Melbourne Housing Market Trends and Analysis

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Motivation

- Trends of housing market for sellers as well as buyers
  - Faster Sales?
  - Higher Prices?
  - Housing bubble?
- Correlation of price with different factors
- Estimate of when to buy or sell

Outline

- Dataset
- Overall Price Distribution
- Region-wise Statistics
  - Price compared in metropolitan
  - Monthly housing price change
  - Monthly price distribution
- Seasonal Sales Statistics
- Correlation analysis
  - Joint Distributions
- Who's the top seller?
- Conclusion
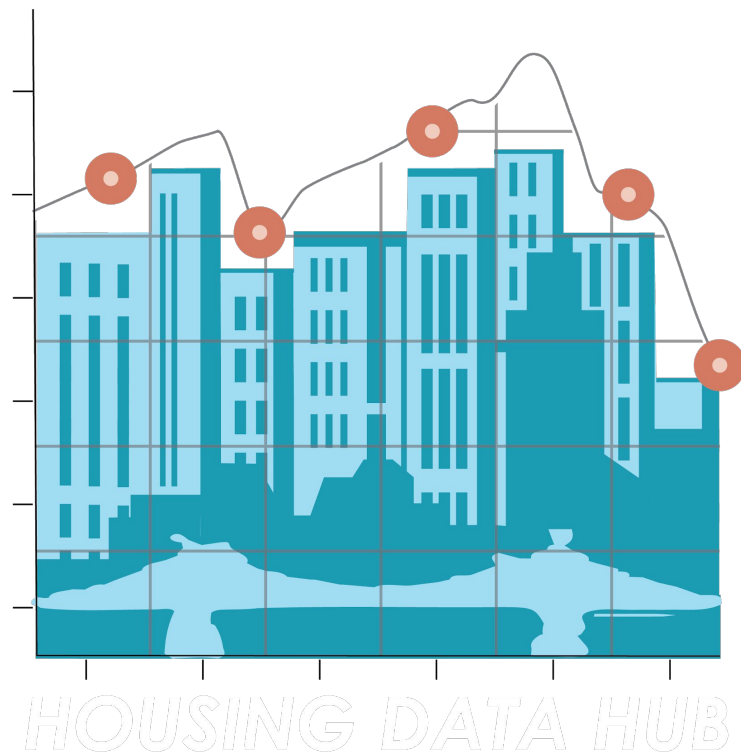
Dataset

- Melbourne housing data: Complete
  - Dates :   March 2016 -- Dec 2018
  - # Houses Sold = 75,665

Suburb	Rooms	Type	Price	SellerG	Date	Regionname	Distance	CouncilArea	year	month	Month	Season	Price in Millions
Abbotsford	2	h	1480000.0	Biggin	3/12/2016	Northern Metropolitan	2.5	Yarra City Council	2016	3	March	Spring	1.480

- Smaller Dataset
  - # Houses Sold = 27244
  - Used for correlation plots
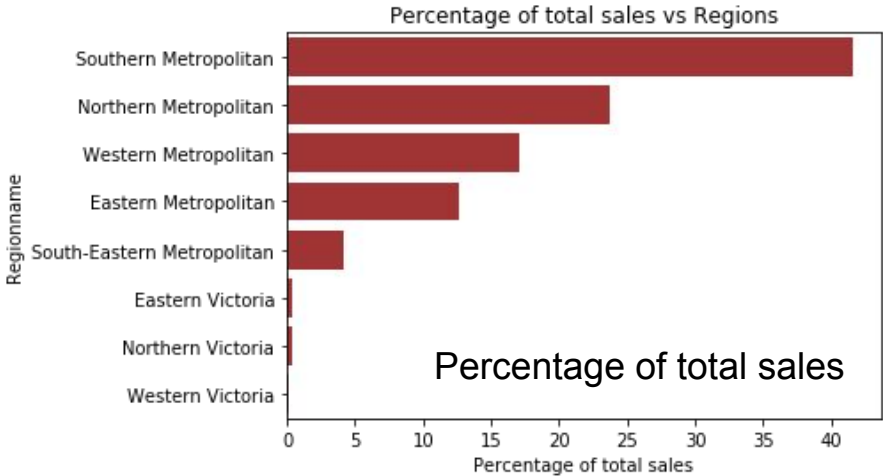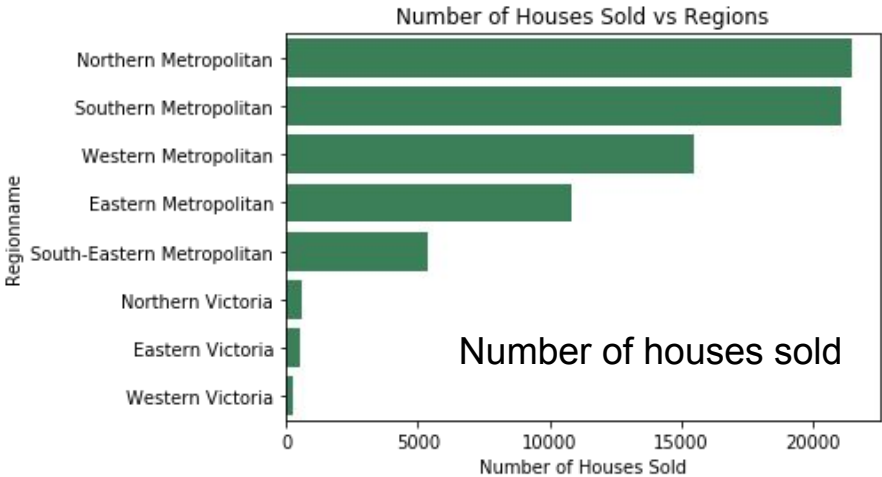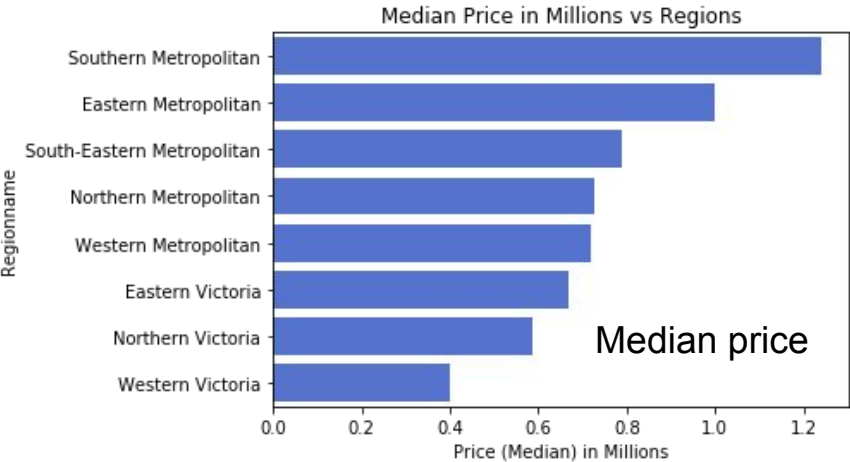 - Extra Columns: Landsize, Bedroom, Bathroom, Car, BuildingArea

