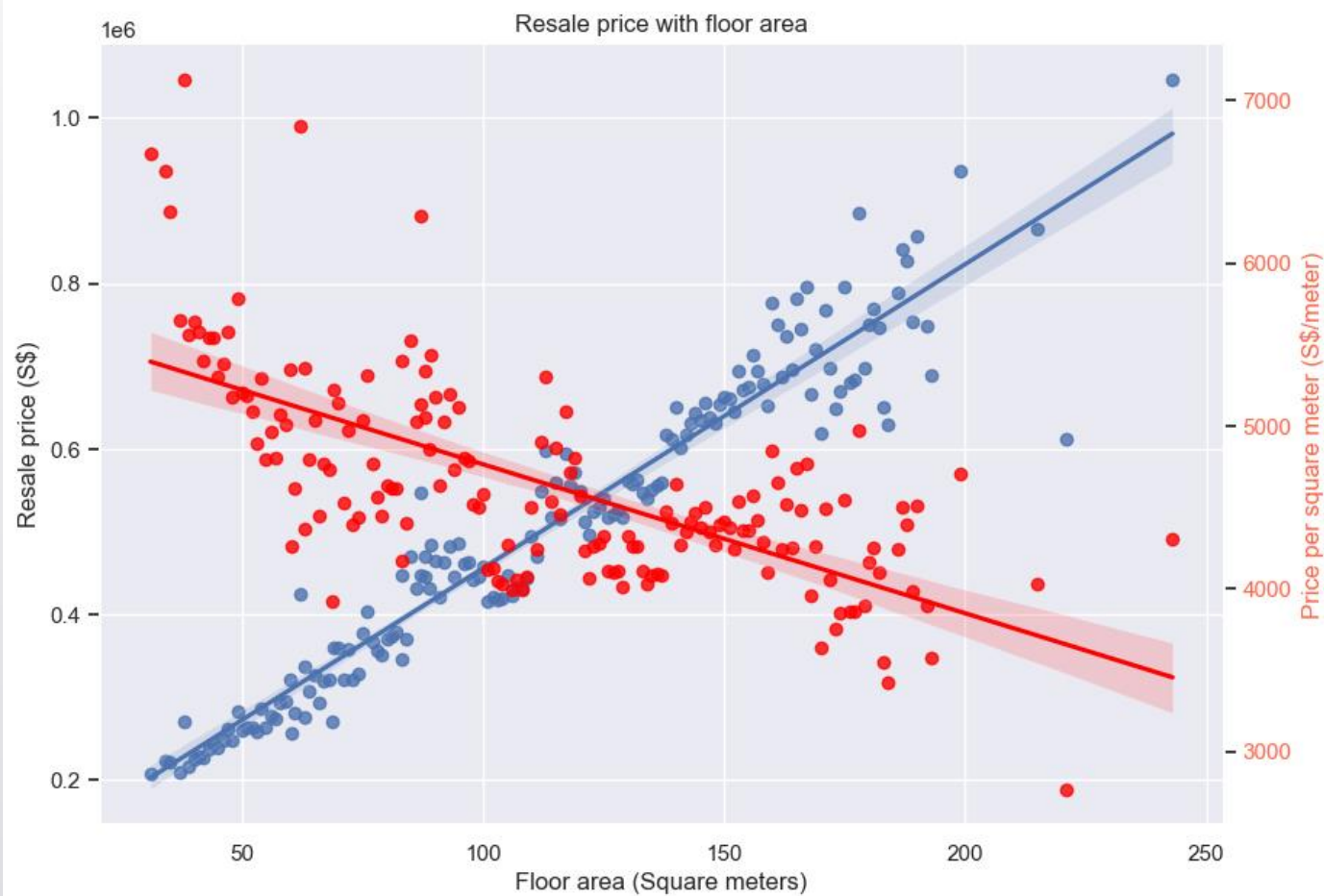
Lowest 5 price town

- MARINE PARADE
- CENTRAL AREA
- PUNGGOL
- SENGKANG
- SEMPAWANG

Relationship between remaining lease and price



Correlation of resale price and price per square meter with floor area





Conclusions

- Prices increased sharply only in recent 11 years
- Higher room number flat types which have larger floor areas have a positive correlation to resale price but no correlation to price per sqm
- Since there is no correlation between remaining lease and resale price and price per sqm, remaining lease possibly does not affect price directly
- However, certain flat types and models have higher price per sqm despite same room numbers.
 - Such as 1/2 room(s), DBSS and terrace.
- Towns that are over-priced in terms of price and sqm are
 - Bukit Timah
 - Bukit Merah
 - Queenstown
 - Marine Parade
- Towns that are best worth in terms of price and sqm are Woodlands and Jurong West
- In terms of ROI, Yishun town is the better choice as it has one of the lowest average resale price at average of S\$376500 price and one the highest increase percentage of 3.64%
- If no budget constraint then Queenstown and Kallang/Whampoa will be ideal for investment at 5.07% and 4.96% respectively



Link to my github

- <https://github.com/MikoPoh>