Analysis of Home Prices in Ames, Iowa

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Ames, Iowa Facts

- Population of 66,498 as of 2017
  - 36,321 are students at Iowa State
- 30 miles North of Des Moines

Dataset Facts

- Training Dataset
  - 2,051 Observations
  - 81 Columns or Variables
- Test Dataset
  - 879 Observations
  - 80 Columns
- Mean $181,470
- Median $162,500
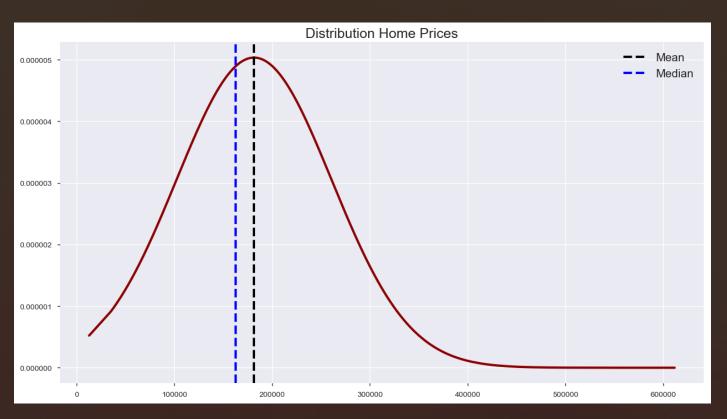- Range $12,789 to $611,657

Dataset Cleaning

- Replaced Missing Numerical Values (nulls) with Zeros

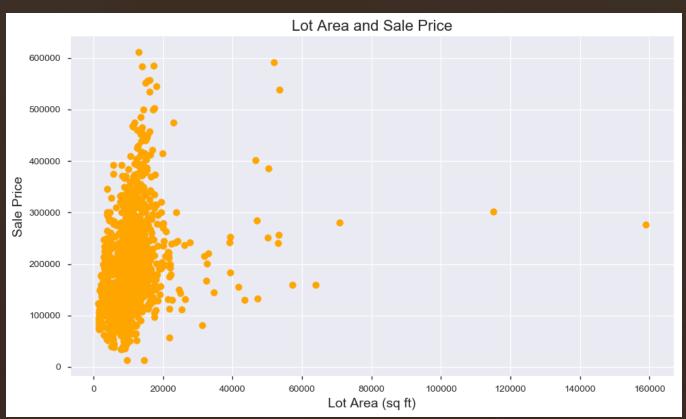- Replaced Missing Non-Numerical Values with "none"
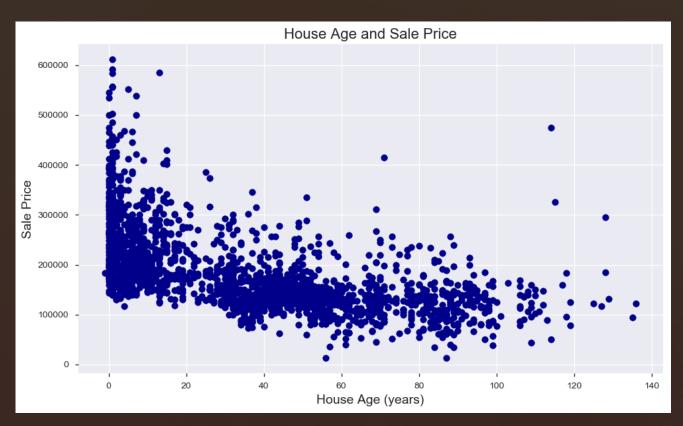
Dataset Cleaning Continued

- Removed 29 Columns Representing Variables That I Thought Were Redundant or That Represent Only A Properties

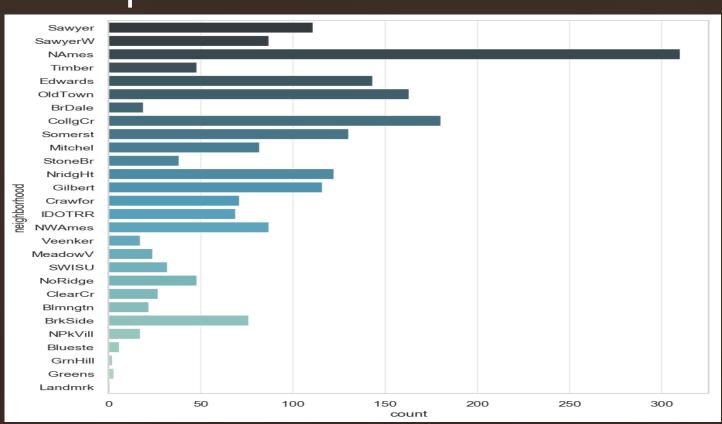 - Ex: Utilities - All But Two Properties Had The Utilities

Dataset Cleaning Continued

- Added 6 Interaction Variables

  - Age of The House At The Time of Sale

  - Years Since Being Remodeled

  - Total Bath Rooms

  - Total Outdoor Space (sq. ft.)