Overall Price Distribution

Univariate distribution of Price with Gaussian Kernel Distribution Estimate
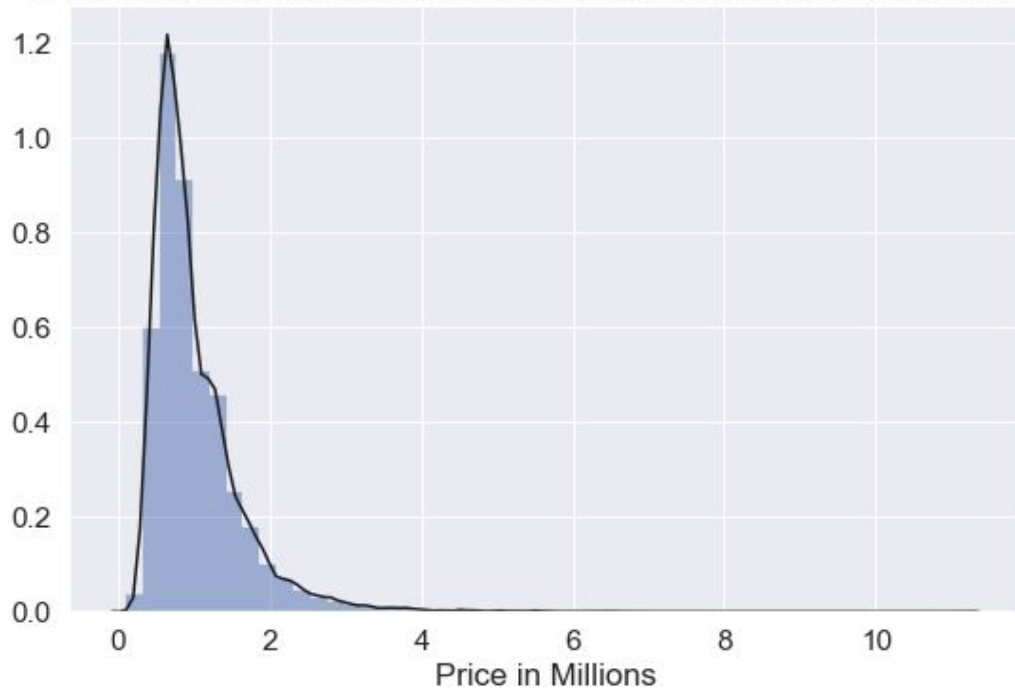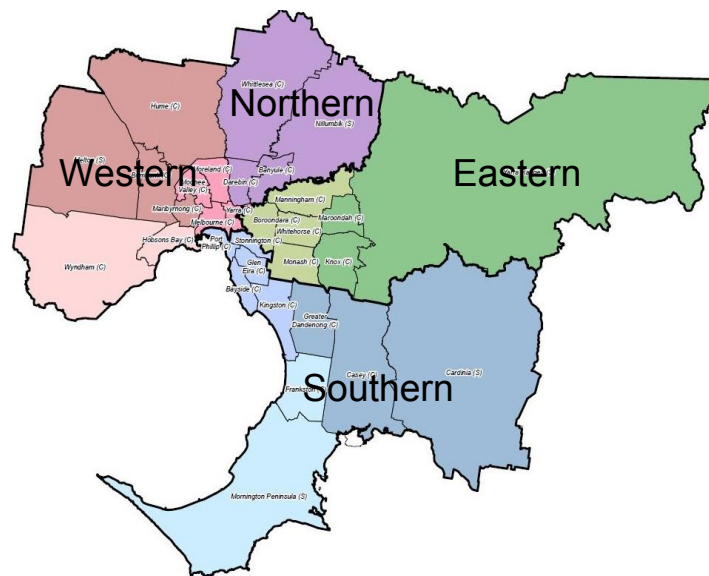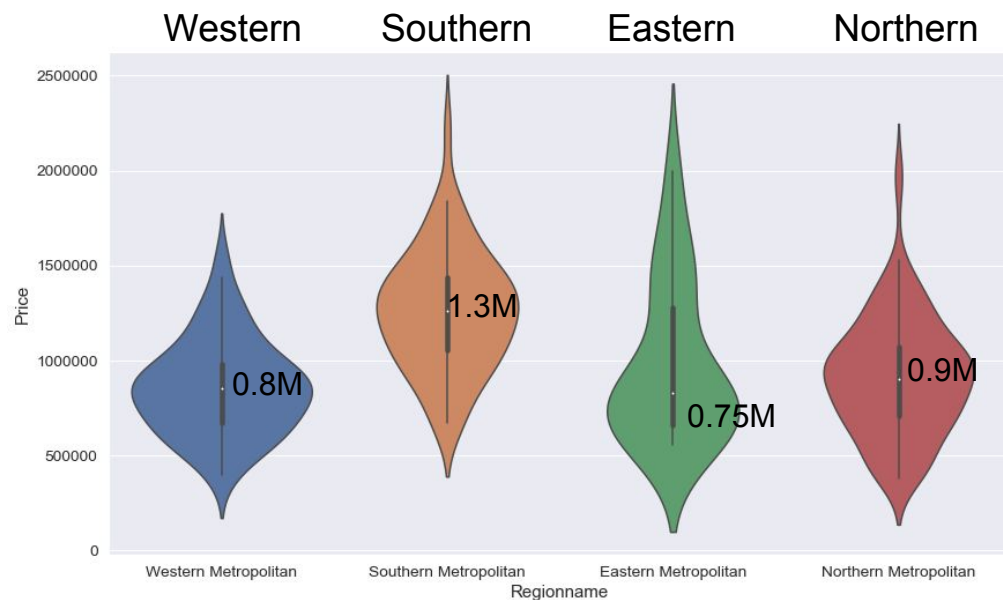

