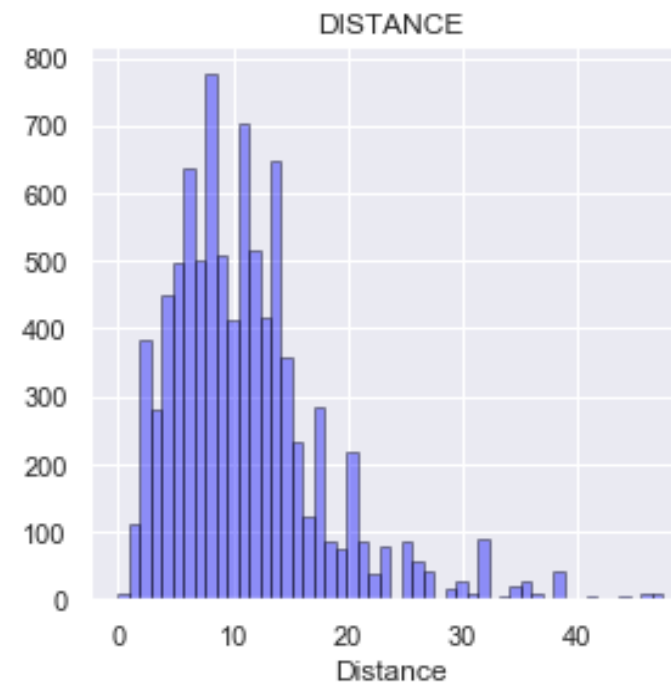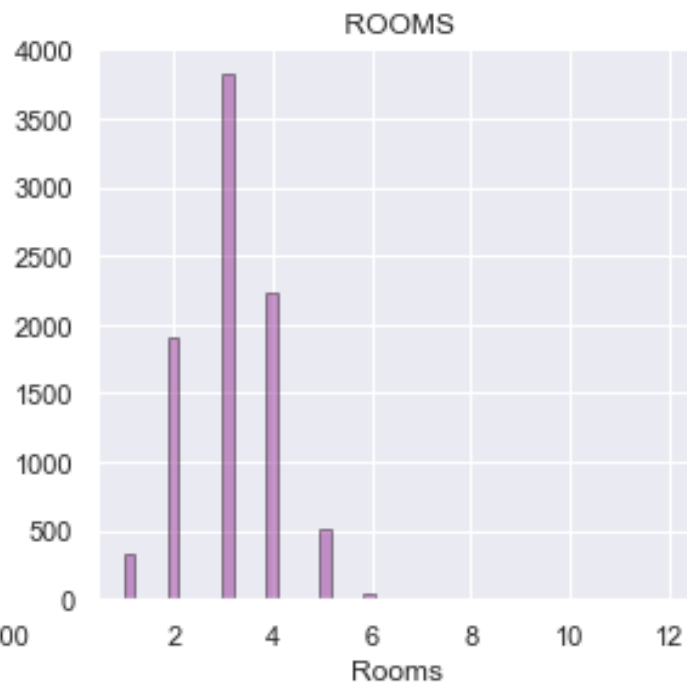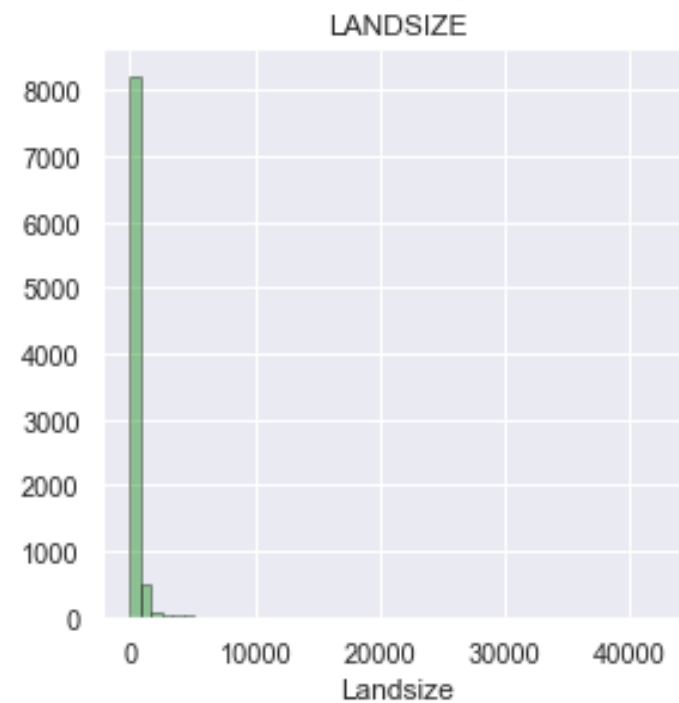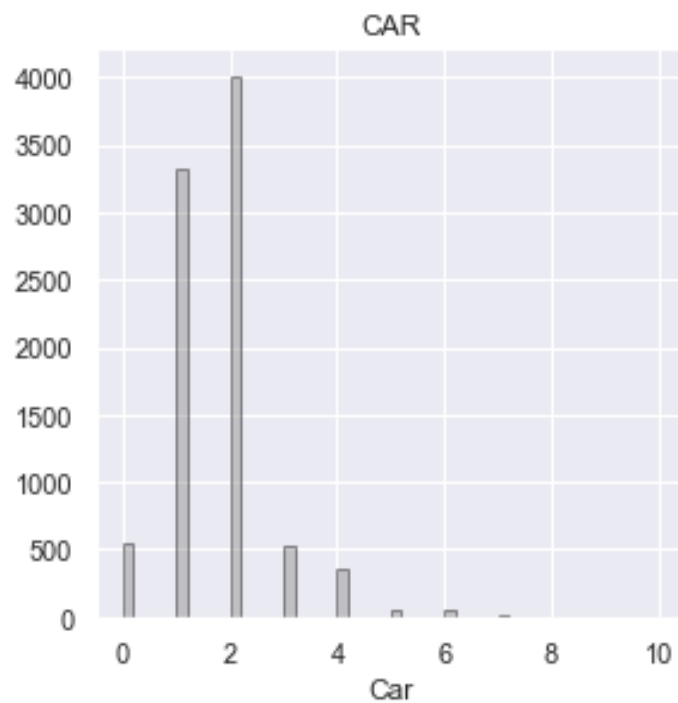# MELBOURNE

HOUSING PRICES

Predicting Housing Prices in Melbourne, Australia
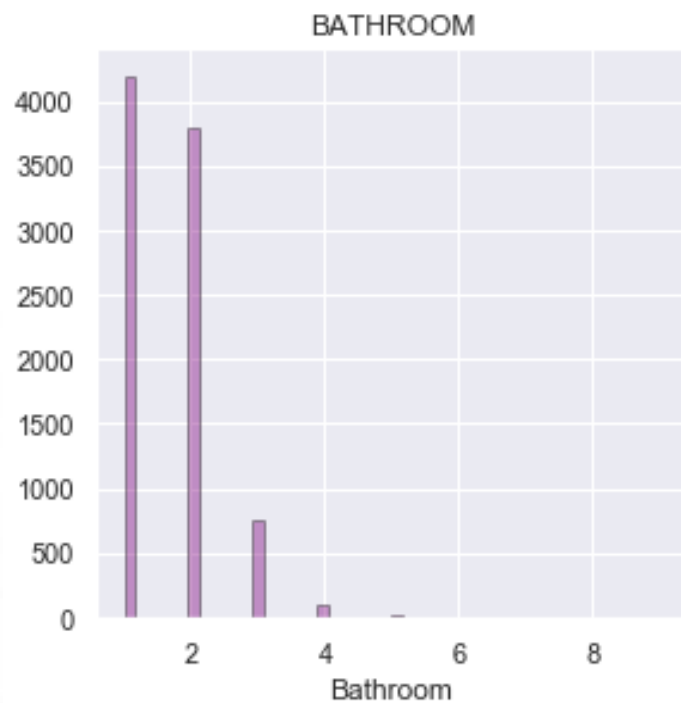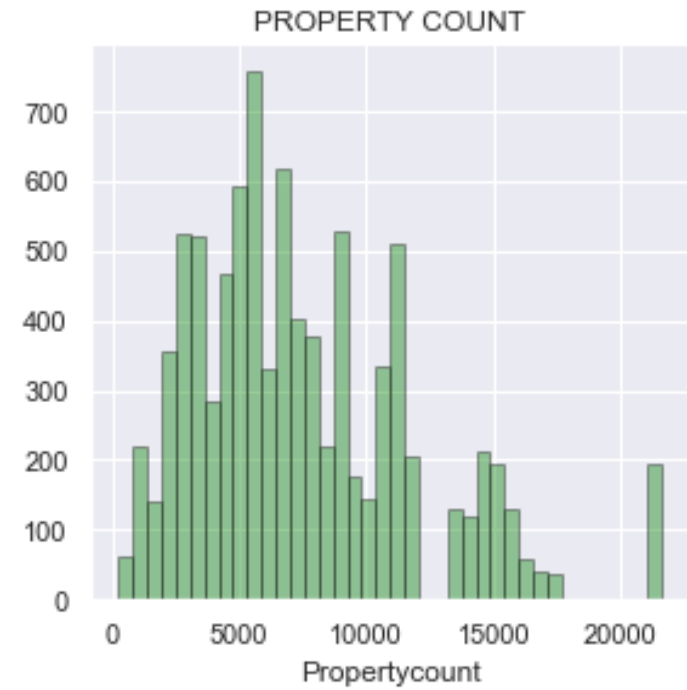
Presented by Usman Shaikh

