



# Predicting House Prices with the King County Housing Dataset

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# The Data

The King County Housing Data Set contains information about the size, location, condition, and other features of houses in Washington's King County.

After data cleaning:

- 21,000 house sales
- 20 variables



# Process

01

Data cleaning and preprocessing

02

Exploring the data

03

Building linear models

04

Interpreting model results

# 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.

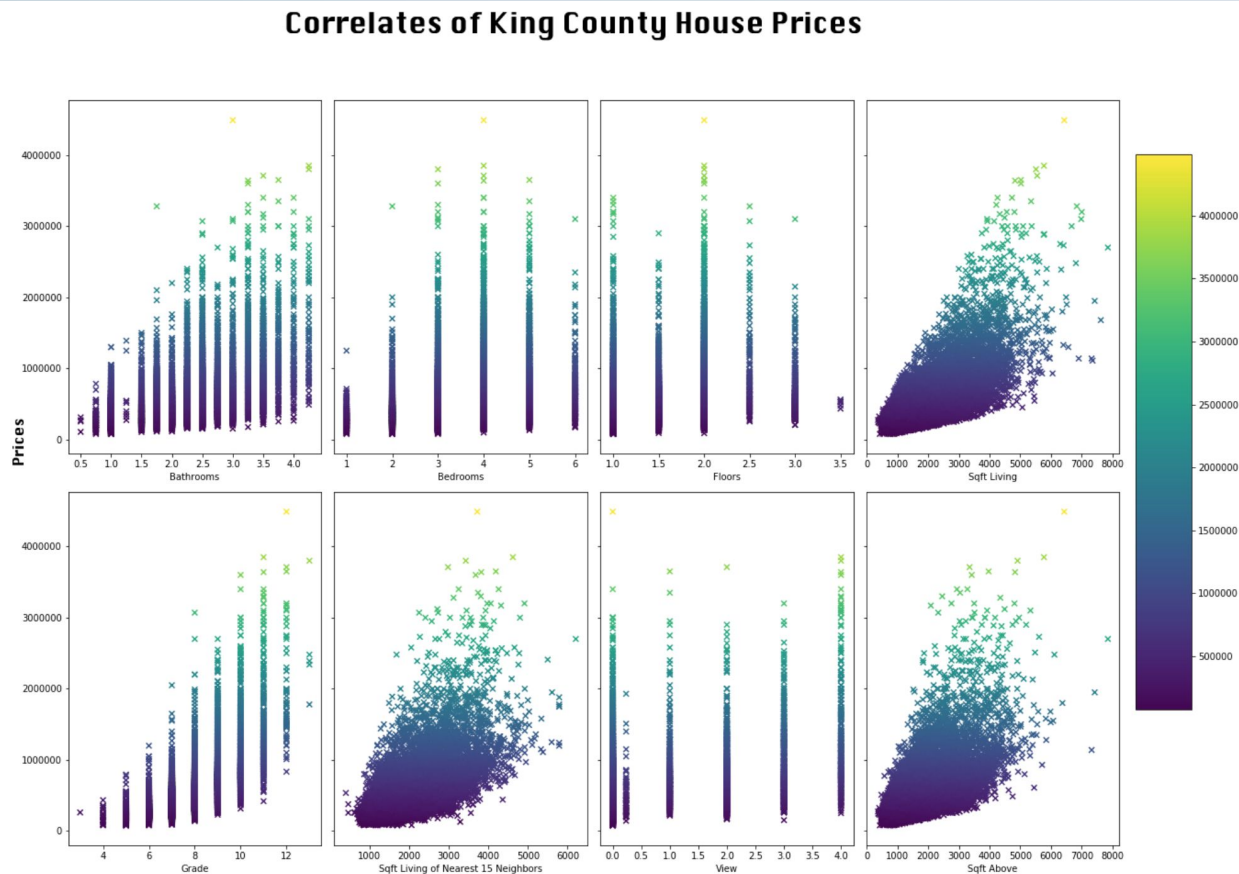
## Multicollinear Features

	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]



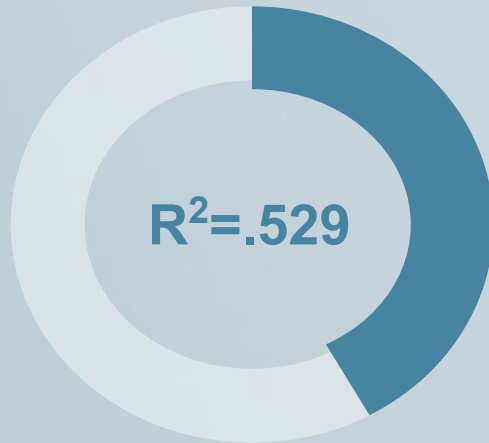
## Notes

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



# Final Model and Results

price ~ sqft\_living + grade

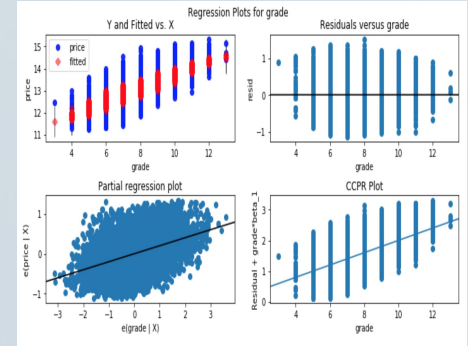
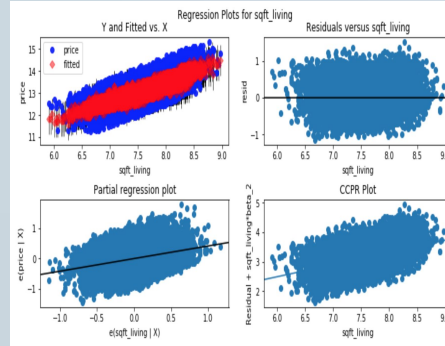


**Notes:** The model can account for about 53% of the variability in price. A p-value of less than 0.05 means that we can reject the hypothesis that there is no relationship between price and the predictor variables.

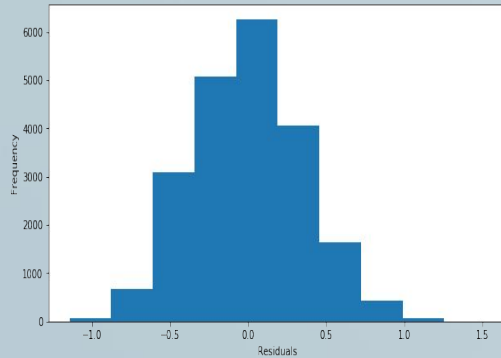


# Final Assumption Checks

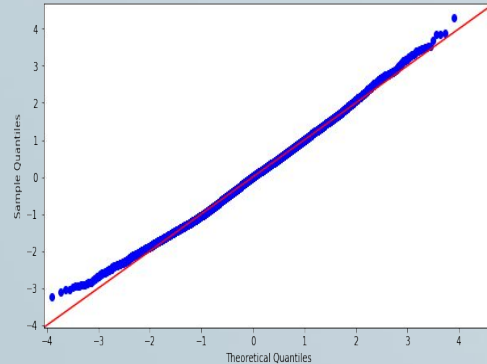
**Homoscedasticity:** the residuals for both predictors have equal variance along the regression line.



Residuals Histogram



Residuals QQ Plot

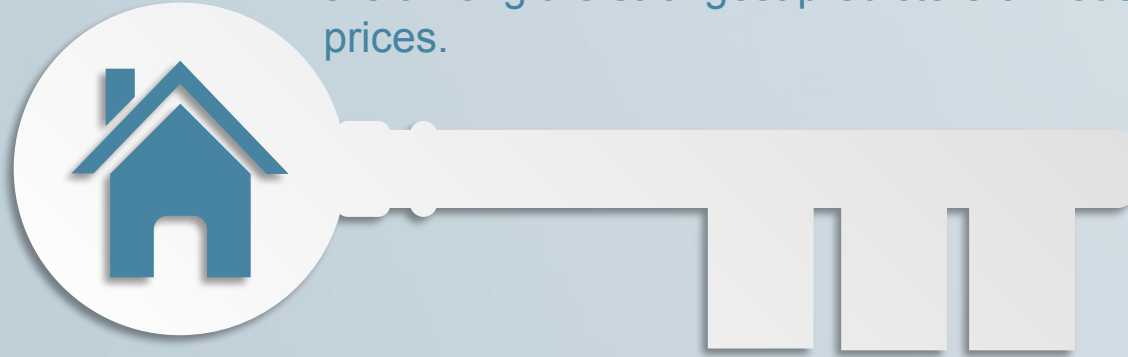


**Normality:** the residuals follow a normal distribution.



# 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!**