Predicting House Prices with the King County Housing Dataset

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Process

01 Data cleaning and preprocessing

02 Exploring the data

03 Building linear models

04 Interpreting model results

Feature Correlations

Correlations with Price

	Correlations	Features
0	0.336450	bedrooms
1	0.527590	bathrooms
2	0.661318	sqft_living
3	0.302772	floors
4	0.331015	view
5	0.690809	grade
6	0.581063	sqft_above
7	0.599692	sqft_living15

Notes

-Features that were highly correlated with price were considered for inclusion in the model.

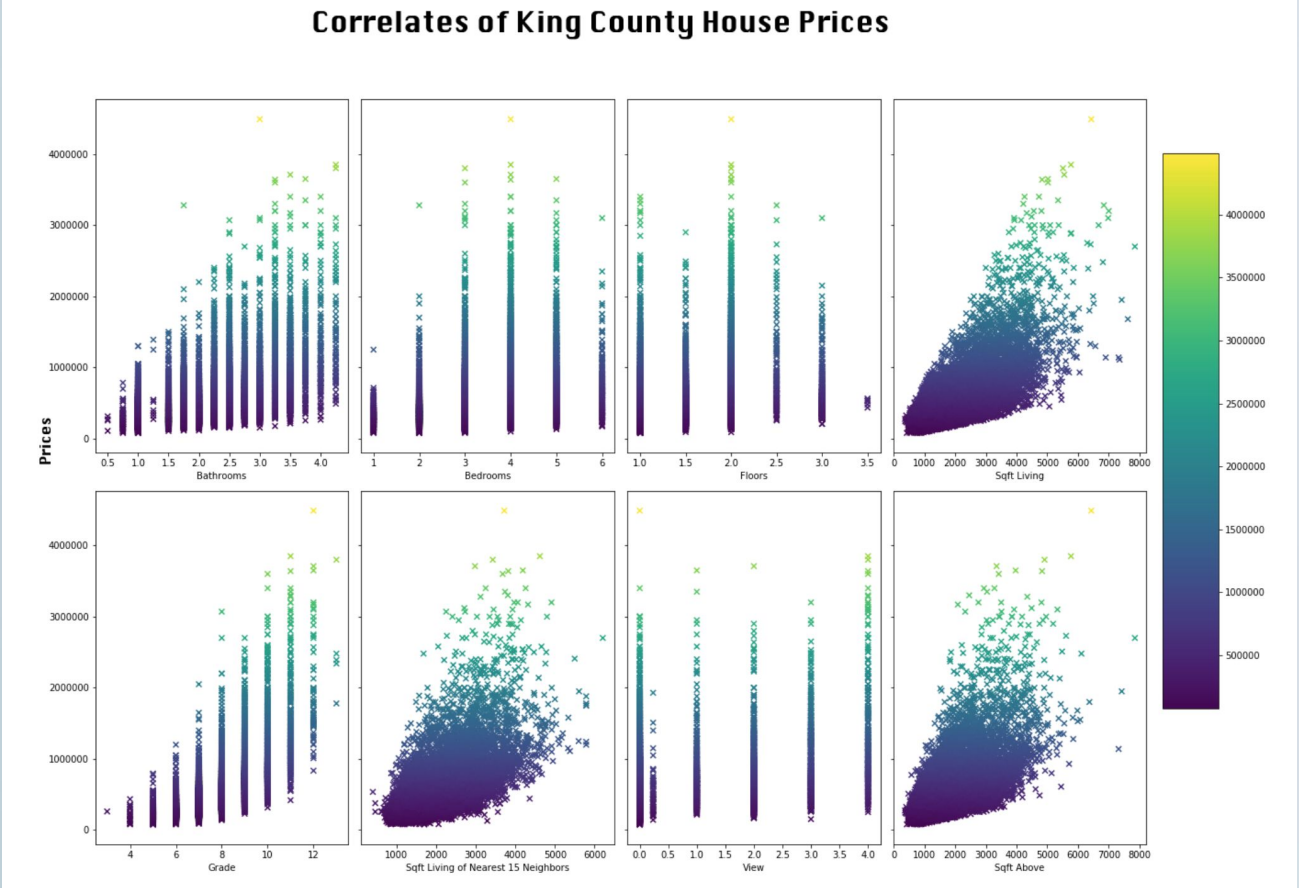
-Combinations of highly multicollinear features were avoided.

