

Narrowing Down Advertising: Ames Remodeling Contractors

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Problem Statement

Project Objective

- Which remodeling projects should we focus our advertising on that actually benefit our clients' property values?

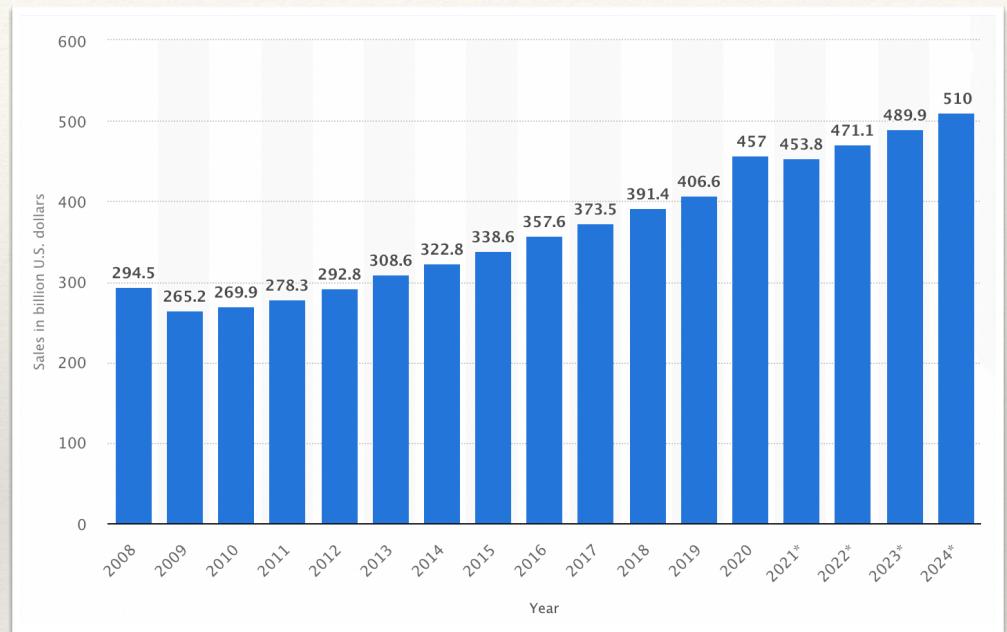


Background

Home Improvement Market Size in the U.S.

- In 2020, home improvement sales in the United States amounted to some 457 billion U.S. dollars.
- By 2024, this amount is expected to reach over 500 billion U.S. dollars.

([source](#))



Background

Competitive Advantage

- Current market value v.s. potential market value after improvements



Linear Regression Model

- Cleaning our data:
 - ❖ Missing values in dataset
 - ❖ Outliers



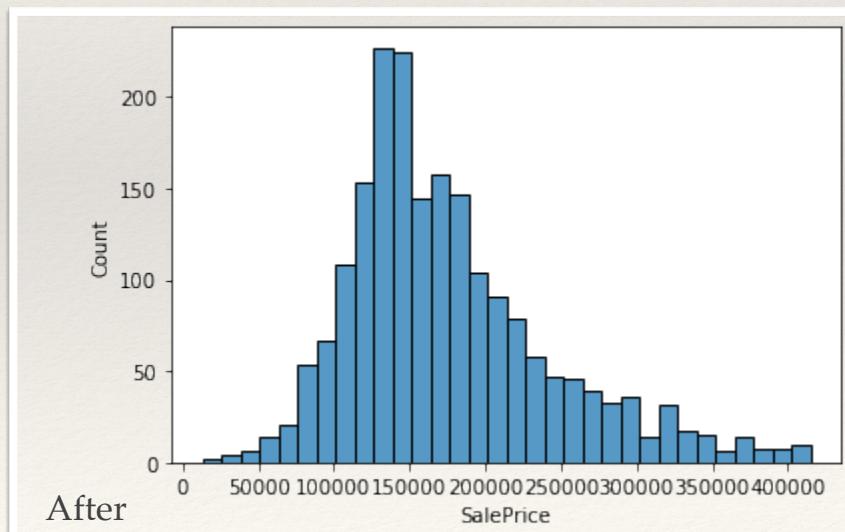
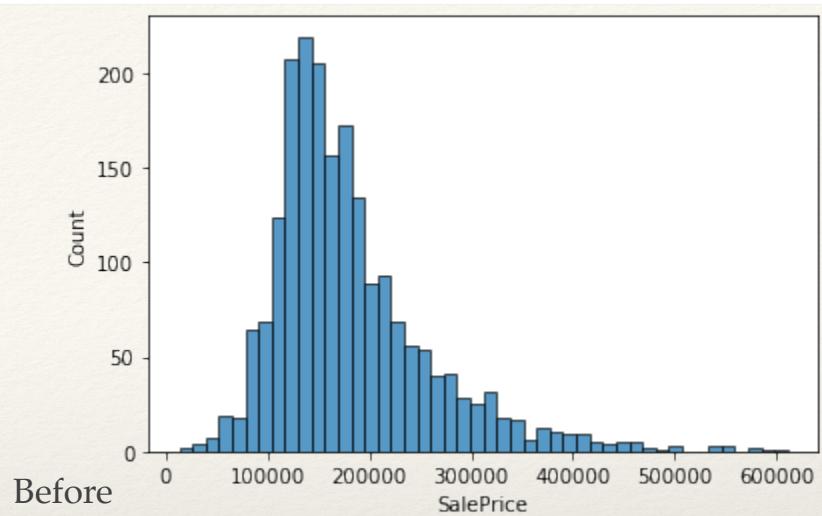
Missing Values

