

AA Consulting

The Premium King County Real Estate Consulting Agency

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Agenda

What renovations should Phil and Nancy do in order to maximize the resale value of their home?

1. EDA and data preparation
2. Considerations
3. Our model for predicting home price
4. Conclusion and key takeaways
5. Next steps

Business Objective:

To maximize return on investment for renovating Phil and Nancy's home in King County

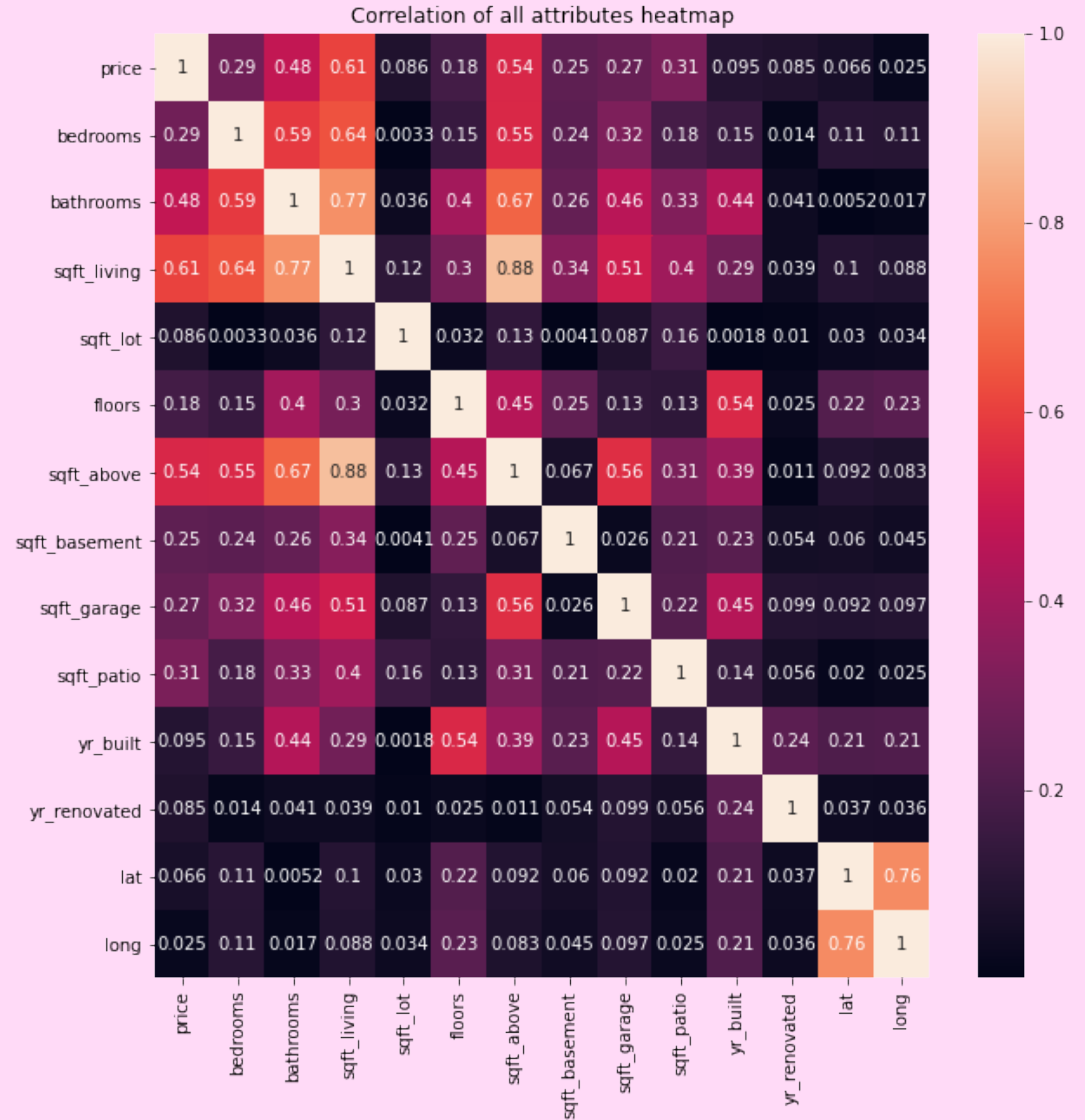
Questions we are hoping to answer:

- What should we renovate?
- When should we sell the house after renovating?
- What is the expected value of the house after renovation?
- What is the margin of error for our calculation?