- Mean House Price: ~1M
- Price Range:
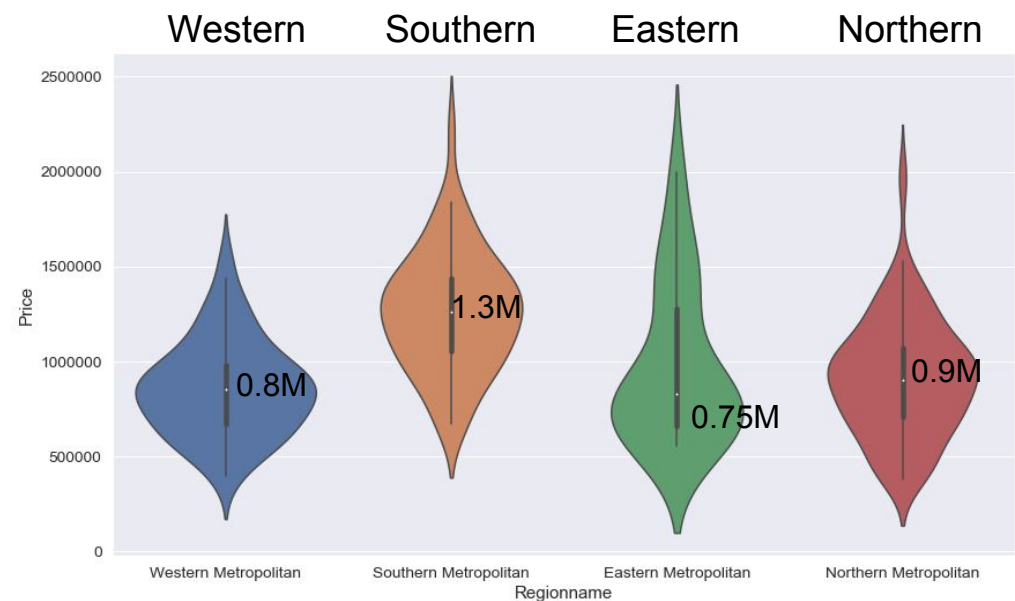 - Min: ~0.085 M
  - Max: ~ 11.2 M