  - Price Per Square Foot

  - Natural Log of The Sale Price

Exploration of The Data

Exploration of The Data

Exploration of The Data

House Age and Sale Price

Exploration of The Data

Exploration of The Data

Exploration of The Data

Total Bedrooms vs. Sale Price

Exploration of The Data
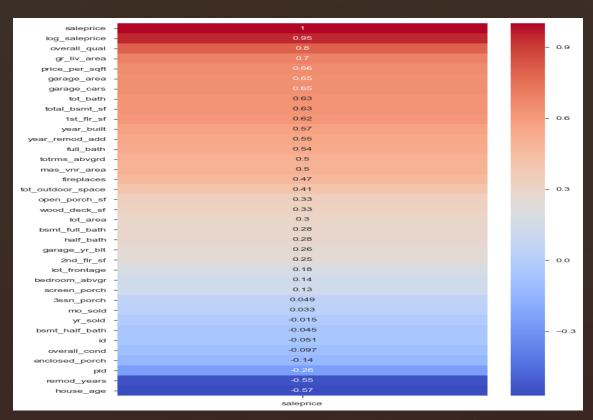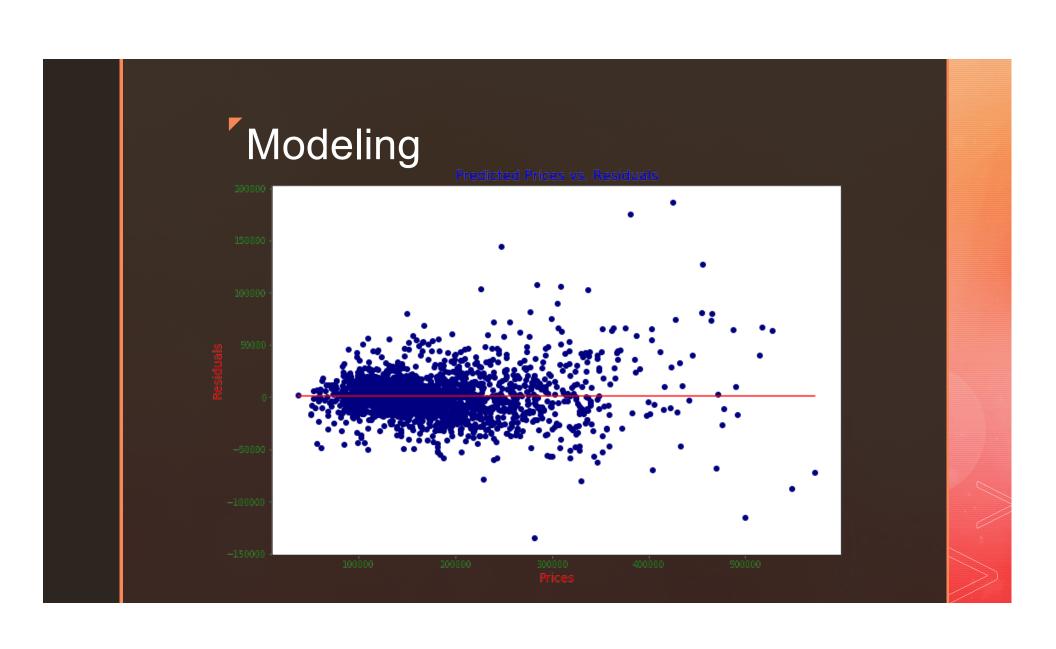
Exploration of The Data

Modeling

- Experimented With Multiple Combinations of Variables
  - High and Low Correlation Variables
  - Dummies
  - Standardization
  - Ridge and Lasso
  - Log of Sale Price

Modeling

- Best Model
  - 28 Variables
  - Mix of Correlations
  - All Numeric
  - Ridge Model
  - Final Score 23,133

Modeling

Questions