- Null v.s. NA
- Null v.s. 0
- Drop NAs

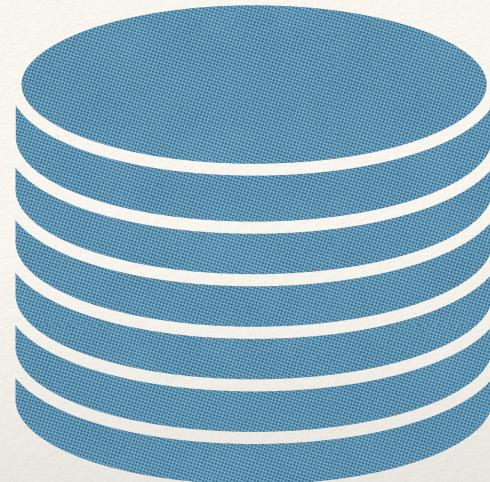


Outliers

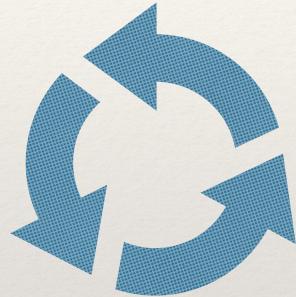
- 3 standard deviations +- mean
 - Sale Price
 - Lot Area