Region-wise Statistics

Housing price compared in Metropolitan

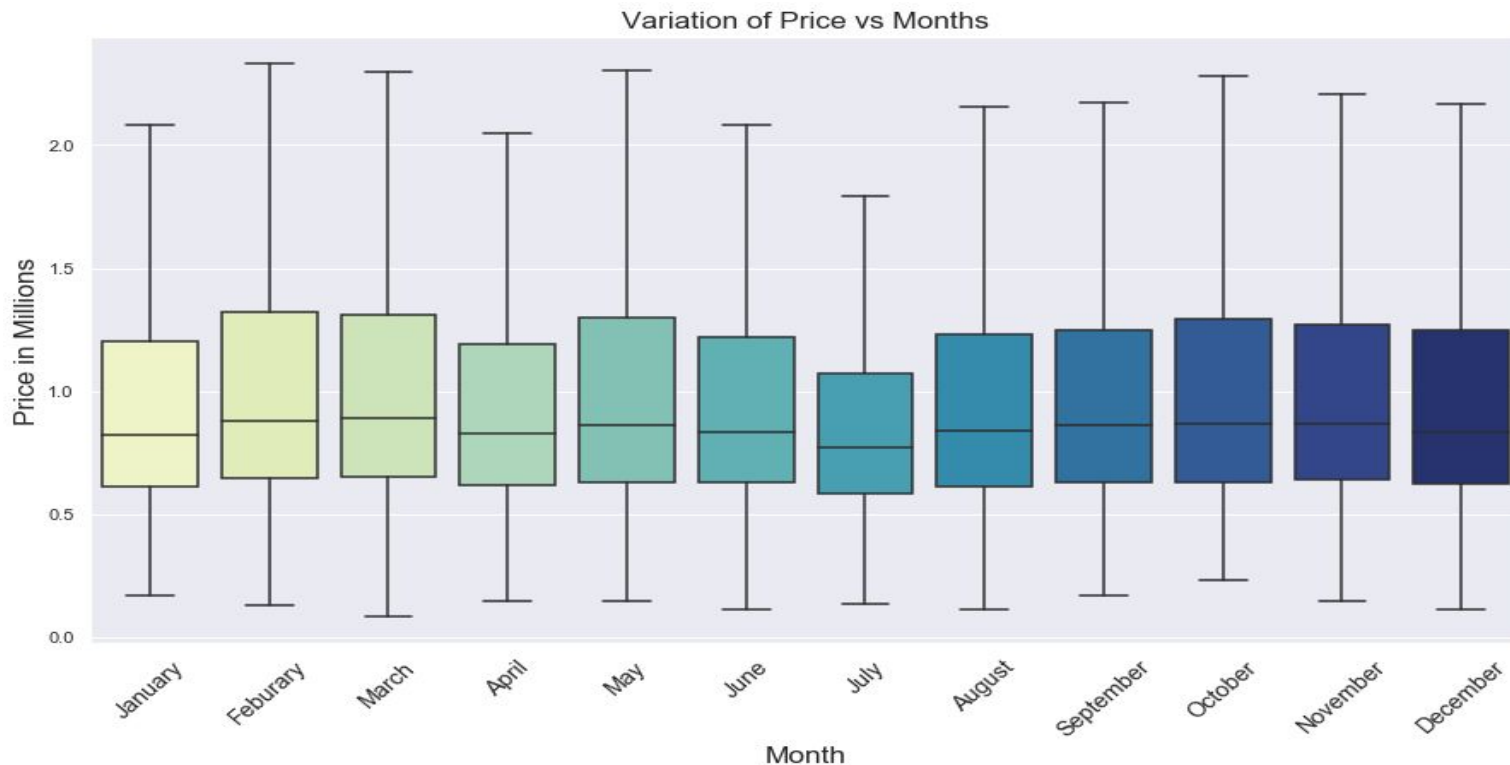# Housing price compared in Metropolitan

Western   Southern   Eastern   Northern

Violin plot — Price vs Regionname

Western Metropolitan: 0.8M
Southern Metropolitan: 1.3M
Eastern Metropolitan: 0.75M
Northern Metropolitan: 0.9M

|	Regions	Minimum Distance (km)	Maximum Distance (km)
0	Northern Metropolitan	0	25.9
1	Western Metropolitan	4.3	31.7
2	Southern Metropolitan	0.7	17.9
3	Eastern Metropolitan	14.7	38
4	South-Eastern Metropolitan	7.8	27
5	Eastern Victoria	20.1	49.3
6	Northern Victoria	25.2	55.8
7	Western Victoria	29.8	45.2

