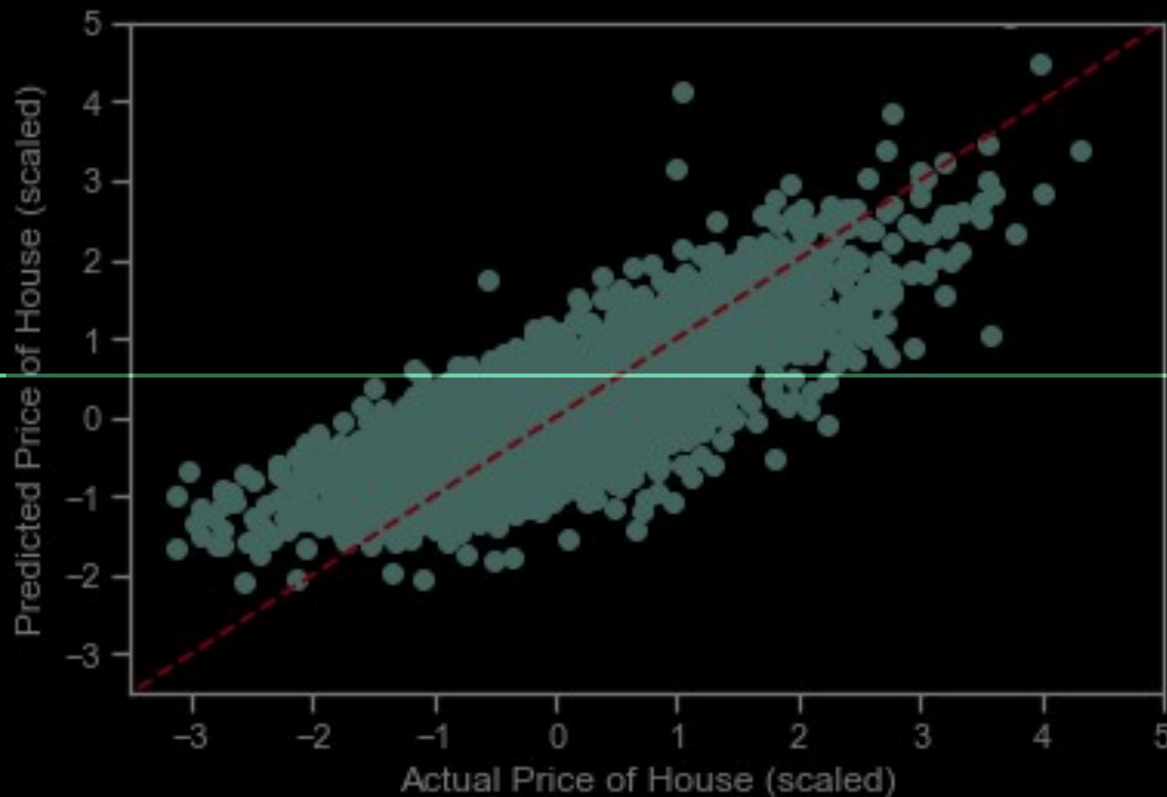


Linear Regression

Project 1

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Background

- Used Kaggle data of houses sold between 2014-2015 in King County, Washington State, USA.
- 21,596 data points with 15 variables each.
- Applied linear regression modeling on the dataset to help people increase their home value.

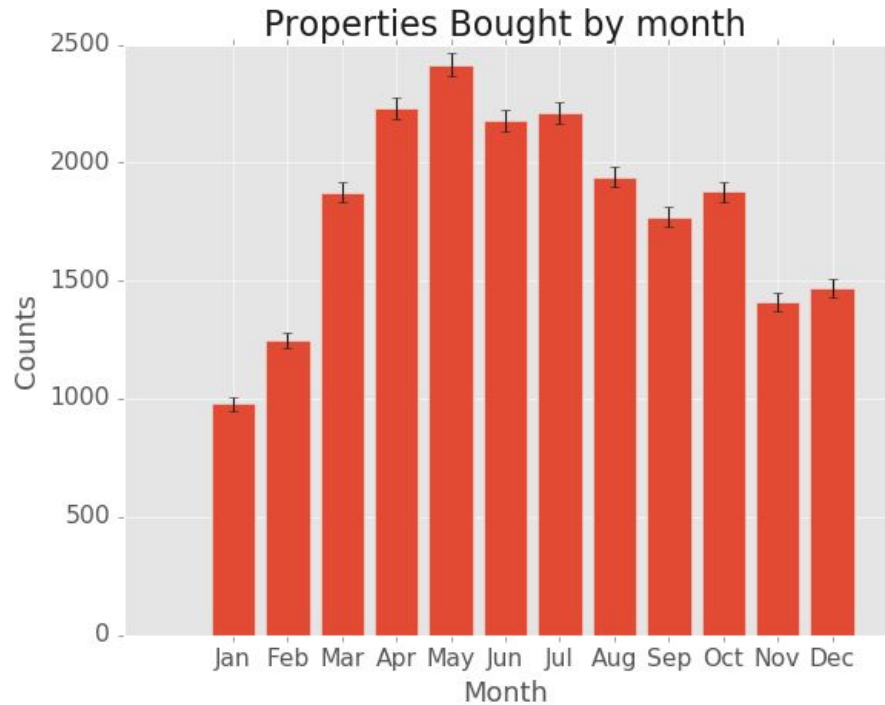
Motivation

We want to investigate the following:

- Which factors contribute to getting a higher profit from selling your home?