CITY OF MELBOURNE

HISTOGRAMS

HISTOGRAMS

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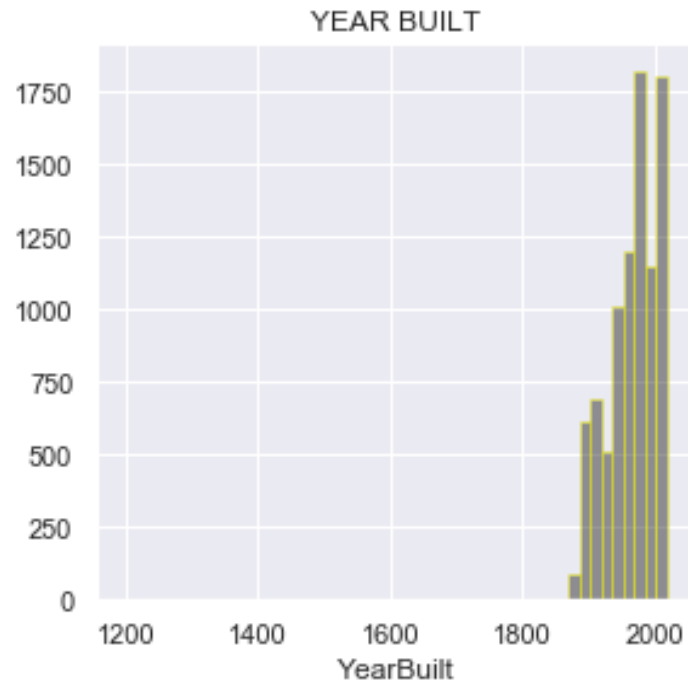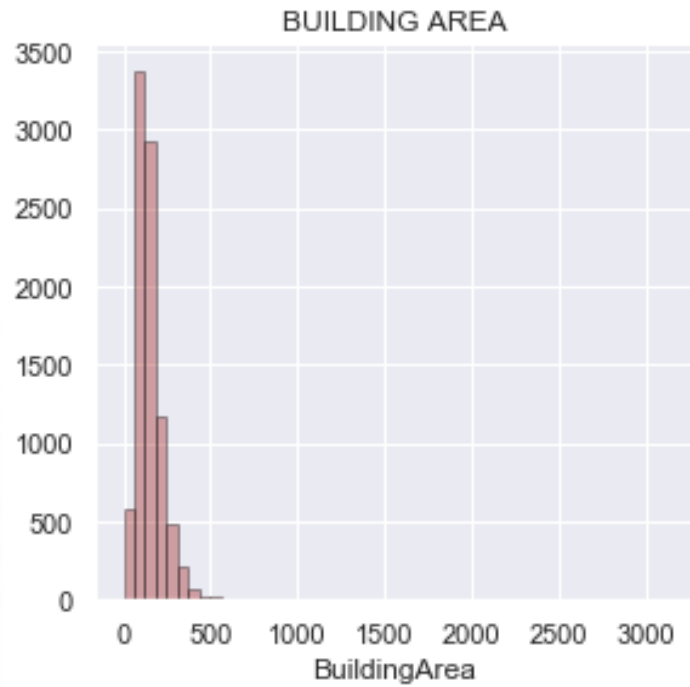
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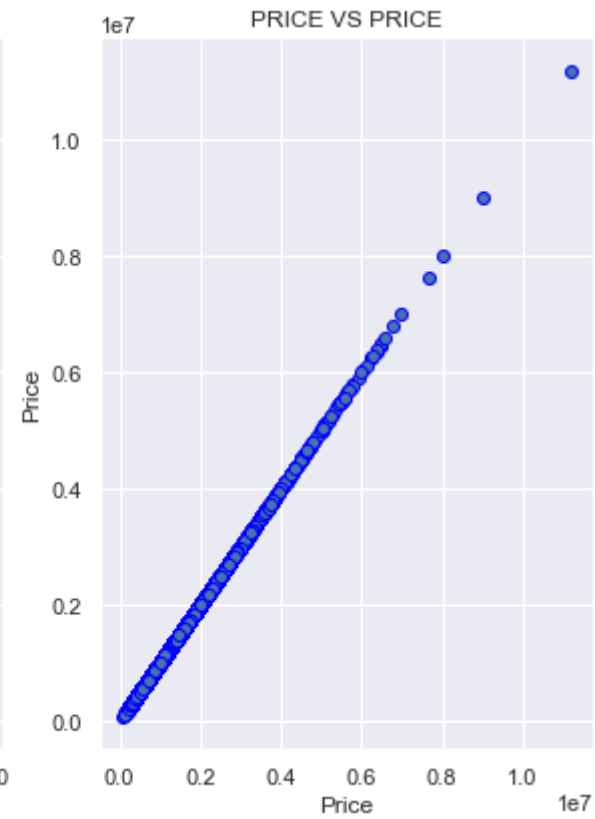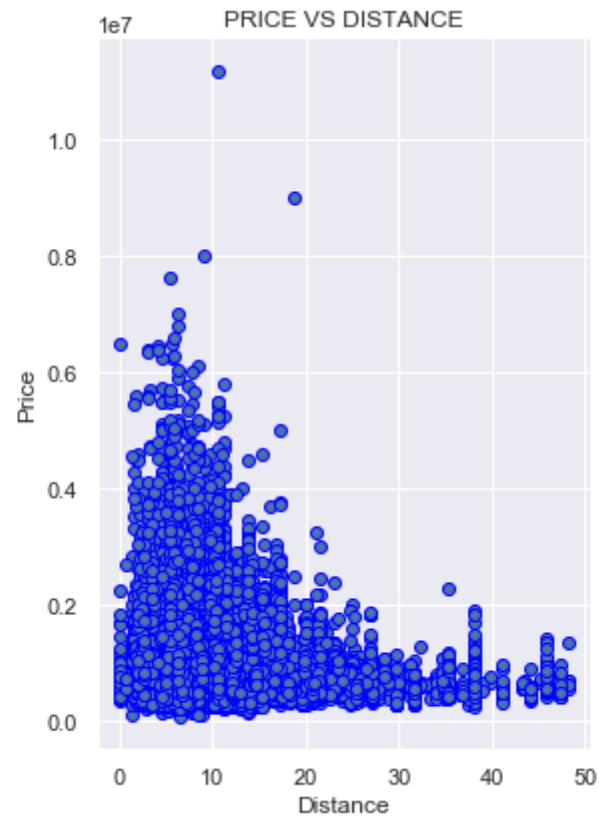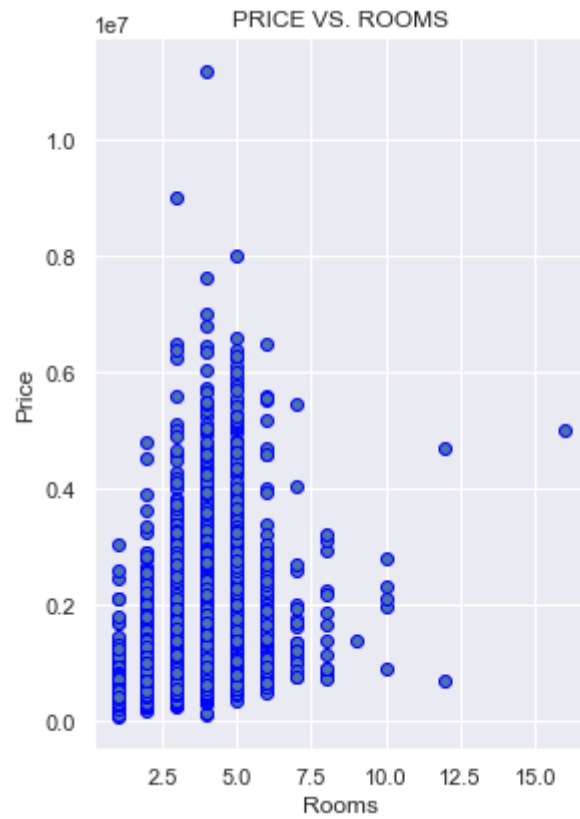
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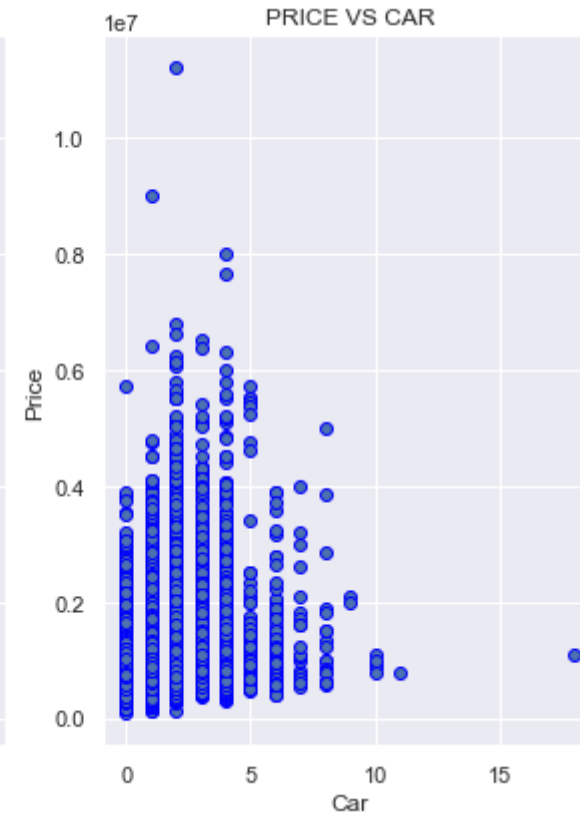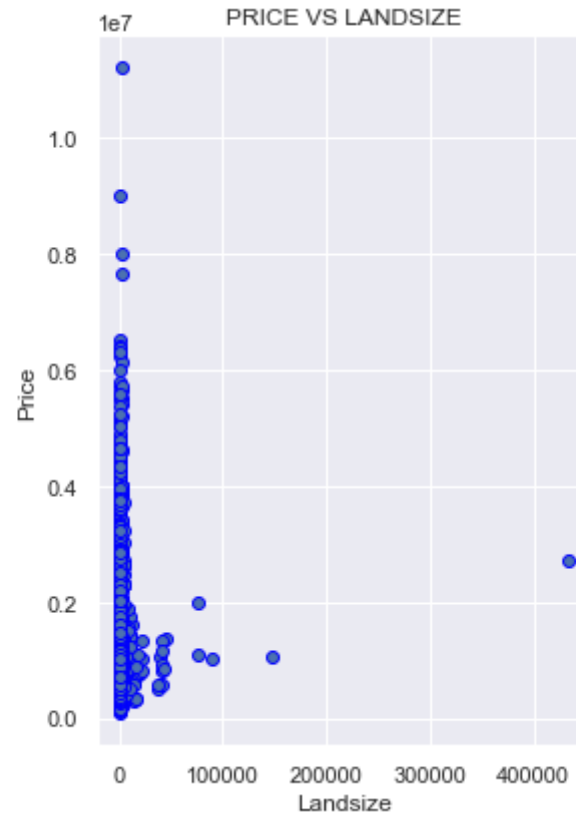