Monthly Price Trend in Metropolitans
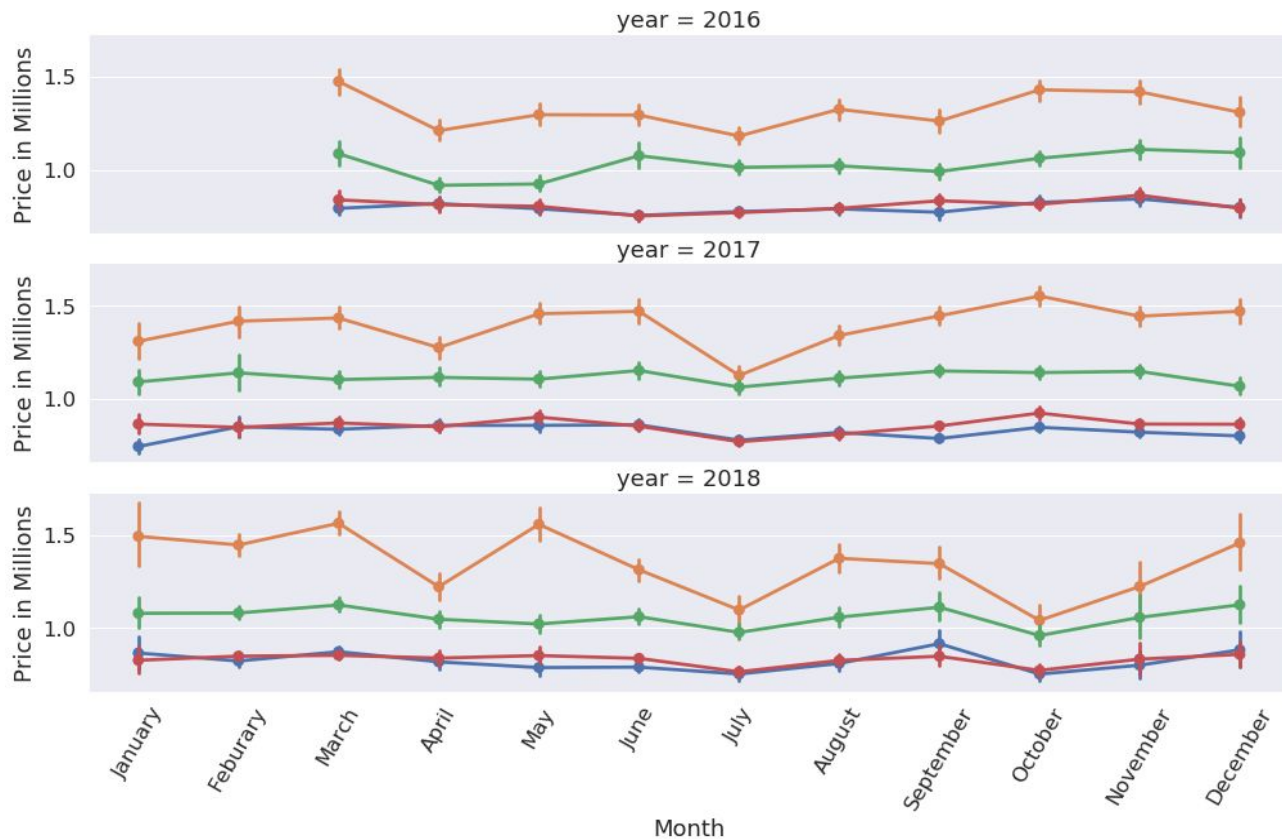
- Large price changing in southern metropolitan
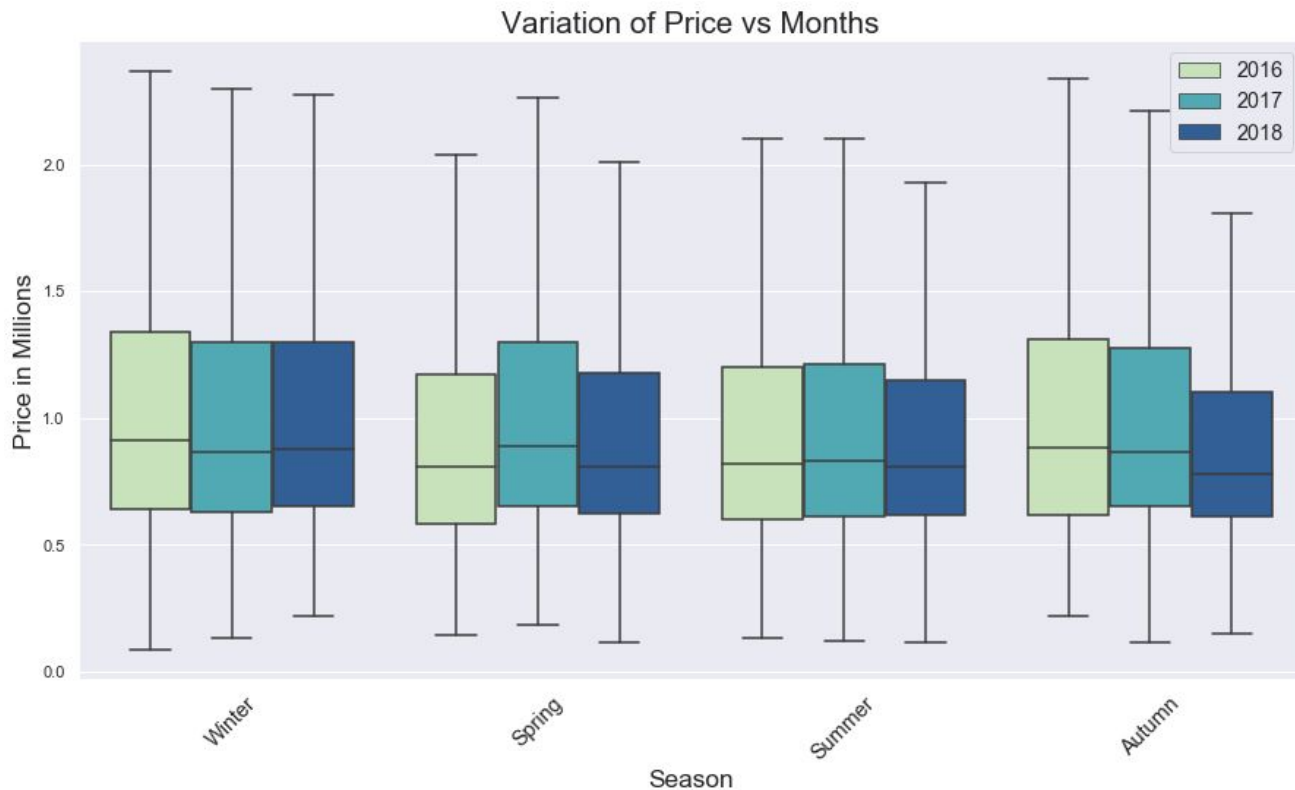- The housing market is stable in three years
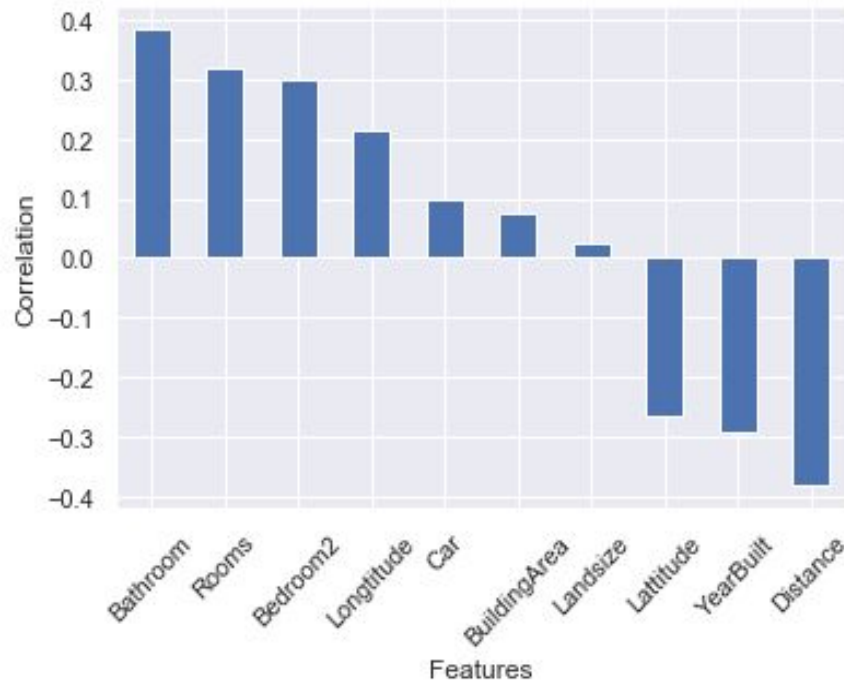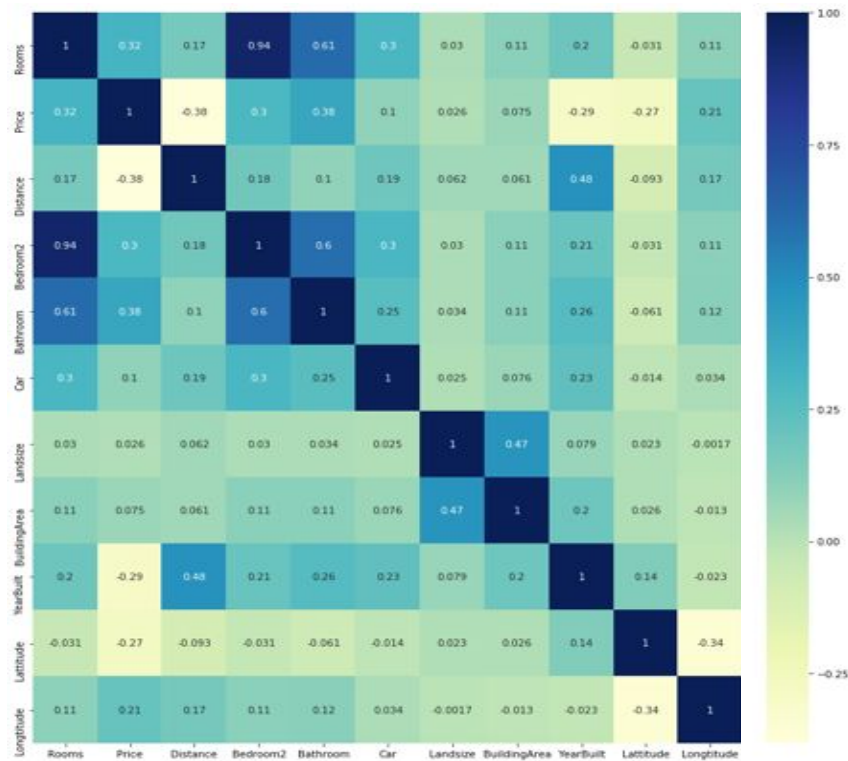
Monthly Price Distribution