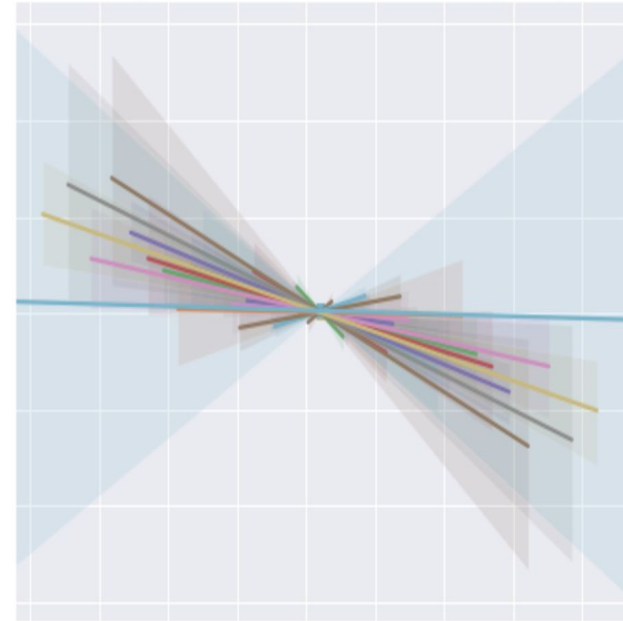


Visualizing our data



Most houses sell in May.

Price trends, since year built (or renovated), grouped by zipcode



Older houses trend to have higher prices for the majority of the zipcodes

Pre-model cleaning

We want to keep variables which are in seller's control, and those

Dropped columns:

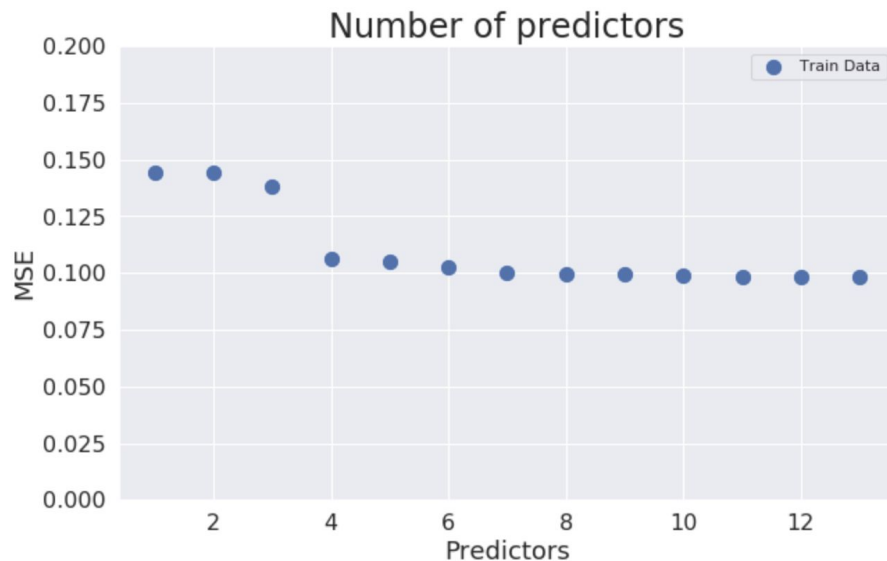
| | |
|-----------------------|------------------------------|
| ID: | no correlation |
| Waterfront: | incorrectly labeled |
| Sqft_basement: | redundant variable |
| Zip code: | only 307 data on avg. points |
| Lat/Long: | people can't control this |



Creating and running our model

After our data was cleaned we.....

1. Scaled variables with larger values (price with log, square feet areas with min/max scalar)
2. Split the data: 80% train, 20% test.
3. Used Sklearn feature selection library to select the top p-value variables.
4. Fit the model for validation using OLS Regression.
5. Analyzed the fit coefficients to interpret the results.
6. Predicted on the remaining dataset for confirmation.



Implication of our model

- Each time your home gets **viewed** it adds about a **6% price increase**.
 - Conclusion: Do some open houses, do some fancy yard work, get your place noticed!
- If you **add a floor** to your home (also increasing square foot), you get a **over 12% price increase**.
 - Conclusion: Add a floor to your home or increase square footage.
- If you **increase the grade** of your home by 1, you get a **25% price increase**.
Grade scale is from 1-13 and can be found here: [Here](#)
(1 you live in a cabin, 7 is average, 13 is mansion quality)
 - Conclusion: Increase your grade by adding solid wood interiors etc.
- **Adding or having a basement** adds about a **15% price increase**.

Thank You!

Check out our code: