



# Predicting Home Prices

How understanding the predictions can  
help you make money



# Agenda

- What data are we looking at?
- What do we see in the data?
- How does the model work?
- How can you use these insights to increase the value of your home?





# Data Summary

# What's inside the data set?

## What data are we looking at?

- Houses Sold in Ames, IA from 2006-2010
- 2930 homes, 82 variables
- Objective quantitative data
  - Square footage
  - Lot area
- Subjective qualitative data
  - Exterior quality
  - Kitchen quality
  - Overall quality/condition



## Any issues with the data?

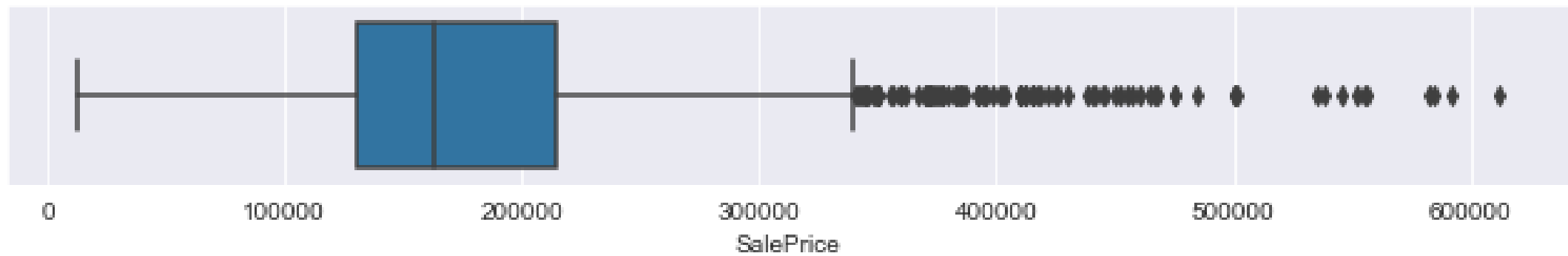
- For subjective home features like exterior quality, we don't know how the rating was derived.
- A few outliers with large square footage and partial sales, also a garage that was built in 2077!
- A lot of 'missing' data that implied that the homes didn't have those features. E.g. Pools



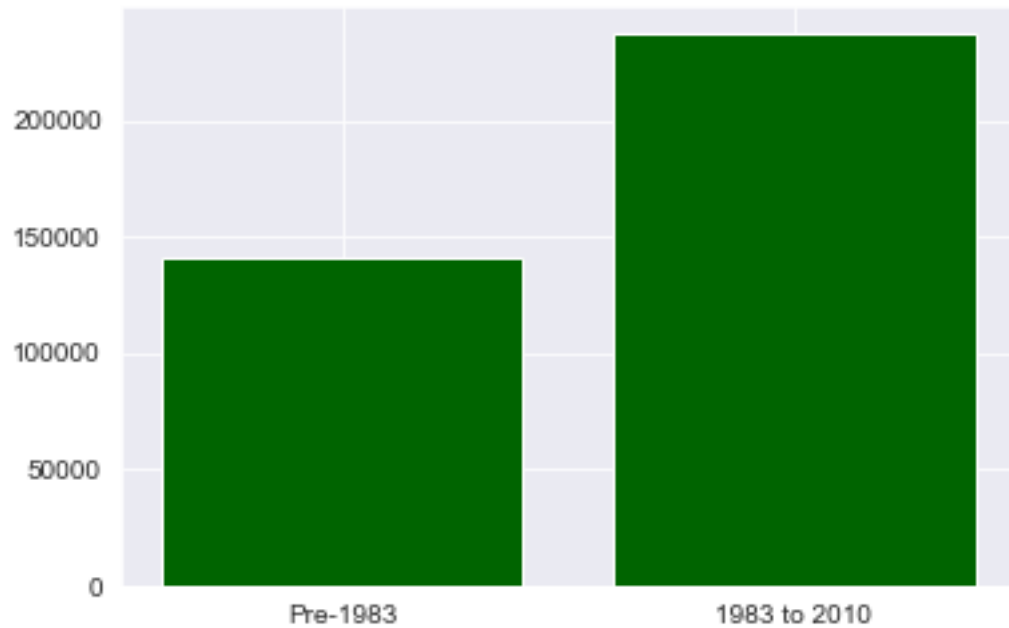
**Let's look at some visualizations!**



## Distribution of Sales Prices



Mean sale prices for homes built  
before 1983 and post 1983



## Age of Home and Sale Price

- Homes prices in Ames, IA jump dramatically when the home has been built after 1983.

# Overall Quality

- Though Overall Quality is a subjective measure, it seems to be a very strong indicator for house price.







# About the models

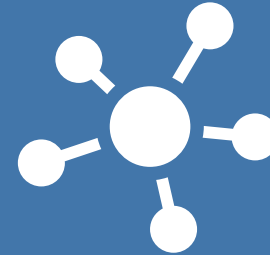
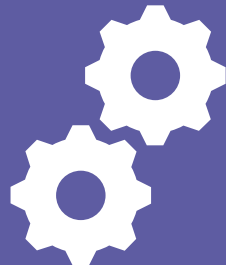
# What was the process?



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We chose a few different models for our purposes—some are more interpretable than others

We fed all the housing data into our models and let the computer crunch the numbers



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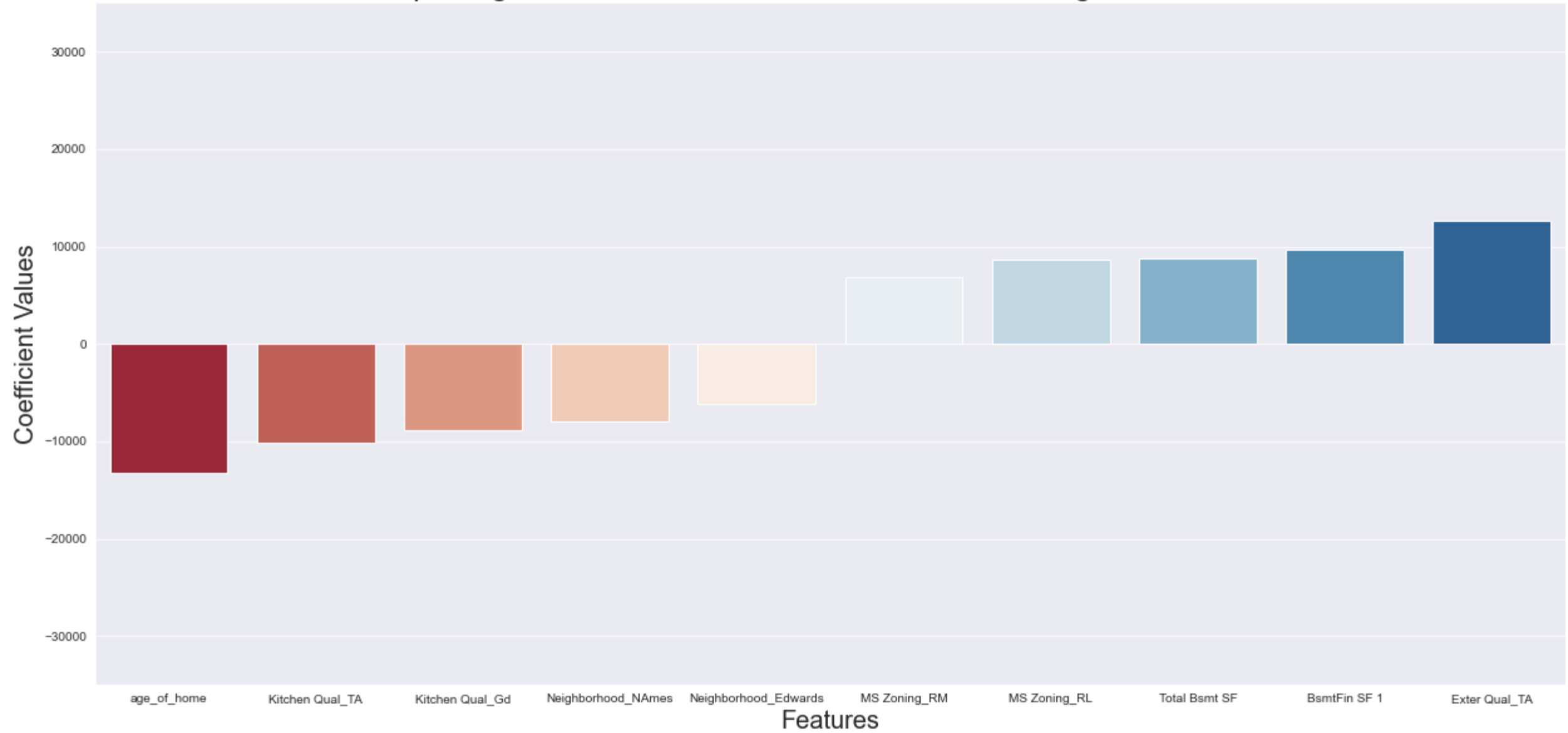
Our models found features of homes that are strongly correlated with home price

And now we get to share those results with you!



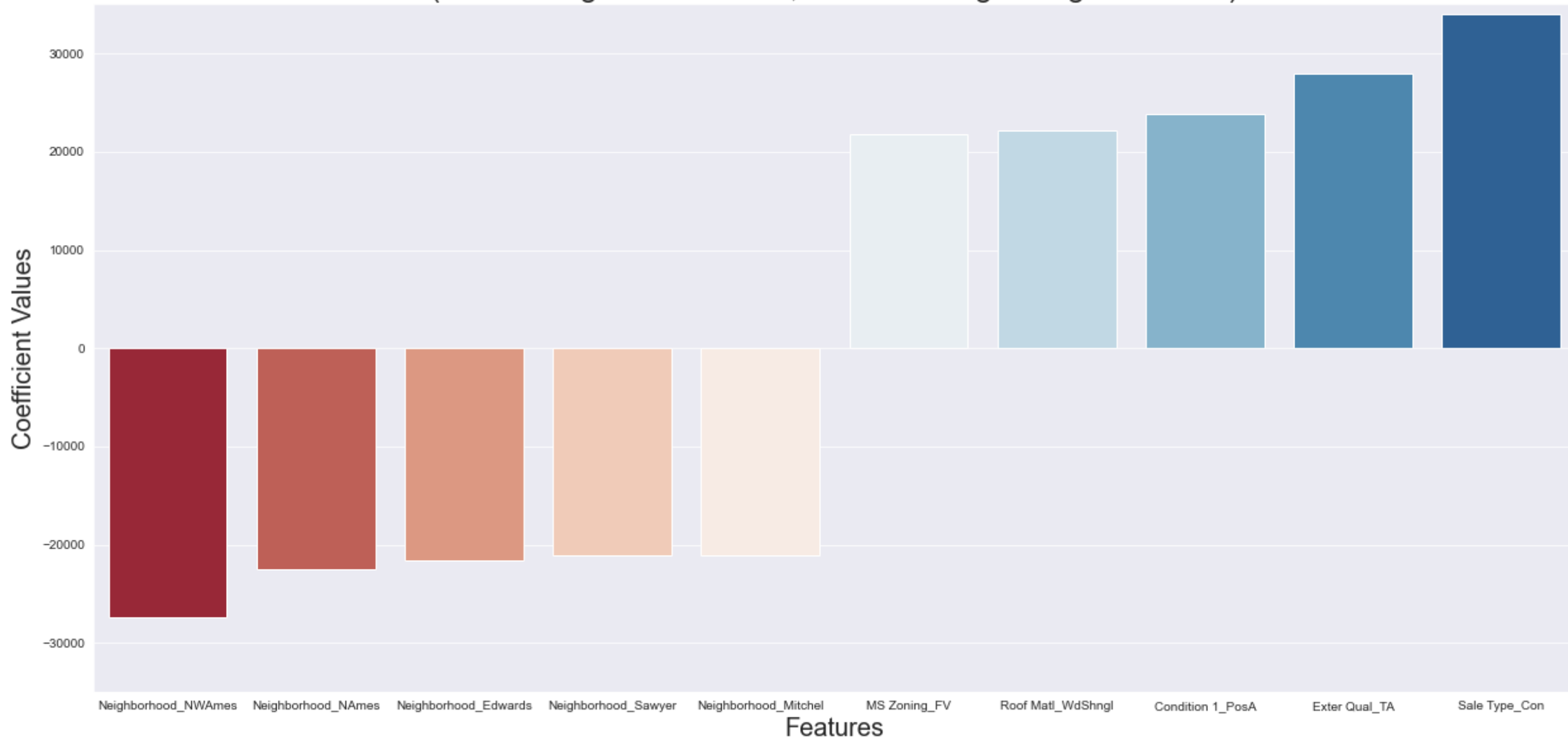


Top 5 High and Low Coefficient Values for Lasso Regression Model





Top 5 High and Low Coefficient Values for Linear Regression Model  
(made using scaled values, then reverting to original values)





# What did we discover?

Upgrade your roof!

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~\$21,000



Remodel your kitchen!

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~\$8,000 - \$10,000

Finish your basement!

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~\$8,000





# Thank you!