Variation of Price vs Months

Monthly Price Distribution

Variation of Price vs Months
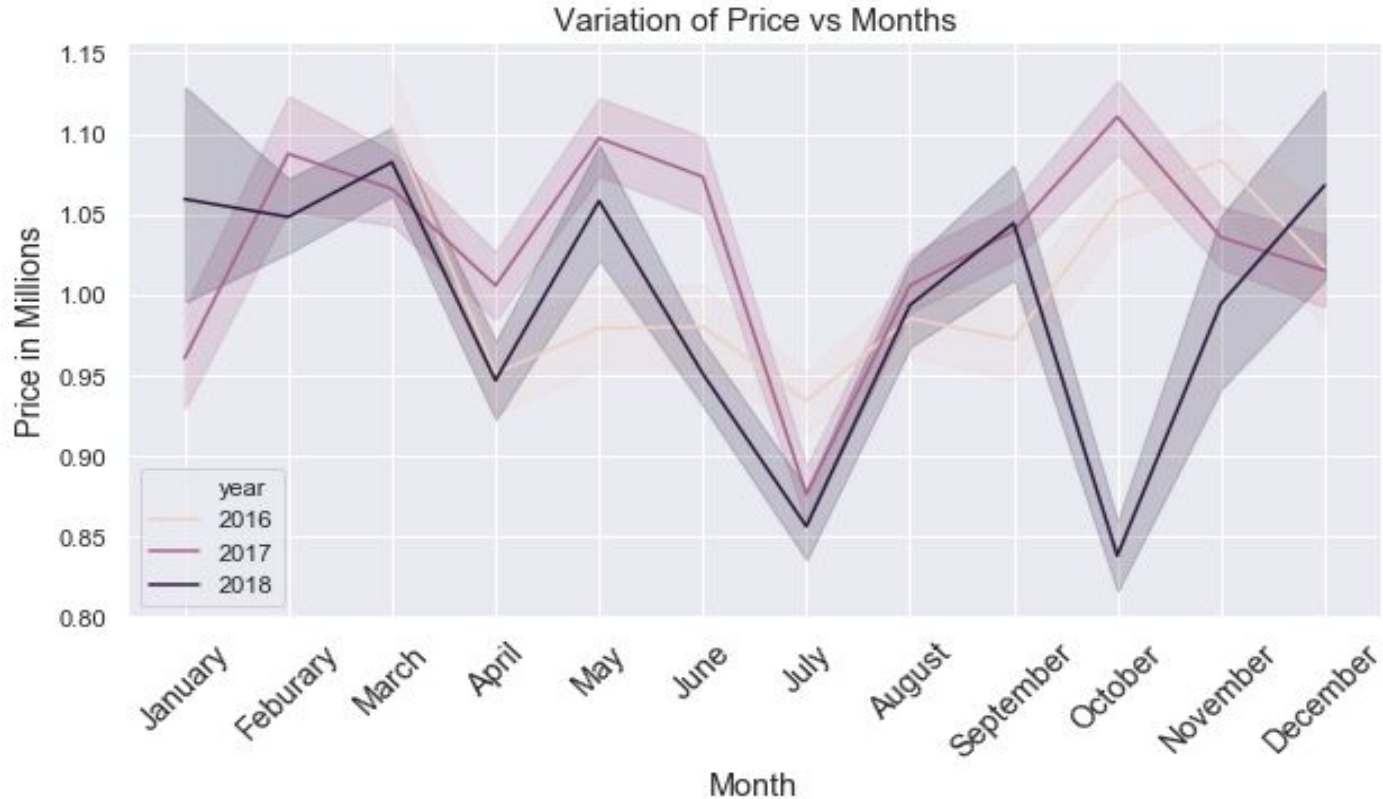
Seasonal Price Distribution
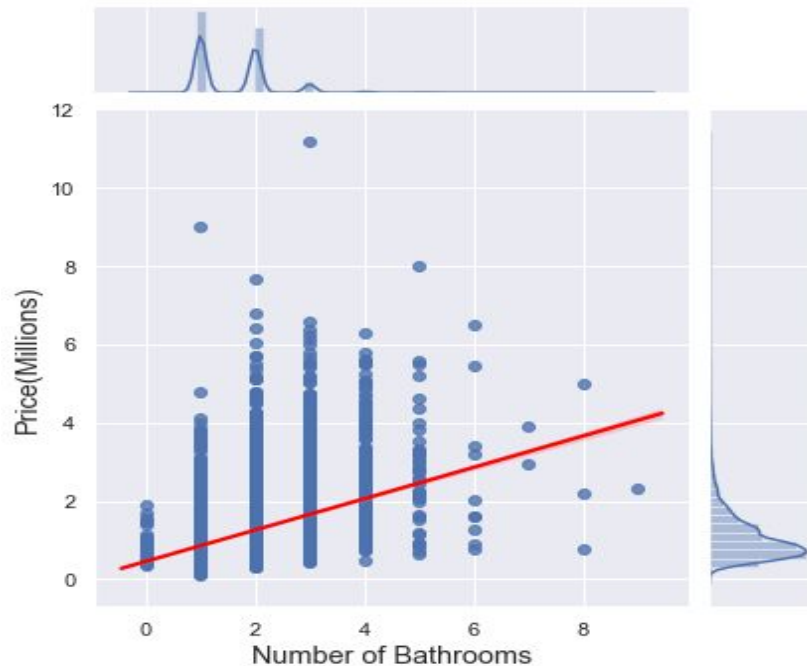