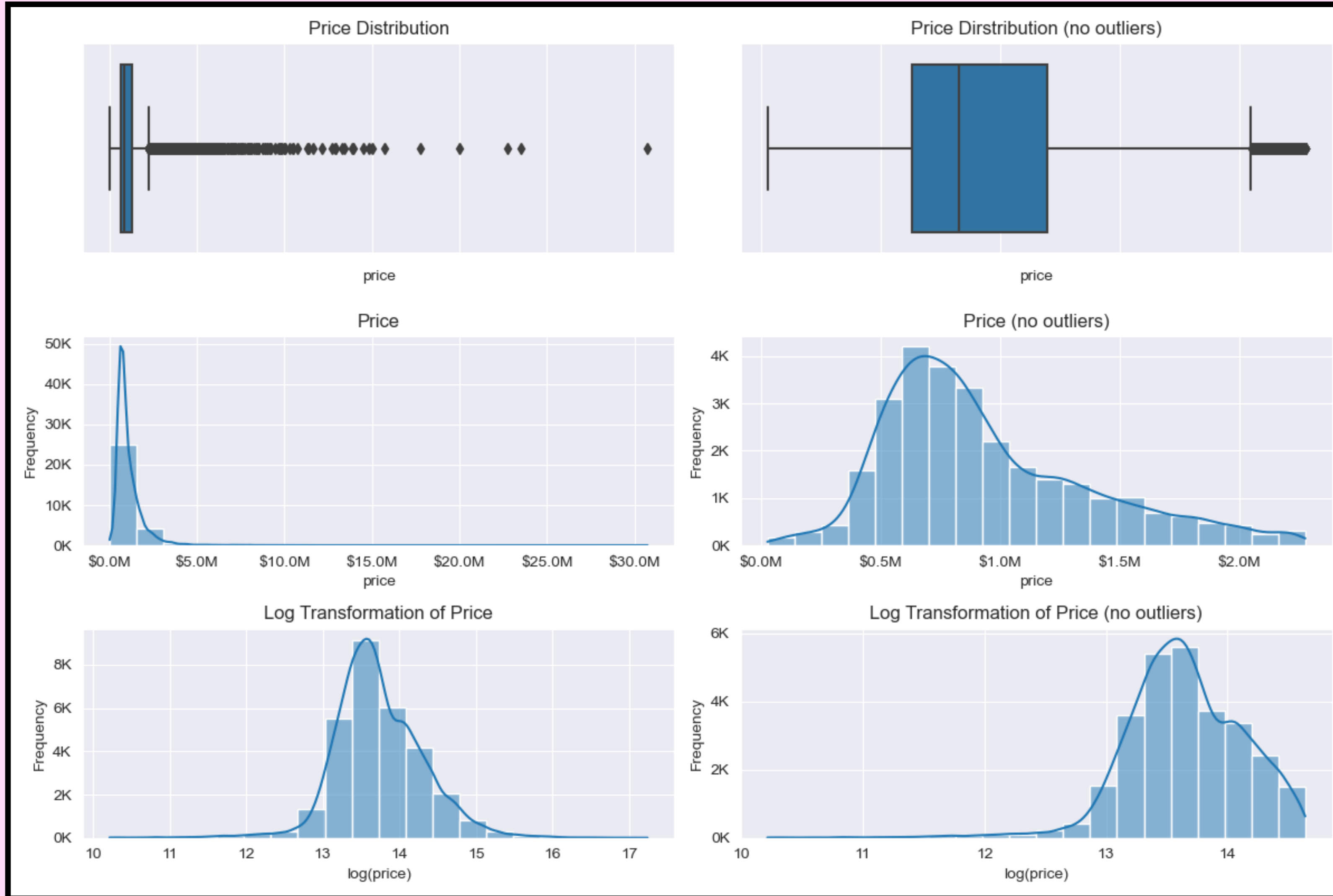
Exploring the Data

We explored the data and found the strongest correlations

- We leveraged home sale data from the King County government website for home sales from 2021-2022.
- Square footage
- Number of bathrooms
- Number of bedrooms
- Then we use statistical modeling to predict prices and considered the signals we received from this initial analysis