Feature
Selection



Analyze
Results

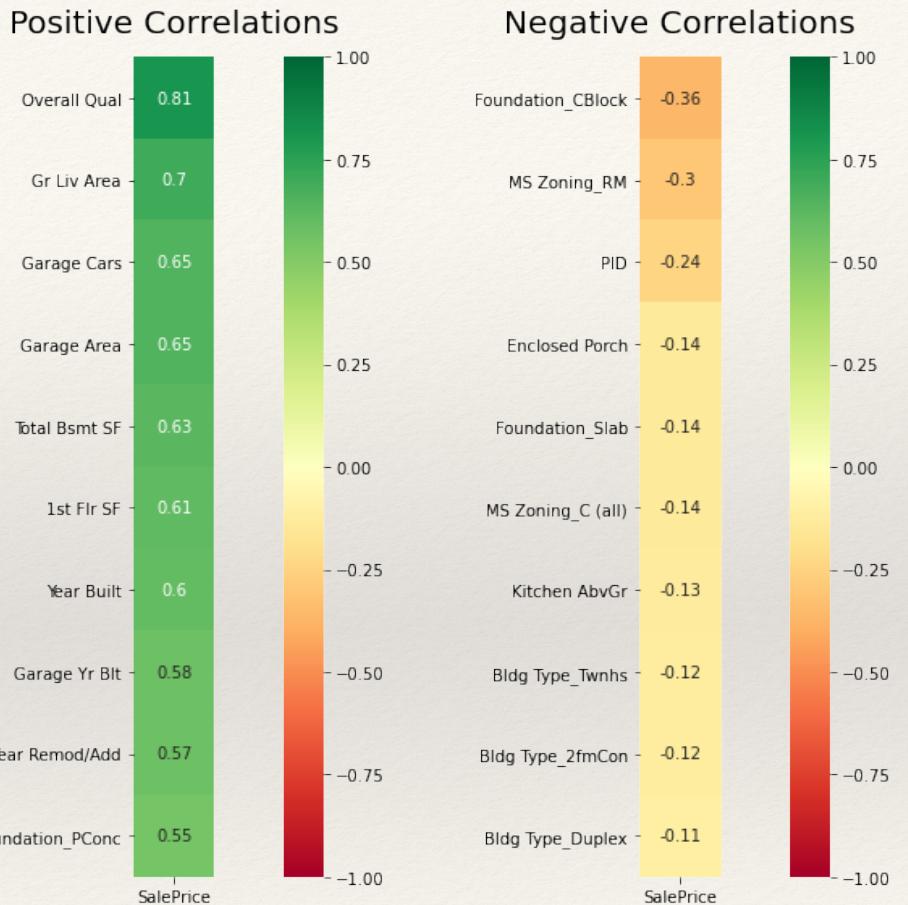


Performance
Evaluation

Data Science Process

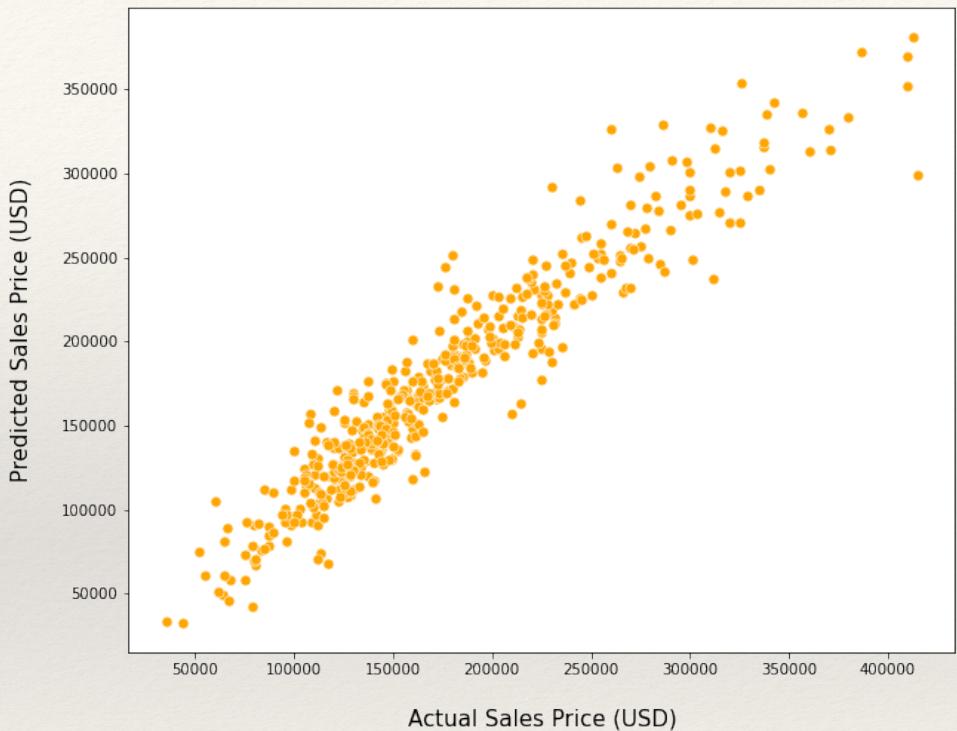
Feature Selection

- Any addition to living space
- Presence of a garage
- Remodeling



Evaluating the Model

- Root Mean Squared Error (RMSE)
- R²
- R² Adjusted



Analyze Results

Summary

Conclusions & Recommendations

- Fireplaces, garages, pools, additional living space had the highest coefficients
- Are they worth it?
- Frame the sale
- Model needs further iteration: RMSE - \$26,800.67

Feature	Coef
Fireplaces	4243.691523
Garage Cars	1291.483534
Pool Area	46.771748
Gr Liv Area	24.127411

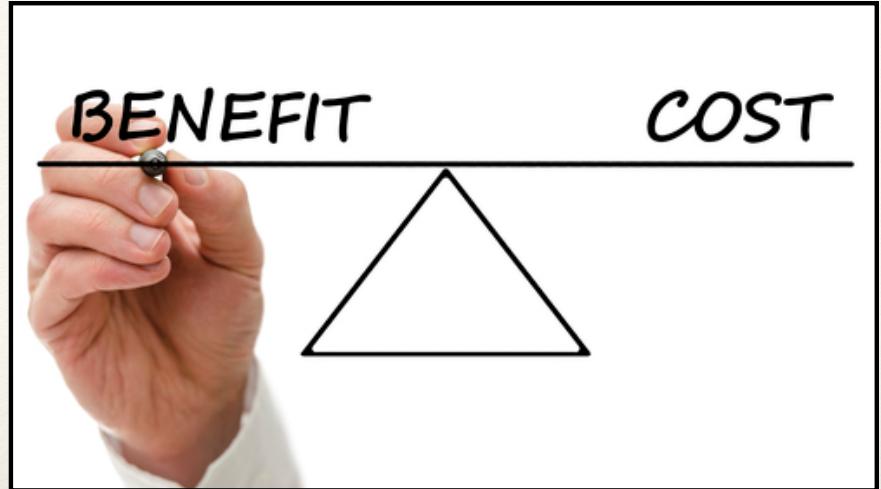


Image Sources

- ❖ Title: <https://www.crewpros.com/remodeling-contractor/>
- ❖ Blueprint: <https://www.thehousedesigners.com/blog/inexpensive-way-make-changes-pre-drawn-house-plans-red-lining/>
- ❖ Market graph: <https://www.statista.com/statistics/239753/total-sales-of-home-improvement-retailers-in-the-us/>
- ❖ Competitive Analysis: <https://insurify.com/insights/cities-with-the-greatest-home-value-surges-in-2020/>
- ❖ Cleaning Data: <https://exceldashboardschool.com/clean-data-in-excel/>
- ❖ Garage: <https://www.realsimple.com/home-organizing/decorating/outdoor-living/garage-hangout-safety>
- ❖ Cost Benefit Analysis: <https://www.econlib.org/library/Enc/BenefitCostAnalysis.html>