Variation of Price vs Months
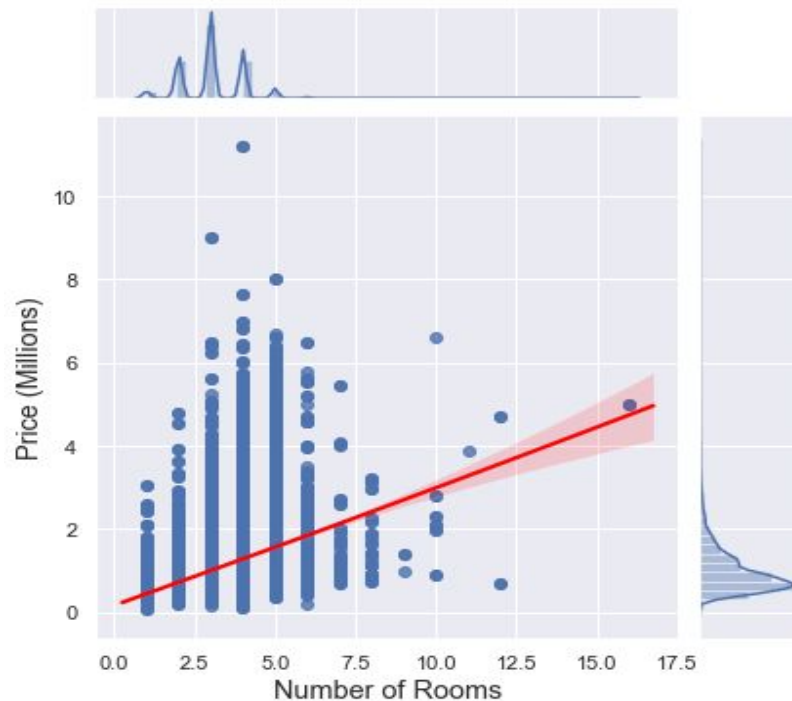
Correlation Analysis:

Joint Distributions
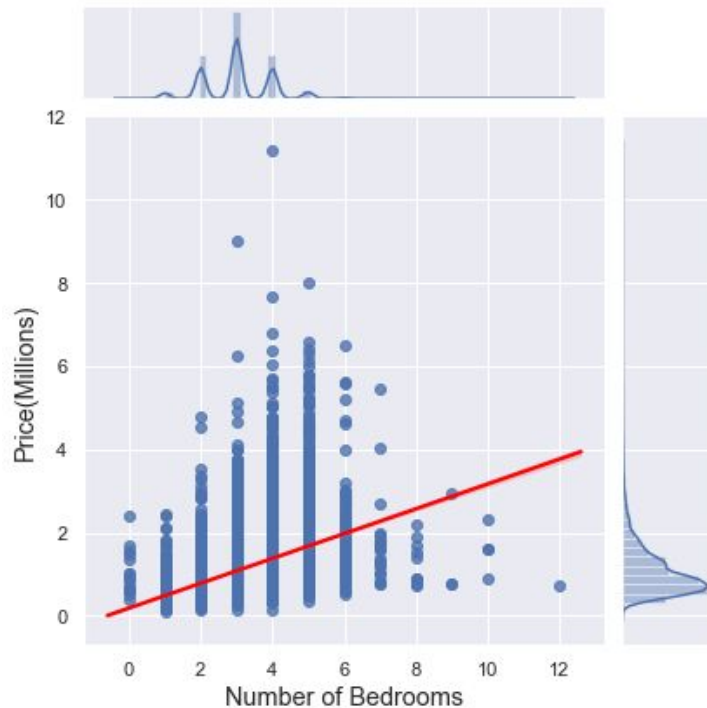

Price and Number of Bathrooms
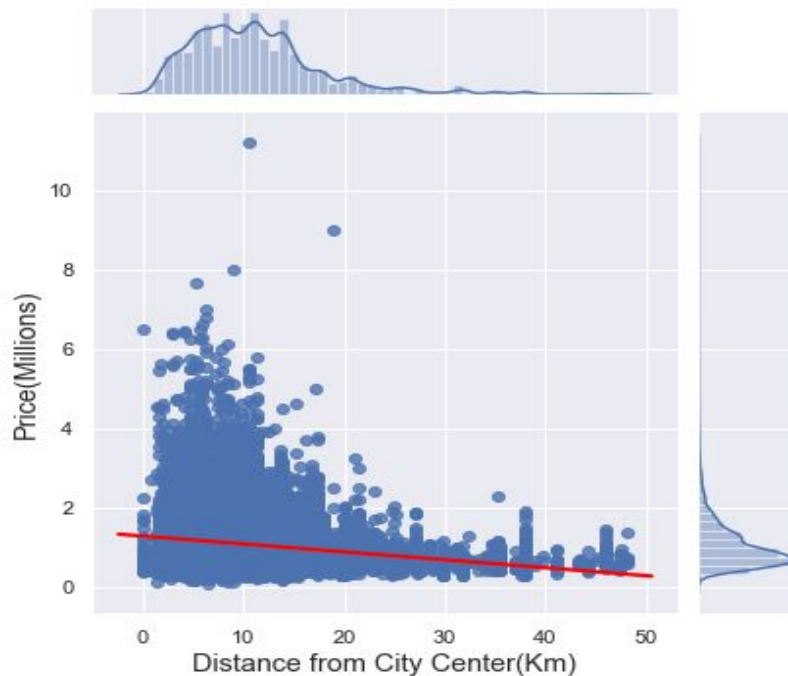
Price and Number of Rooms
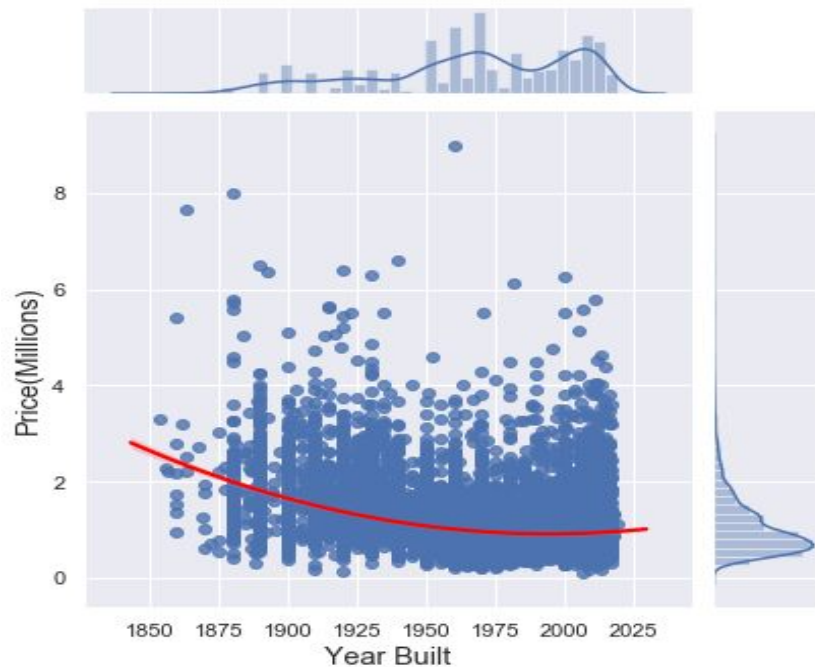
Joint Distributions

