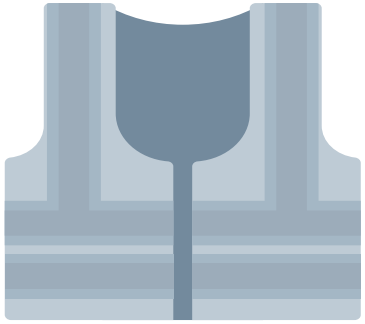
Insight on the impact of renovatable aspects of a house

Problem Statement

Investigate on what renovatable features of a house will impact the sale price the most.

Target audience:

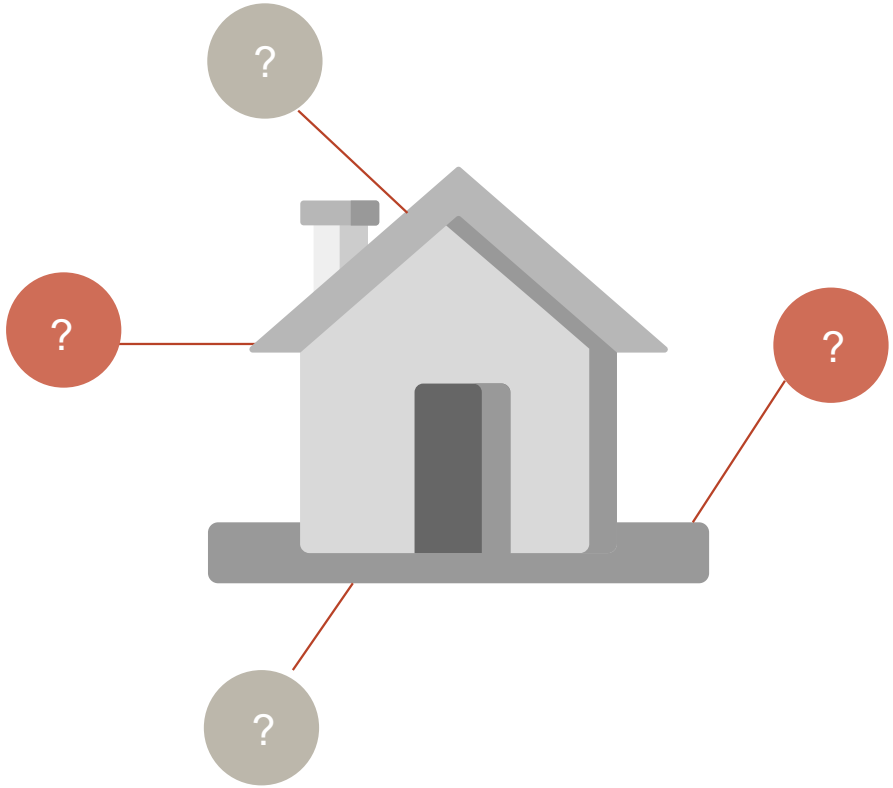
Property developers



Home sellers

Renovatable Features in Question:

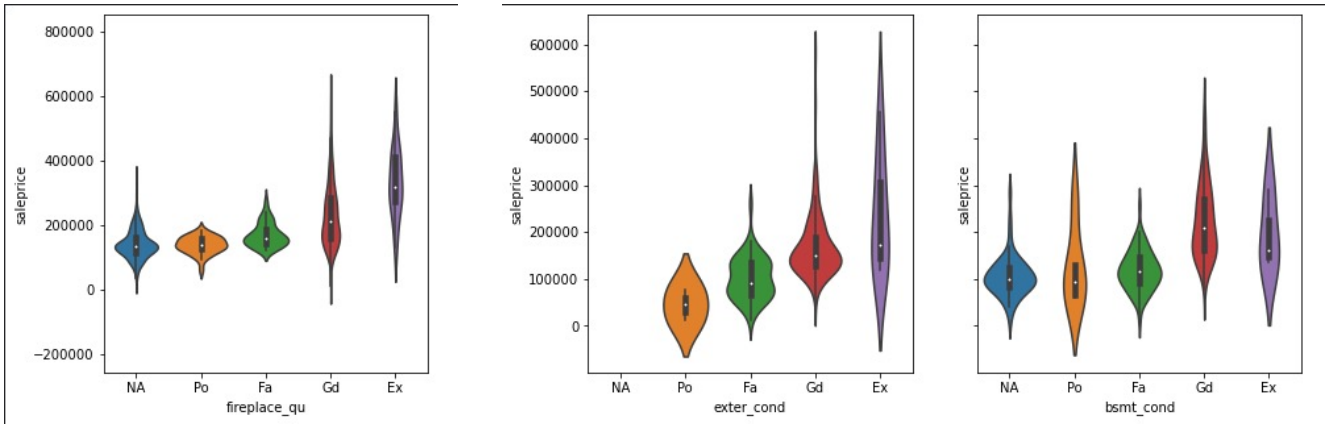
- Roof
- Basement
- Garage
- Heating/ Electricity
- Air conditioning
- Kitchen



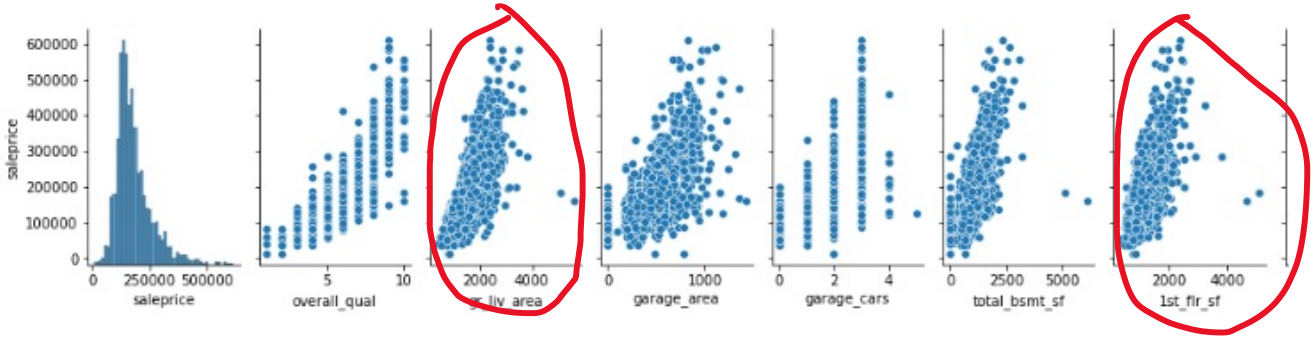
- Fireplace
- Driveway
- Alley
- Pool
- Fence
- Miscellaneous

Insight on features vs Sale Price

Reno features:



Other features:



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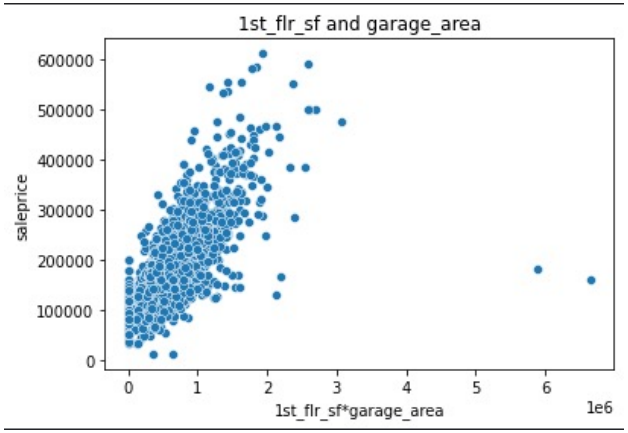
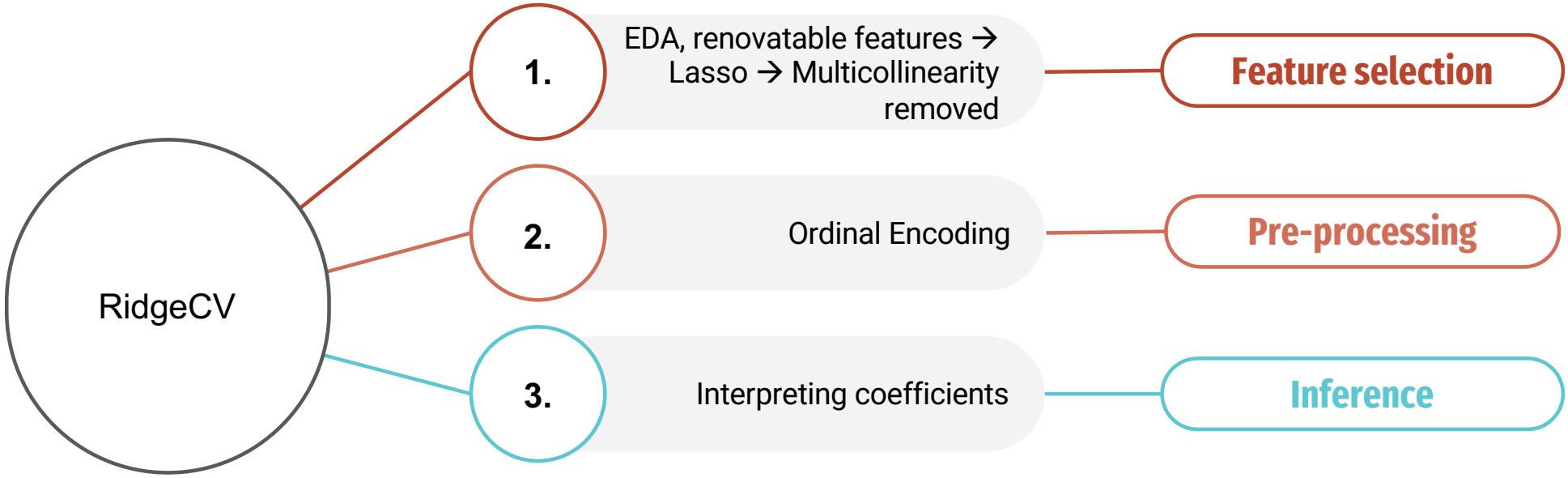


Model orientation



R2: 0.79

RMSE: 20164.53

Concerns with multicollinearity

Multicollinearity between features was unavoidable when including a large amount of renovatable features.

Solution:
Only the extremes were removed in an attempt to remove multicollinearity. This should be taken into account when observing coefficients.

Interpreting the coefficients

Ranking scheme:

1. NA
2. Po
3. FA
4. Gd
5. Ex

Importance of renovations

Strongest coefficient in our model:

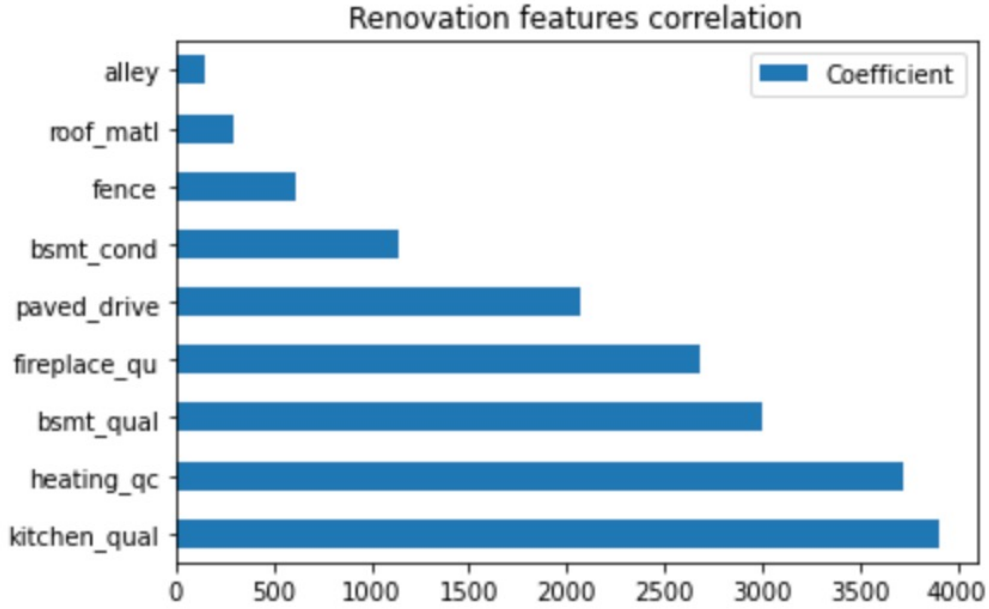
Overall_quality

Coefficient:
12877.43

Interpretation:
Increase in price by $12,877.43 when upgrading in an increment of quality.

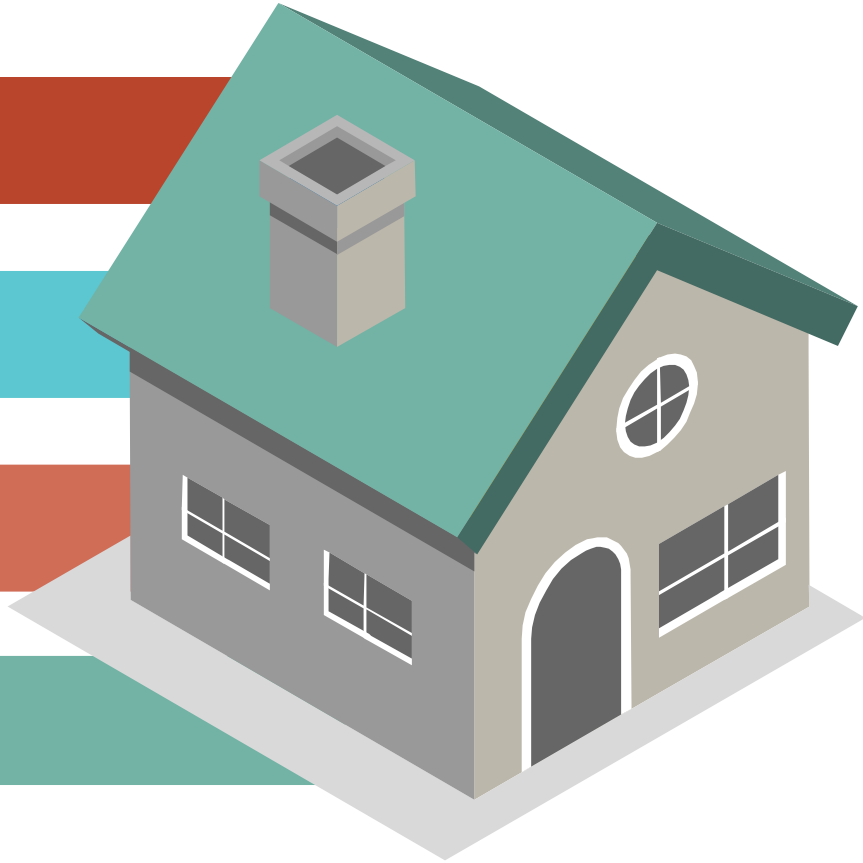
What made the cut?

	Coefficient
kitchen_qual	3902.647710
heating_qc	3725.897101
bsmt_qual	3000.464717
fireplace_qu	2679.480179
paved_drive	2070.294294
bsmt_cond	1140.100386
fence	613.048192
roof_matl	298.783425
alley	153.035861



The top renovatable features

01	Kitchen	+$3902.65
02	Heating	+$3275.90
03	Basement	+$3000.46
04	Fireplace	+$2679.48



Conclusion and recommendations

Impact of renovations on quality metrics

Usually result in a jump through several ranking increments:

'Po' → 'Ex' = β x 3

Renovations aren't everything

Renovatable features all together only explain 30% of the variance in saleprice

Use of model for only for guidance

Should use this model as a recommendation on what to prioritize.