Multicollinear Features

	Correlations	Features
0	0.827893	[sqft_living, sqft_above]
1	0.919460	[sqft_lot, sqft_lot15]
2	0.827893	[sqft_above, sqft_living]
3	0.919460	[sqft_lot15, sqft_lot]
4	0.812117	[3, 4]
5	0.812117	[4, 3]

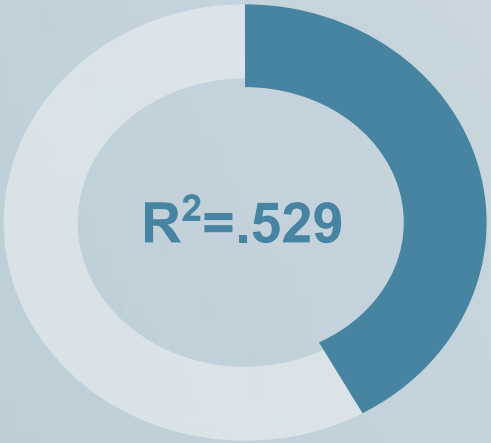
Notes

- View, floors, and bedrooms were excluded from models due to a weak linear relationship



Final Model and Results

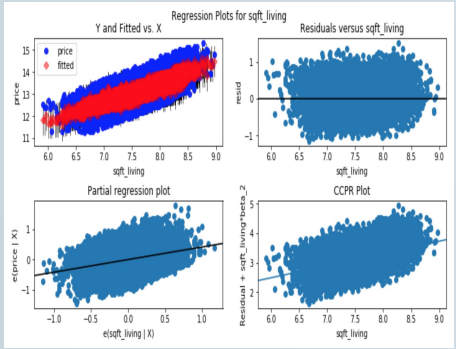
price ~ sqft_living + grade

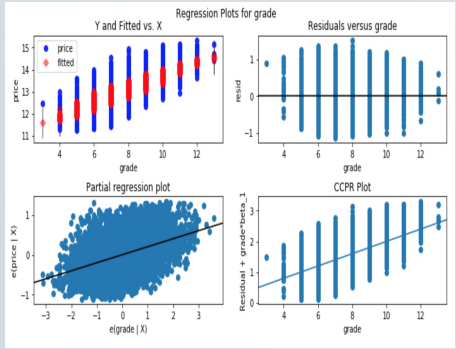


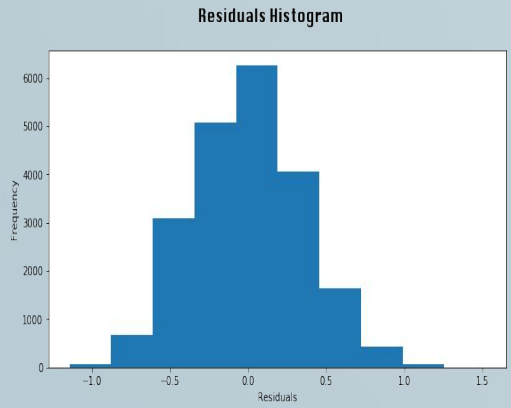
Notes: The model can account for about 53% of the variability in price. We can reject the null hypothesis, which states that there is no relationship between price and the response variables chosen for the model.

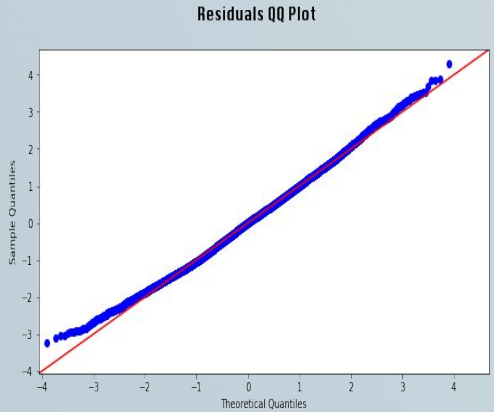
Final Assumption Checks

Homoscedasticity: the residuals for both predictors have equal variance along the regression line.





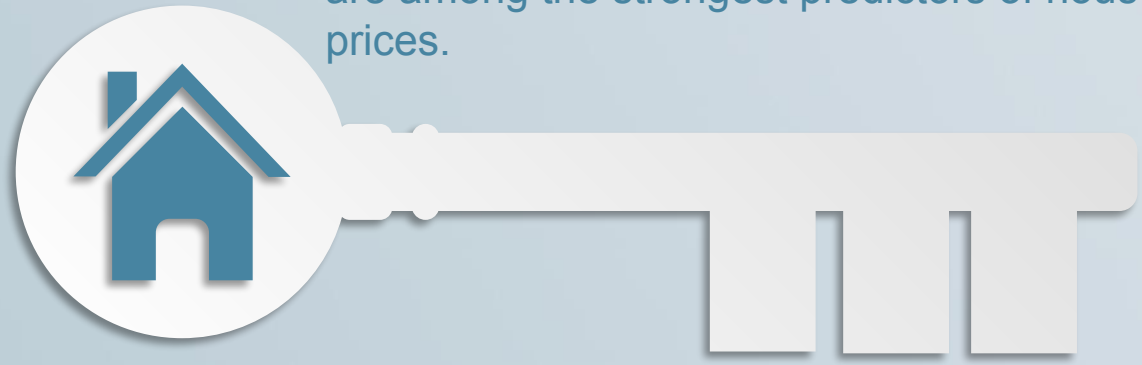




Normality: the residuals follow a normal distribution.

Recommendations

The square footage of a house and its grade are among the strongest predictors of house prices.



Improve construction quality

A house's grade is based on the quality of its construction and design. Renovations can help boost the price of your house.

If possible, expand living area

Lot size is a weaker predictor of price than living area. If you're able to 'build out' (perhaps by adding another bathroom) your house price could increase significantly.

Thank you!