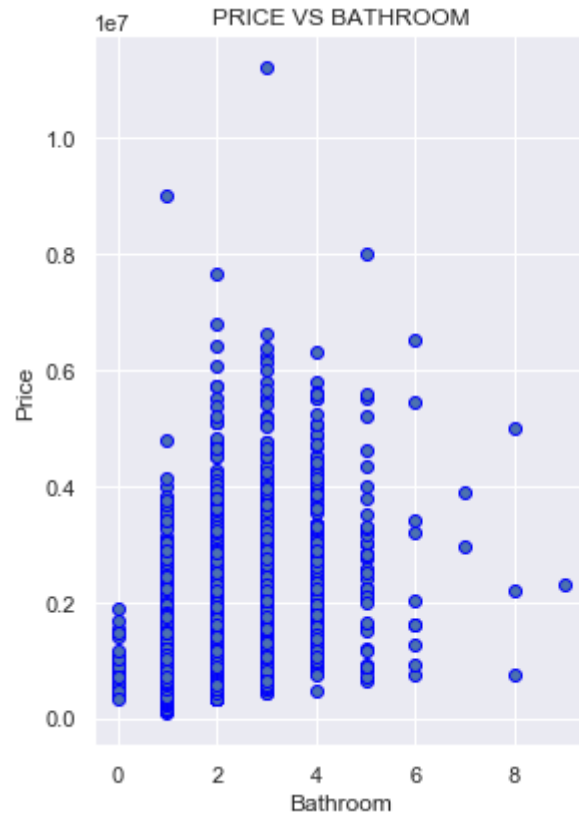
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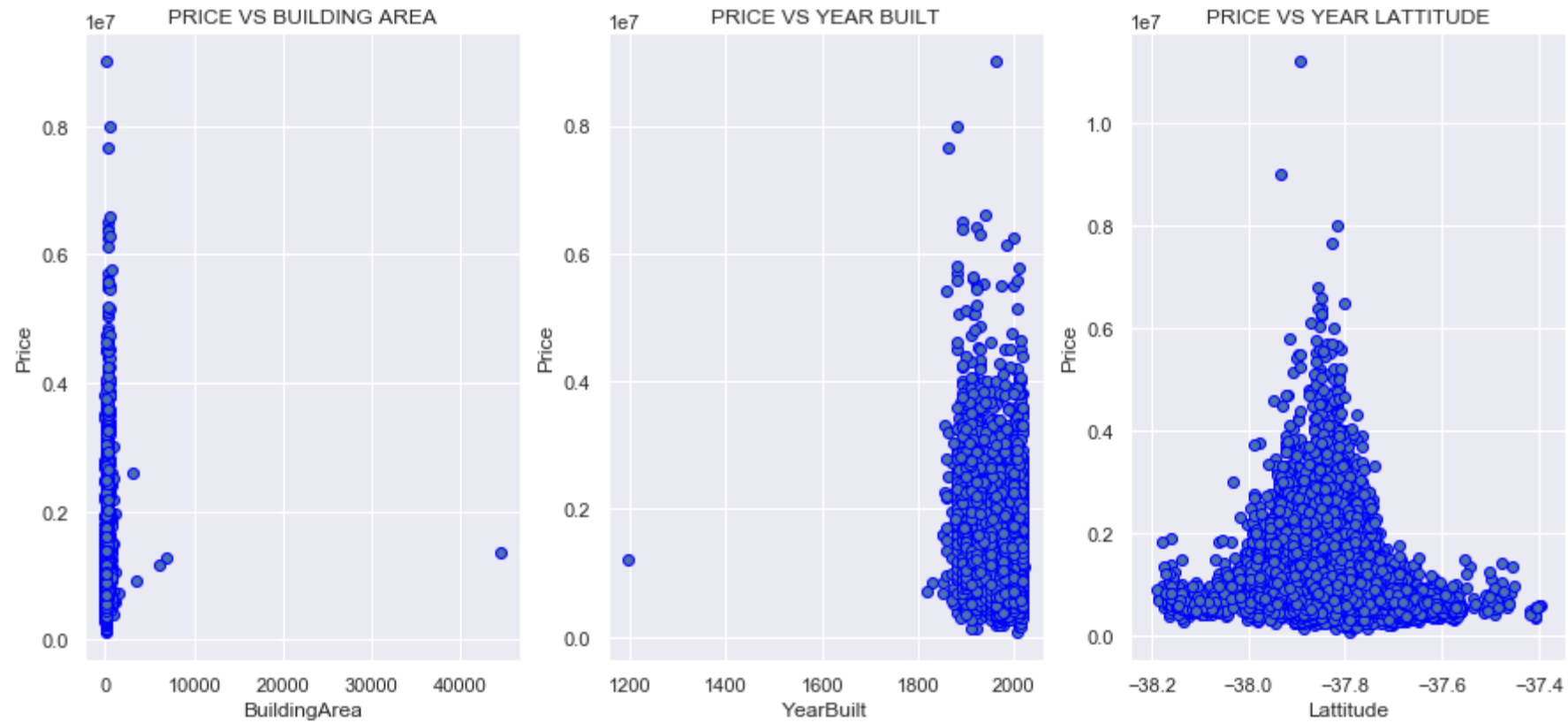
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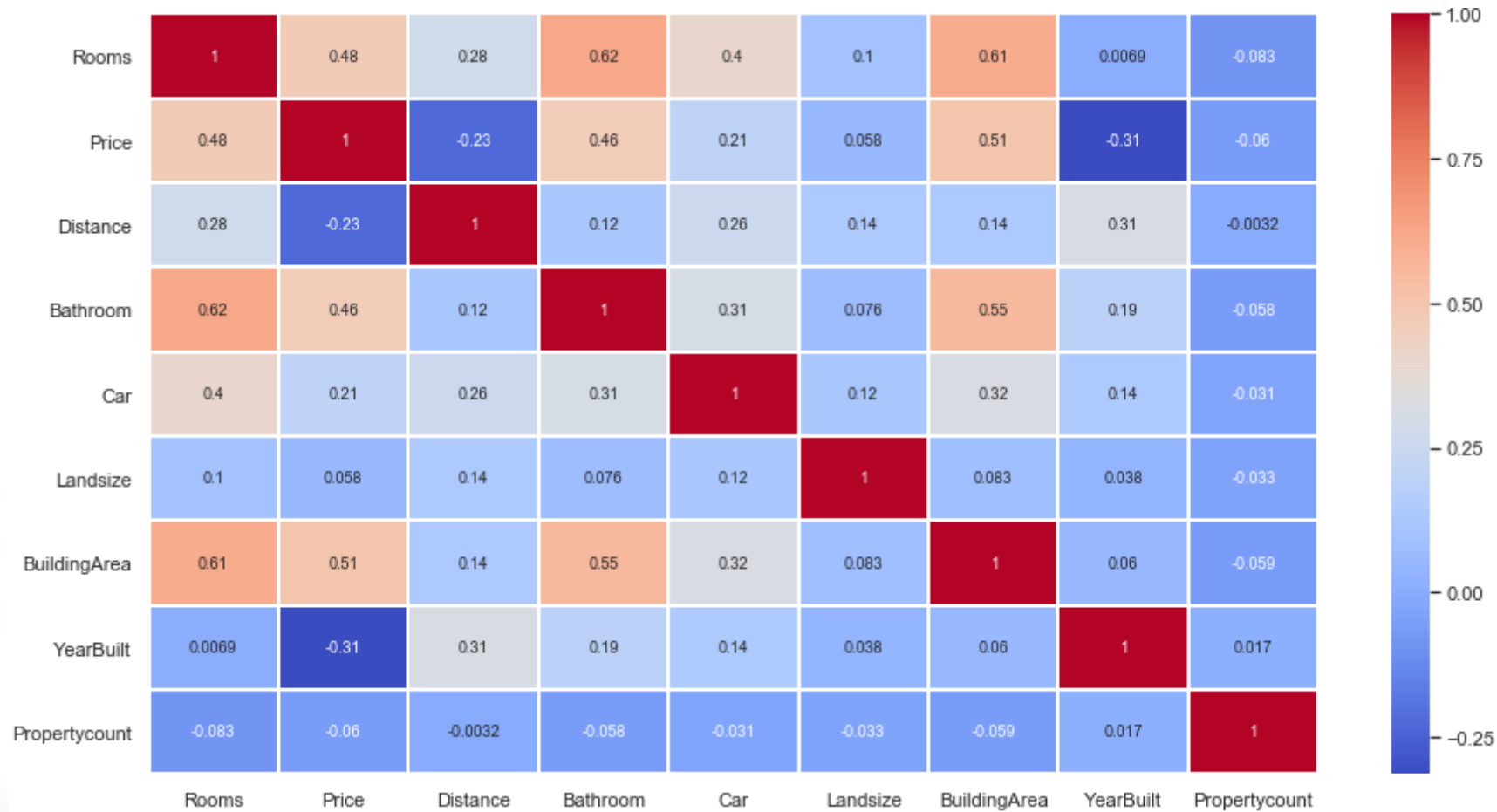
REGIONS

- ❑ **Northern Metropolitan: N Metro**

- ❑ **Western Metropolitan: W Metro**

- ❑ **Southern Metropolitan: S Metro**

- ❑ **Eastern Metropolitan: E Metro**

- ❑ **South-Eastern Metropolitan: SE Metro**

- ❑ **Northern Victoria: N Vic**

- ❑ **Eastern Victoria: E Vic**

- ❑ **Western Victoria: W Vic**

MEAN VALUES

Mean Prices for Different Regions

Mean Distance for Different Regions

Mean Year Built for Different Regions
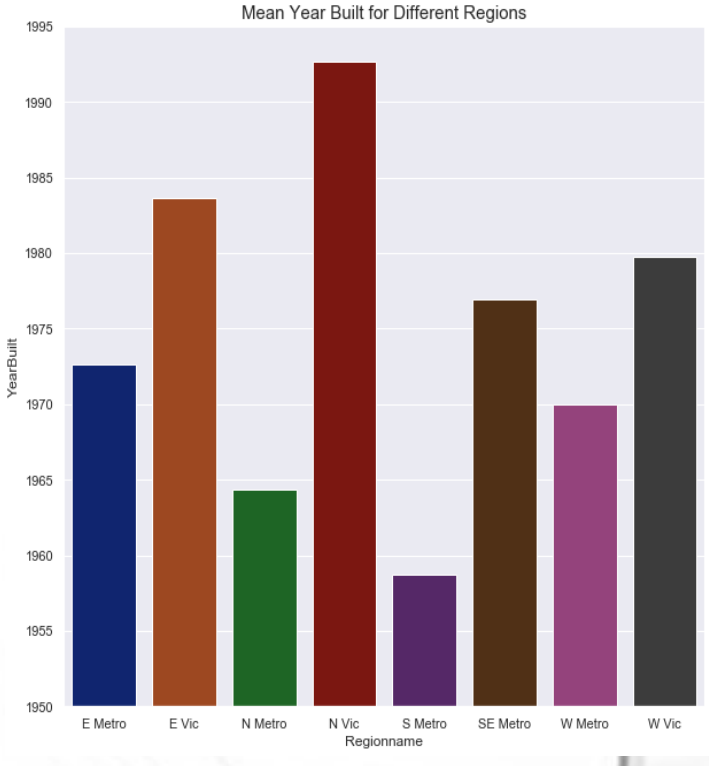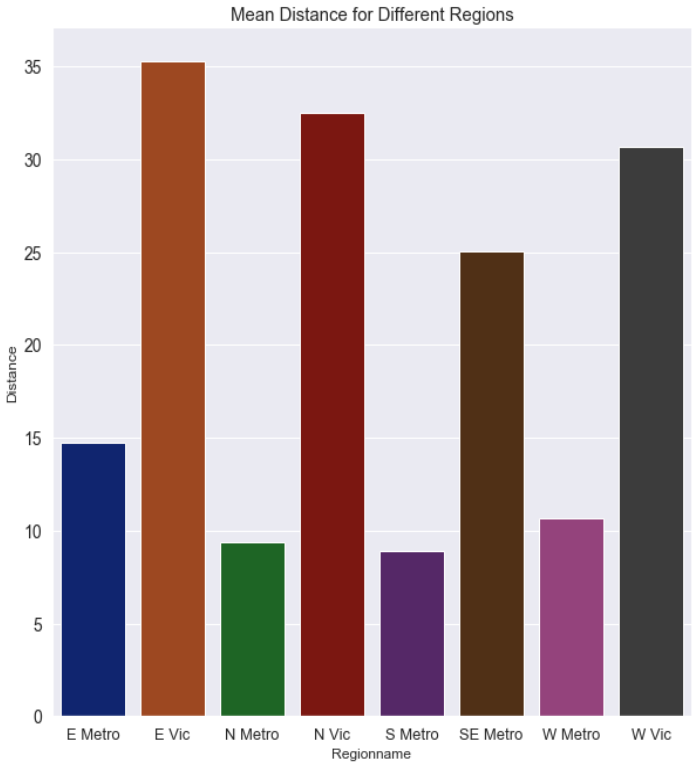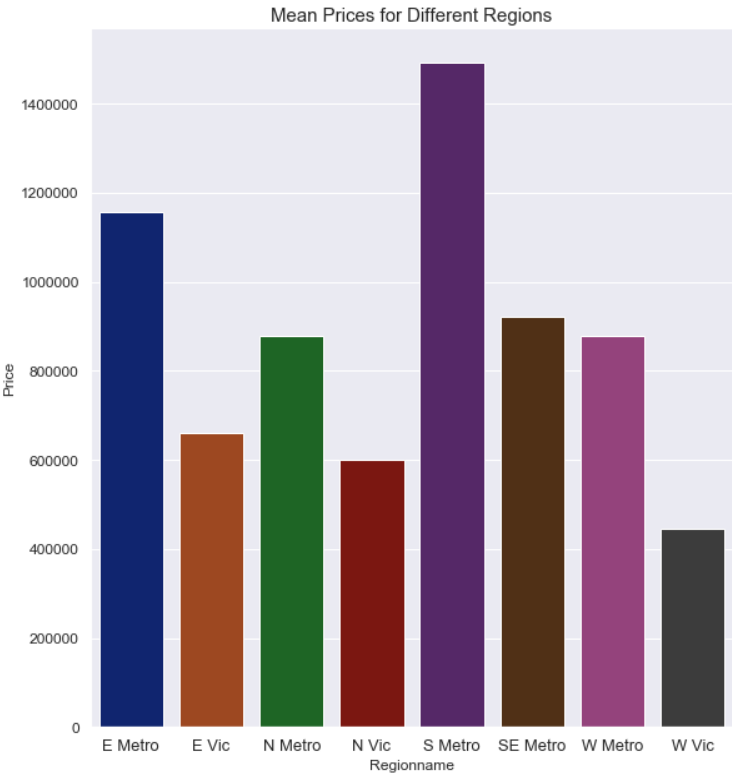
MEAN VALUES CONT'D

MEAN VALUES CONT'D

Mean Car Spaces for Different Regions

Mean Bathrooms for Different Regions
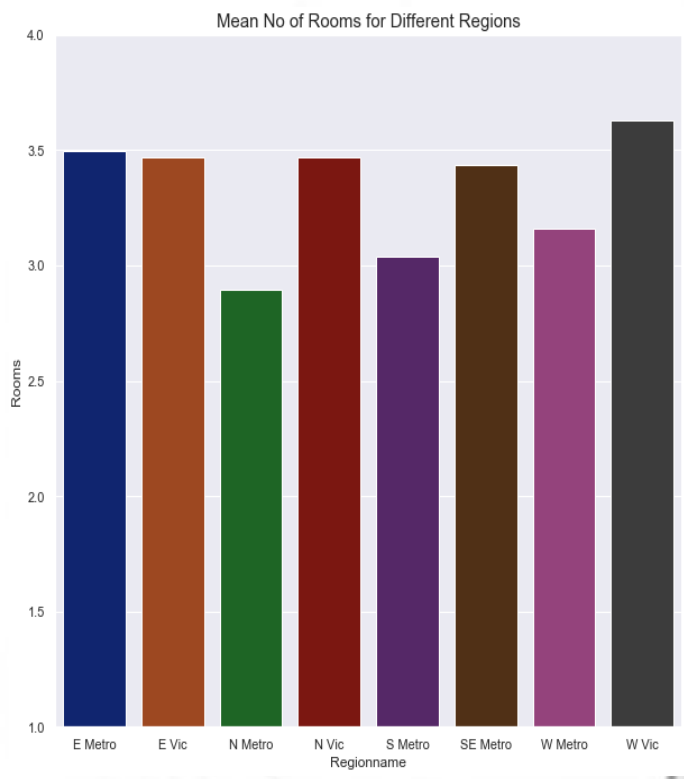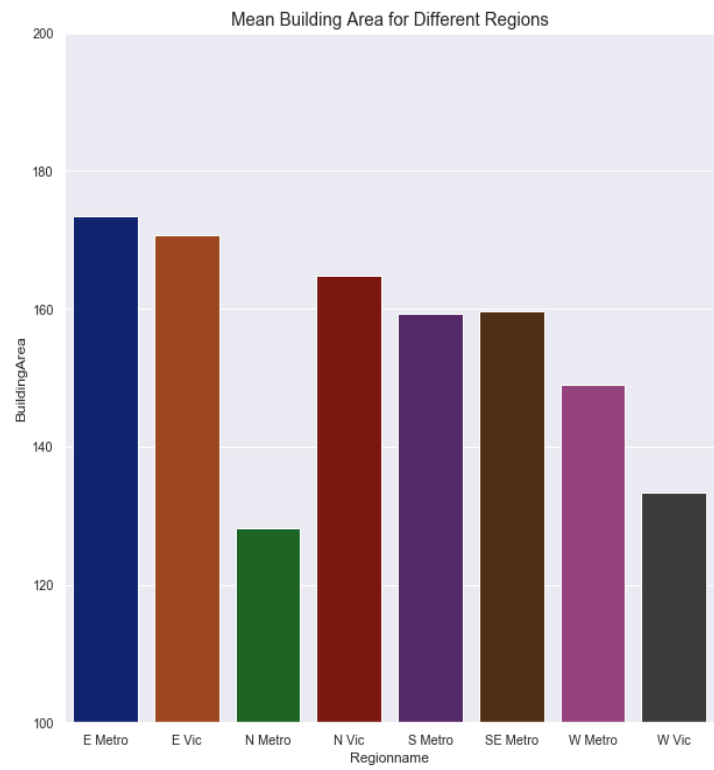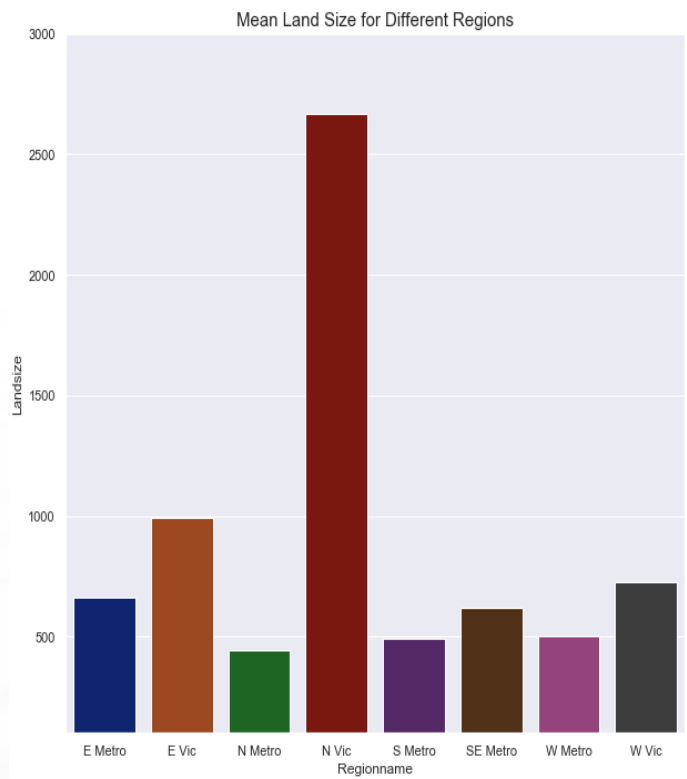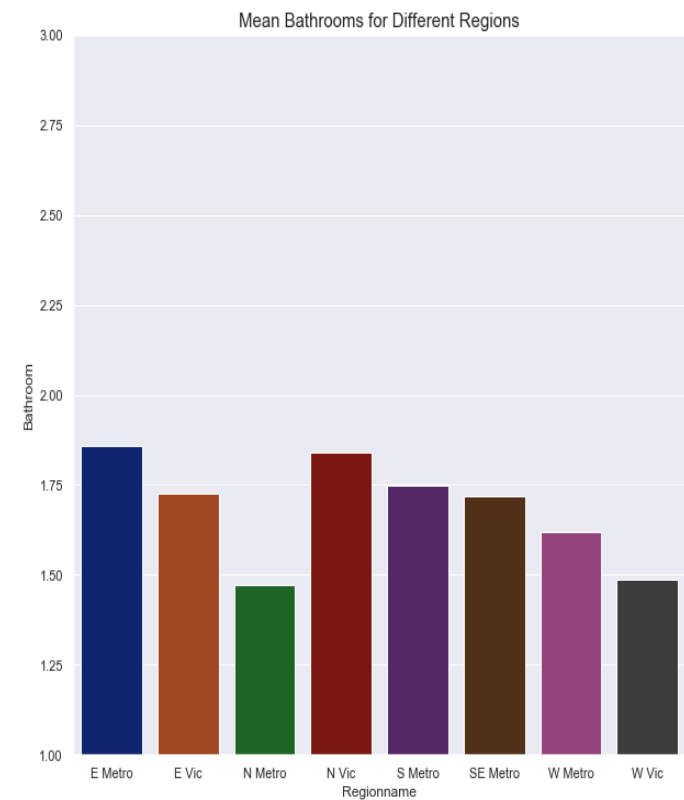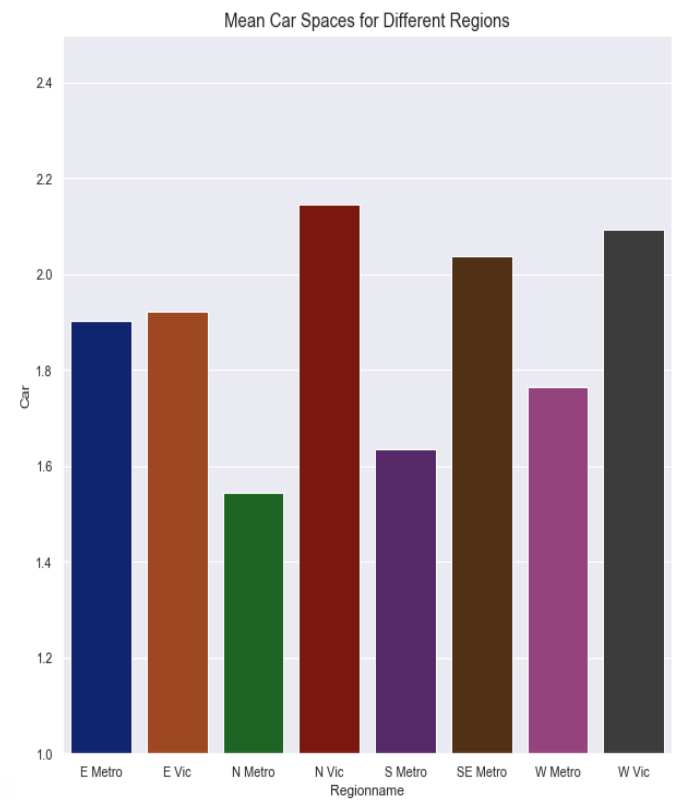
BOX PLOTS FOR PRICE

BOX PLOTS CONT'D

REGULAR MODEL   Variables: 212

R²: 0.9623607328874969
Mean Absolute Error: 178844.63483314586
Mean Squared Error: 104256282331.18521
Root Mean Squared Error: 322887.41432763403
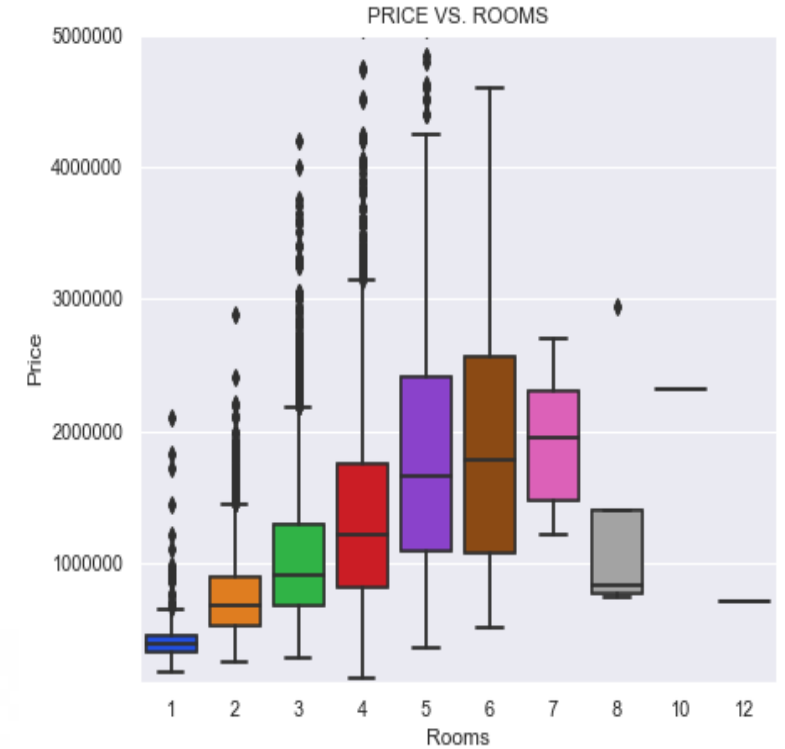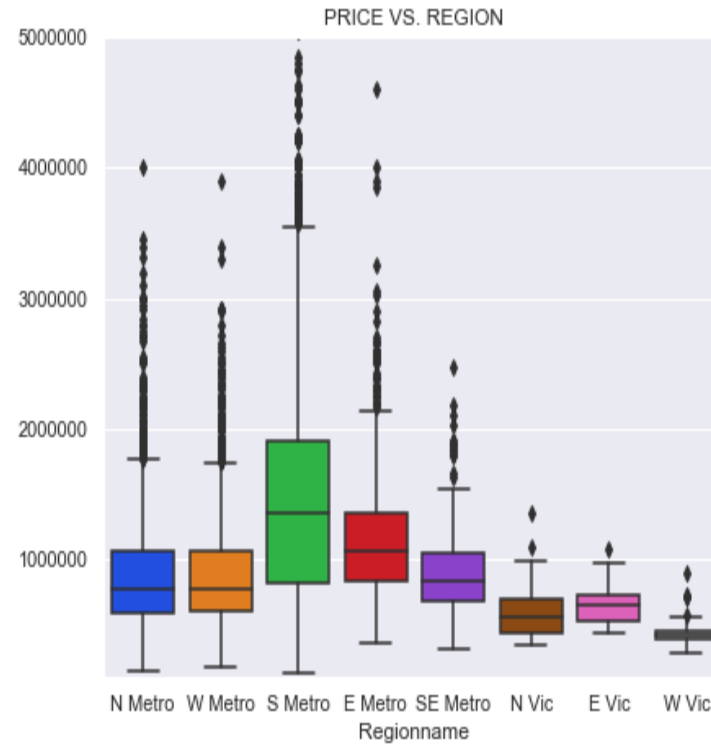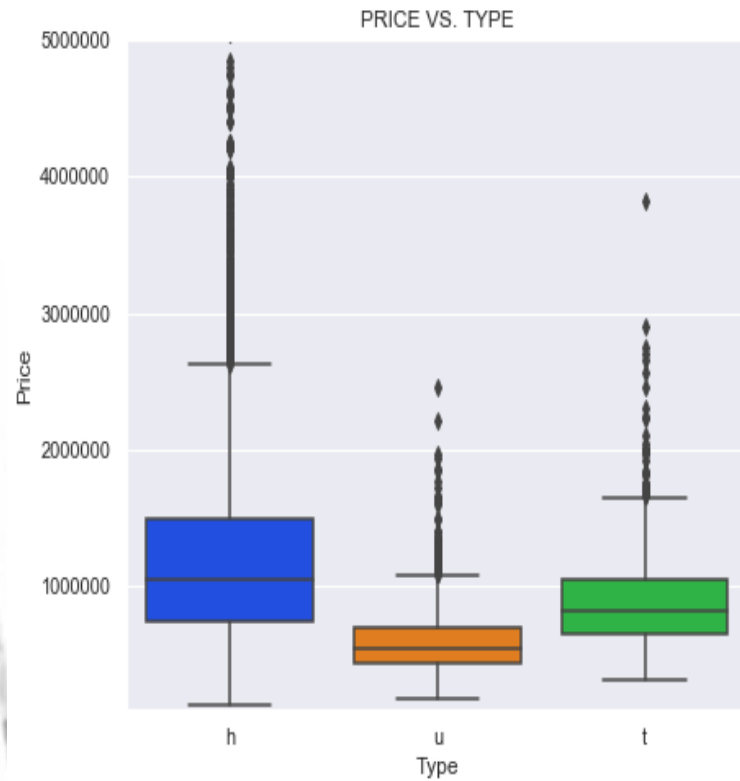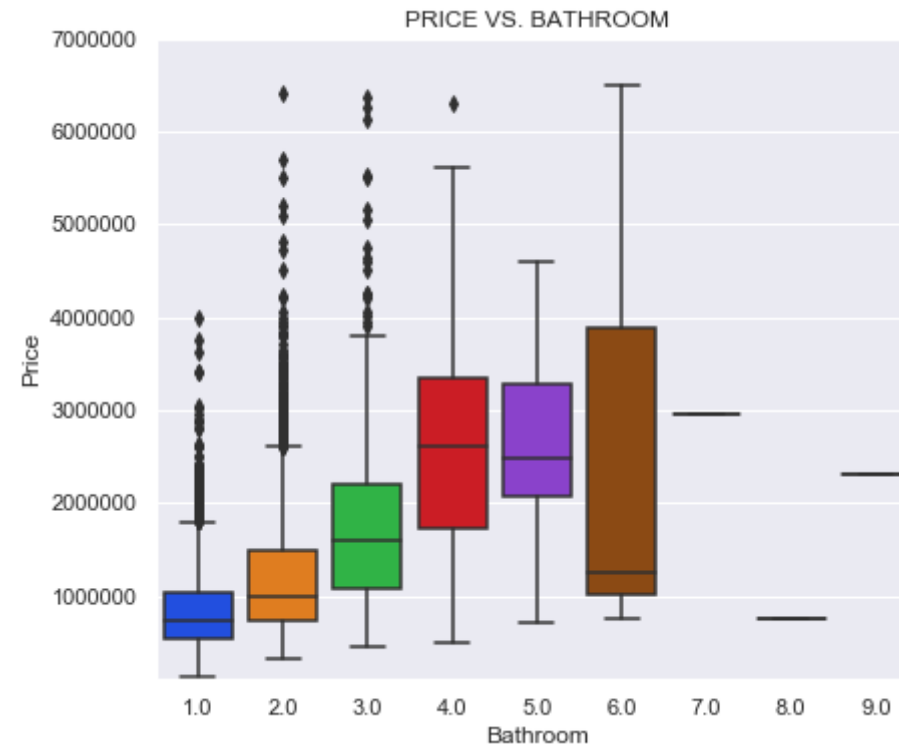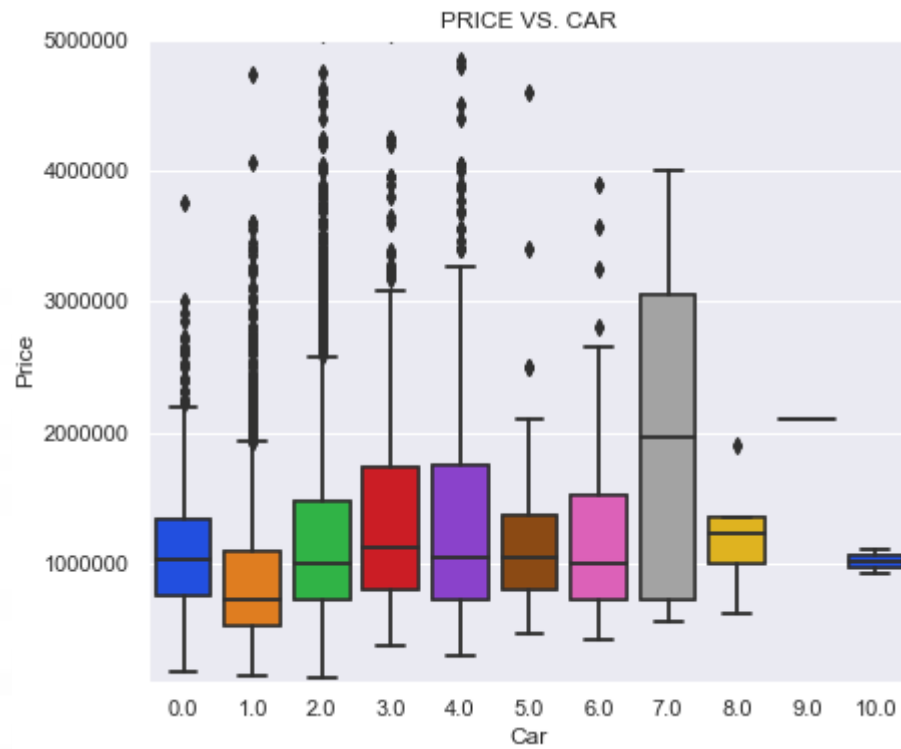
Top Ten Features for Random Forest

	Variables	Feature Importance
0	BuildingArea	0.365973
1	Regionname_S Metro	0.172816
2	YearBuilt	0.126775
3	Distance	0.106060
4	Landsize	0.077645
5	Rooms	0.024881
6	Regionname_E Metro	0.019726
7	Bathroom	0.018416
8	Car	0.011949
9	Type_h	0.008470

Important Features. Random Forest
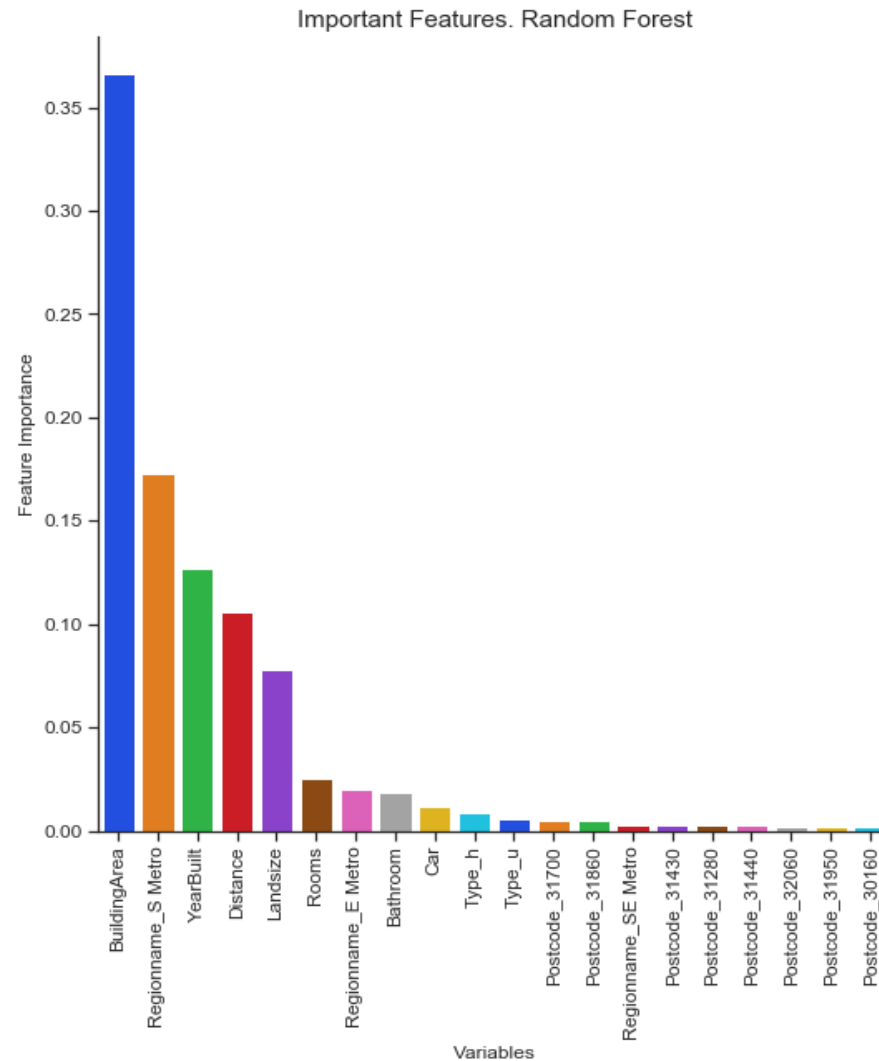
Lowest Ten Features for Random Forest

	index	Variables	Feature Importance
0	202	Postcode_37650	2.842573e-08
1	203	Postcode_39760	1.644759e-08
2	204	Postcode_30610	1.206926e-08
3	205	Postcode_33350	5.826781e-10
4	206	Postcode_39770	5.246907e-10
5	207	Postcode_37770	0.000000e+00
6	208	Postcode_38090	0.000000e+00
7	209	Postcode_34310	0.000000e+00
8	210	Postcode_38080	0.000000e+00
9	211	Postcode_38070	0.000000e+00

Lowest Ten values for Random Forest
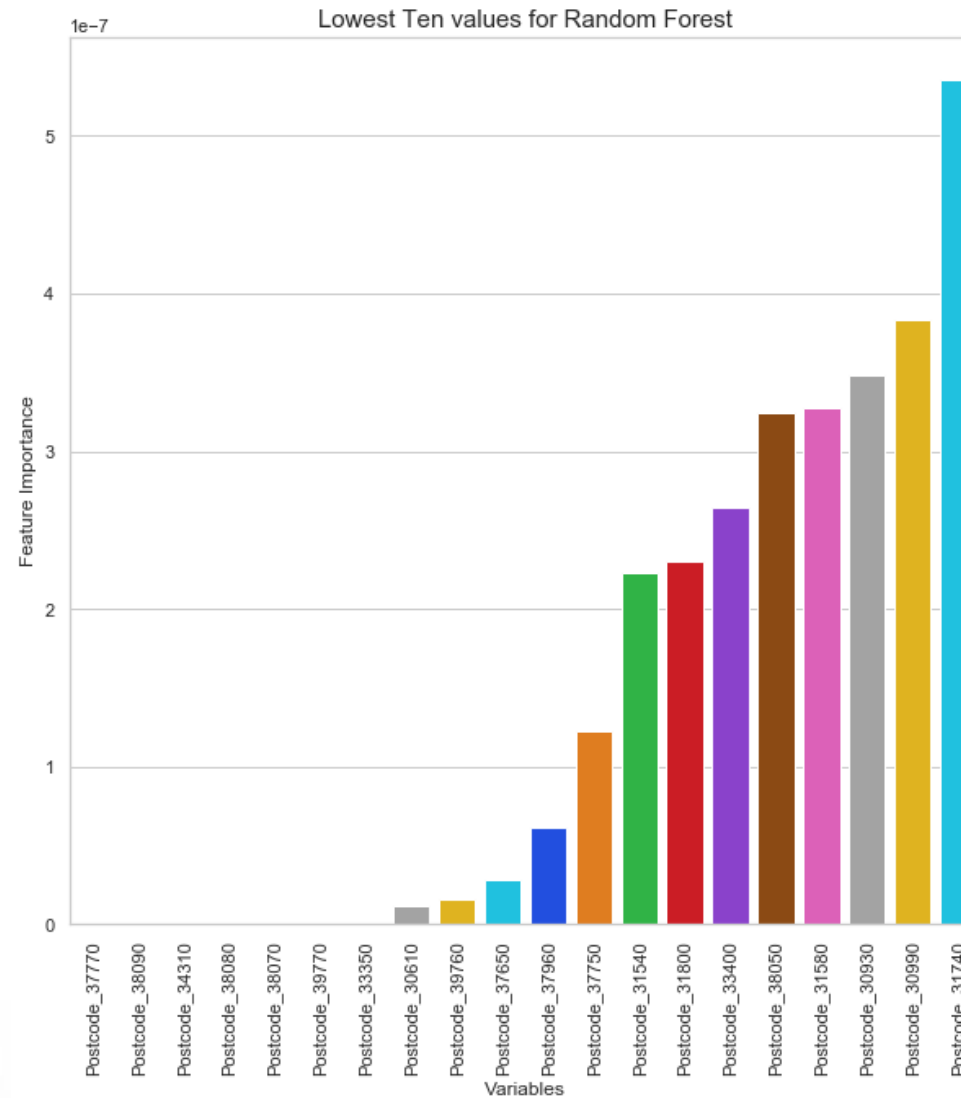
MODEL SCORES

REGULAR MODEL   Variables: 212

R²: 0.9623607328874969
Mean Absolute Error: 178844.63483314586
Mean Squared Error: 104256282331.18521
Root Mean Squared Error: 322887.41432763403

UPDATED MODEL   Variables: 10

R²: 0.9610604225390874
Mean Absolute Error: 191460.99767796884
Mean Squared Error: 105921242887.02745
Root Mean Squared Error: 325455.4391725962

FINDINGS

❑ Most important factors impacting price of housing in Melbourne are ranked as follows.

1. Building Area
2. South Metro region
3. Year built
4. Distance
5. Landsize
6. Rooms
7. East Metro region
8. Bathroom
9. Car space
10. Home

FINDINGS CONT'D

❑ E Vic, N Vic, W Vic appear to have cheaper price, large distance, large land size, more car space constructed in 80's and 90's.

❑ E Metro, N Metro, S Metro appears to have higher price, short distance, less land size, slightly less car space and 50's, 60's construction

❑ SE Metro appears to be expensive at a distance with 2 car spaces and mid 70's construction.

❑ W Vic appears to be cheapest in price, 3rd largest in distance, small land size, larger building area, more rooms, car spaces and less bathrooms.

❑ The supervised learning model appears to have high variance and low bias