Price and Number of Bedrooms

Price and Distance from City Center

Joint Distributions

Price and Year Built

Building Area and Year Built
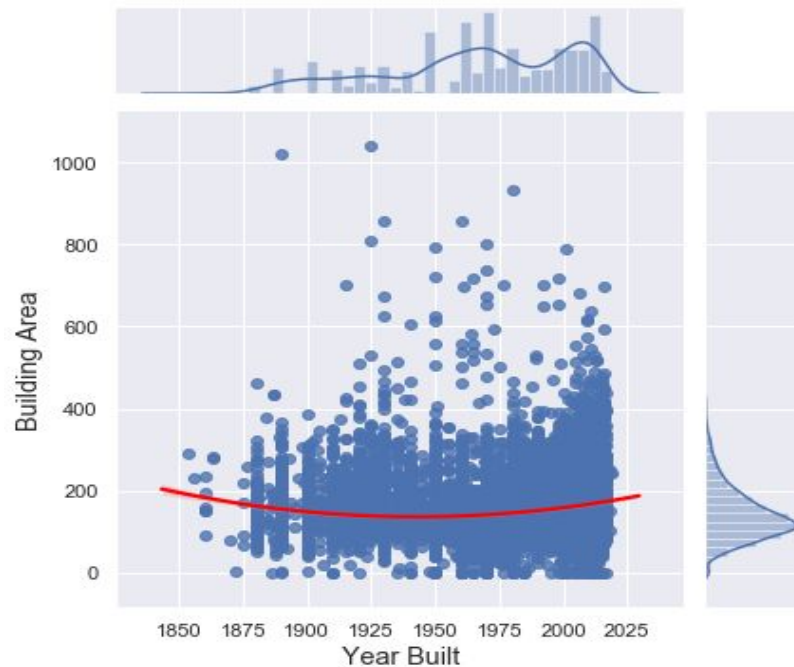
Top sellers in Melbourne

Median Price vs Number of House Sold w.r.t. Sellers
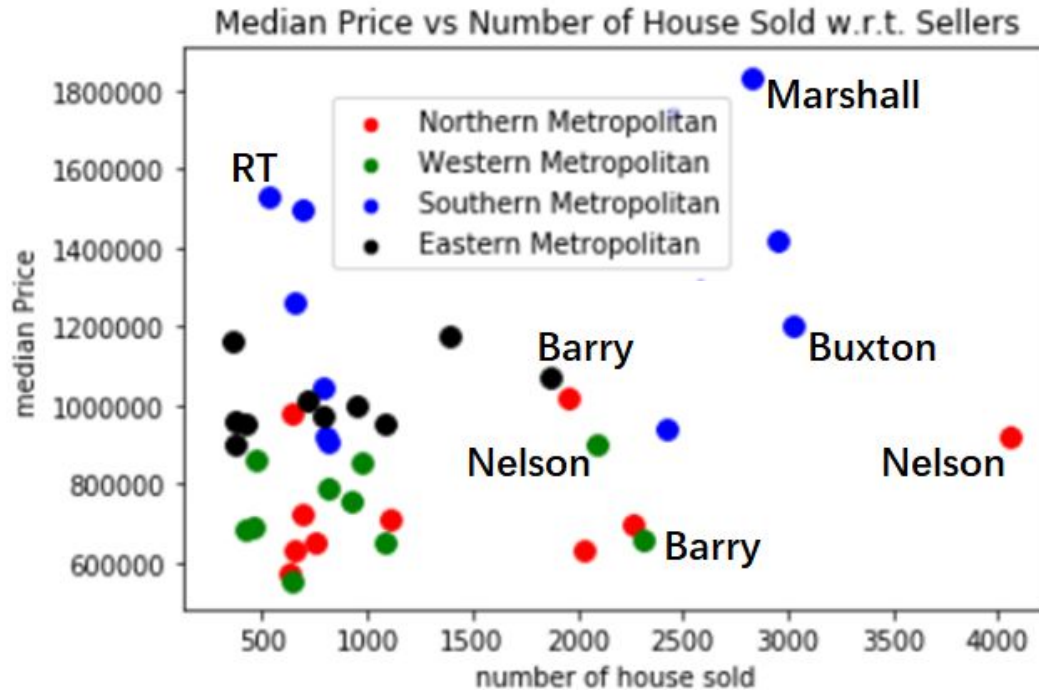
- 4 regions

- Top 7 sellers

Conclusion

- Housing market is stable over 2016 - 2018
- Southern metropolitan is the most expensive region
- Northern metropolitan is the most popular region
- Monthly price trend varies a lot in southern metropolitan
- Seasonally price is quite stable, July is recommended for buying houses
- Housing price is positively correlated to number of bathrooms, rooms and bedrooms and negatively correlated to distance from the city center and year built.
- Top seller list is informative when you are trying to find the best sellers in your region

Thank You