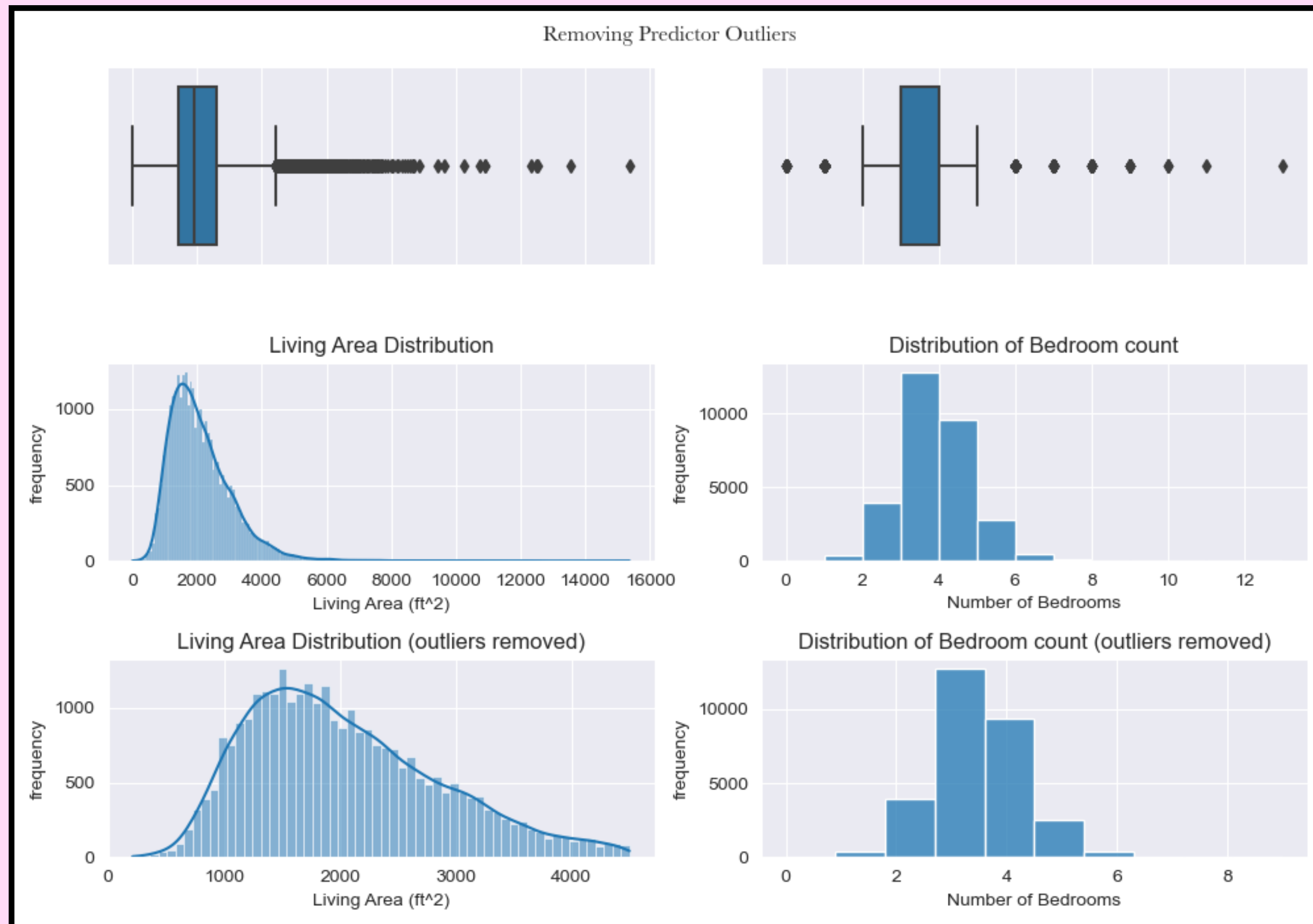


Exploring the Data continued



Considerations and initial findings

We identified some of the strongest predictors after processing the data



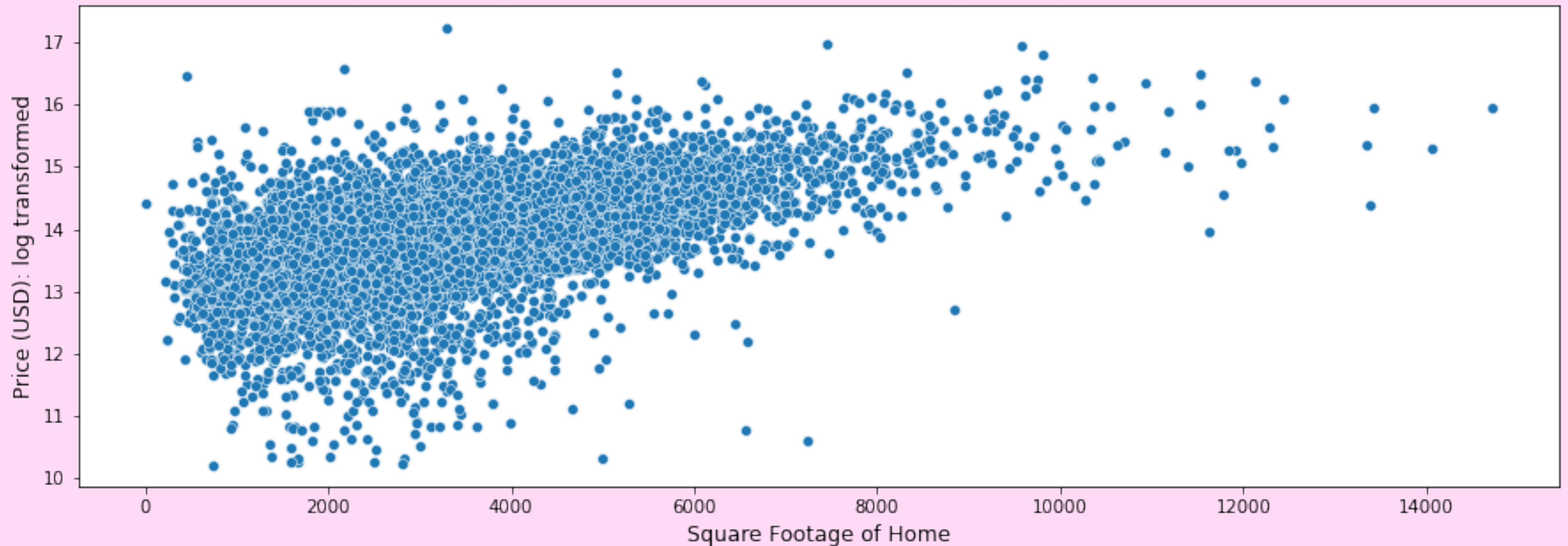
The strongest correlations with price seemed to be:

- The year the house was renovated (later years have higher prices)
- The zip code where the house resides
- The size of the house overall (number of bedrooms, bathrooms, square footage, etc.)
- Waterfront access
- Home grade

How we arrived at our model

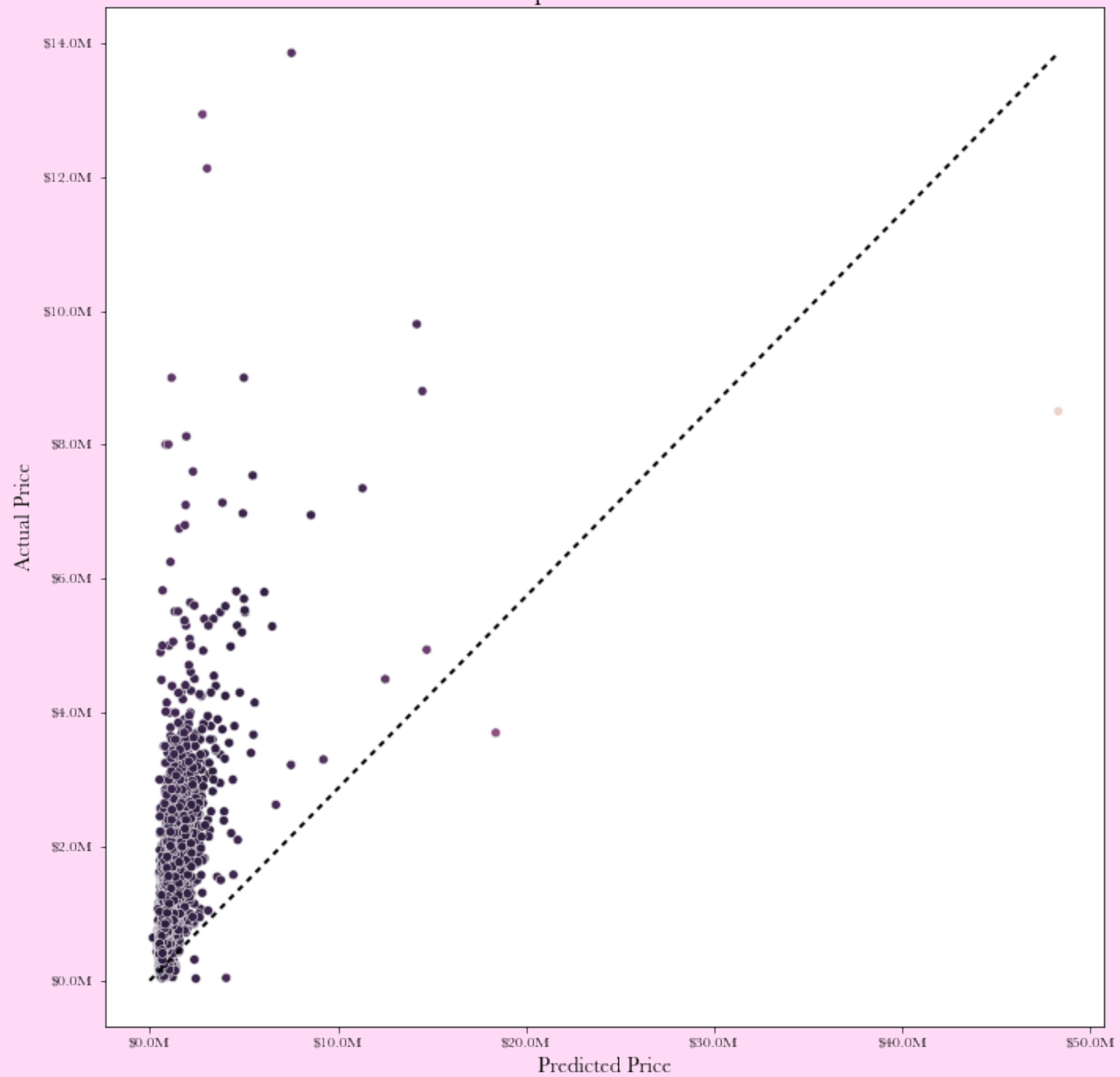
We focused on tangible renovations you can do to increase the value of your home

Square Footage vs. Sale Price for Houses in King County Outliers Excluded



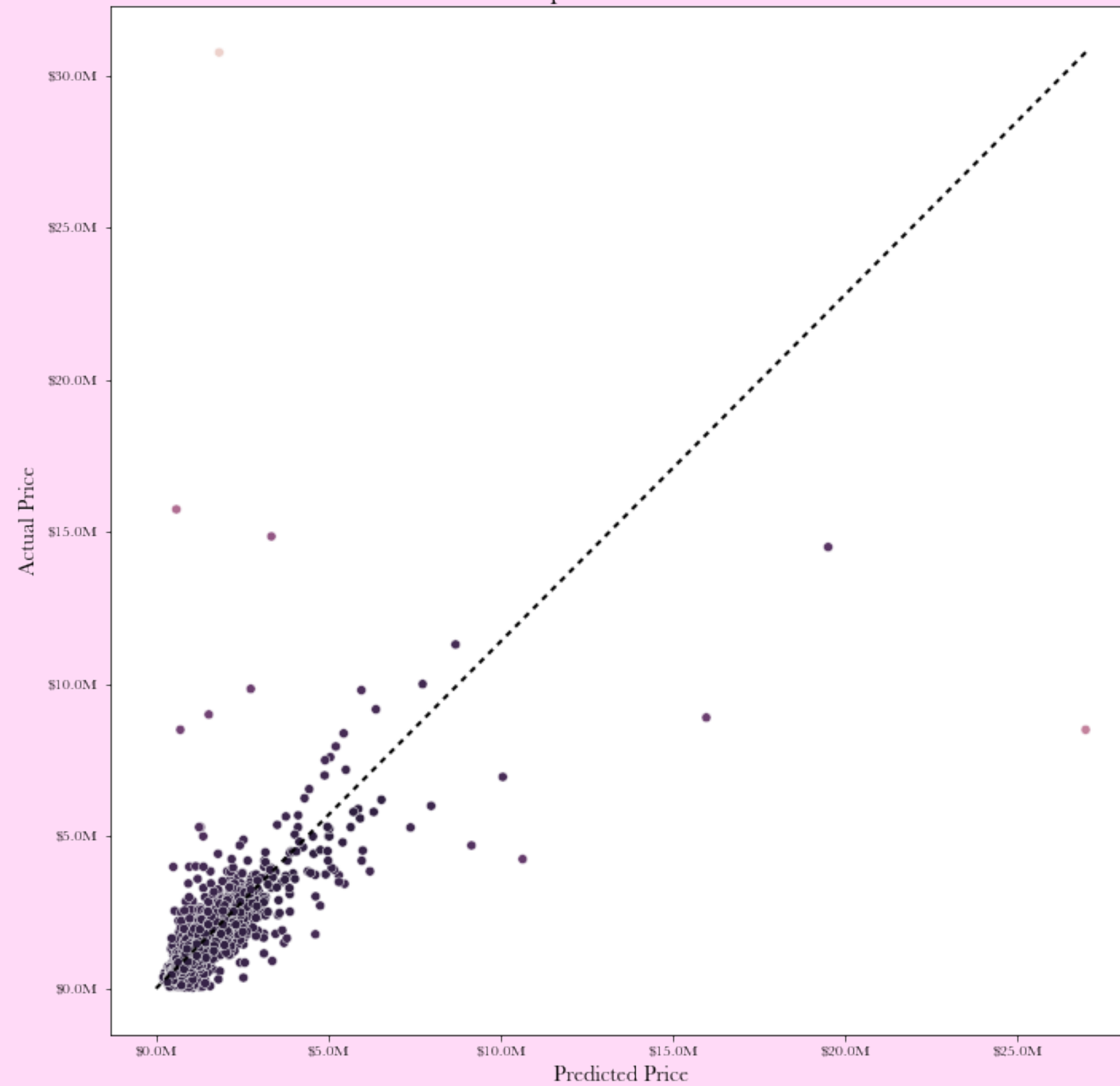
First Iteration

Predicted price vs. Actual Price



Second Iteration

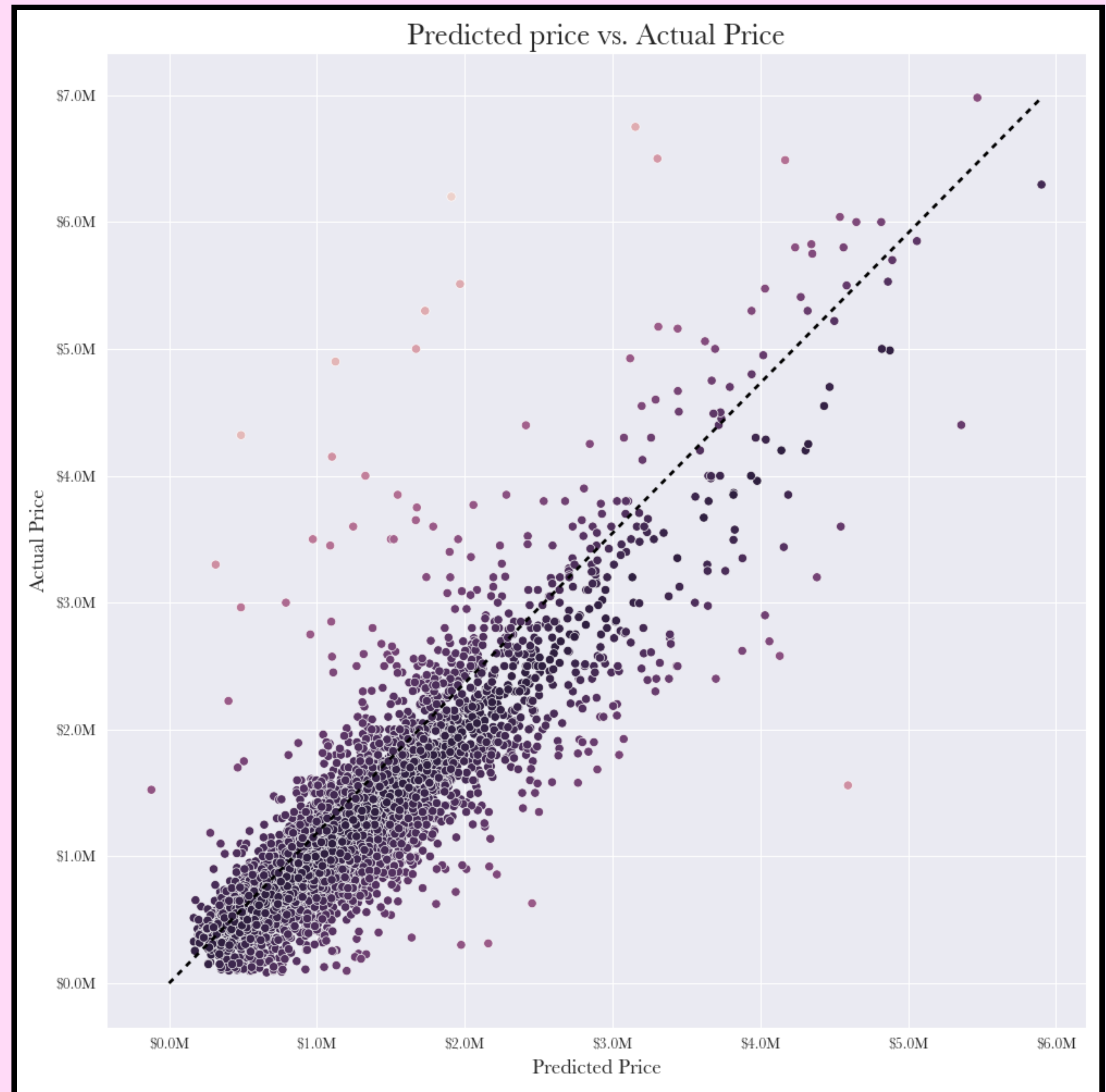
Predicted price vs. Actual Price



Final Predictive Model

For each incremental increase in square feet of the living area, the value of the home increases by about \$102.

- The error is about \$21
- This model can explain 77.7% of the variation in the sale price for homes in King County



Key takeaways

Our predictions

- For each year that passes since the renovation, home value decreases by \$-4,104 +/- \$259
- Each incremental increase in square feet of the living space increases home value by \$102 +/- \$21
- Each incremental increase in square feet above increases home value by \$139 +/- \$44
- Each incremental increase in grade increases home value by \$83,408 +/- \$55,549
- Each incremental increase in condition increases home value by \$75,529 +/- \$15,187
- The presence of a waterfront increases home value by \$456,097 +/- \$6,606

Conclusion

Renovate and sell as soon as you do

- List your home as soon as possible following the renovation
- Increase the living area of the home including the first floor and the floors above
- Hire one of our certified contractors to improve the grade of your house in the renovation by using quality construction materials and methods
- Renovate without decreasing your lot size

Next Steps

How we could improve this model

- We could feed more data into this model, such as crime, education, and demographic data
- Our model can only predict so much, we still have a significant margin of error
- This data was collected during Covid-19 which heavily skews our results
 - The market conditions present when this data was collected may be different now

Thank you

<https://github.com/alexanderdaffara/HousingSalesRegression>

Alex Daffara and Andre Barle: AA Consulting

Appendix

Column names of most predictive features for home sale price

- yr_renovated
- yr_renovated**2
- Waterfront
- sqft_living
- Grade
- sqft_above
- sqft_lot

Return on Investment calculation for square feet above

- Seattle cost per square foot is \$141.74
- If the renovation is 250 square feet
- Net Return = -\$685
- Cost = \$35,435

$-\$685 / \$35,435$

Initial ROI = -1.933%