

# Ames Housing Data

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# Getting to know Ames



Population	66,427
Area	72.32 sq km
Housing Units	23,876
Median House Value	\$196,400

# Ames's Neighborhoods



Top left: North Ridge Heights

Top right: Stonebridge

Bottom left: Somerset

Bottom right: College Creek

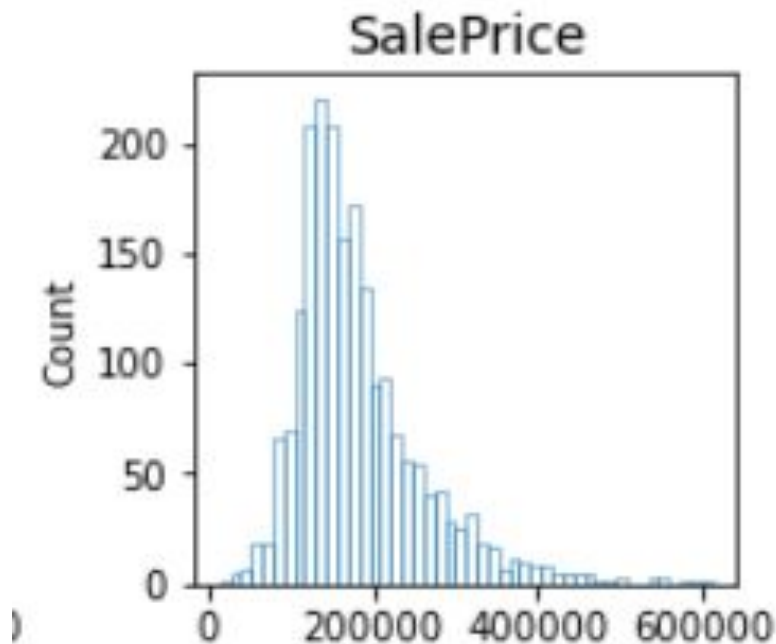
## Overview of Dataset

- Information used in computing assessed values for individual residential properties sold in Ames, IA from 2006-2010
- 2930 observations, 82 variables
  - Square footage of house, overall quality of rooms etc
- Target variable: Sales Price

## Problem Statement

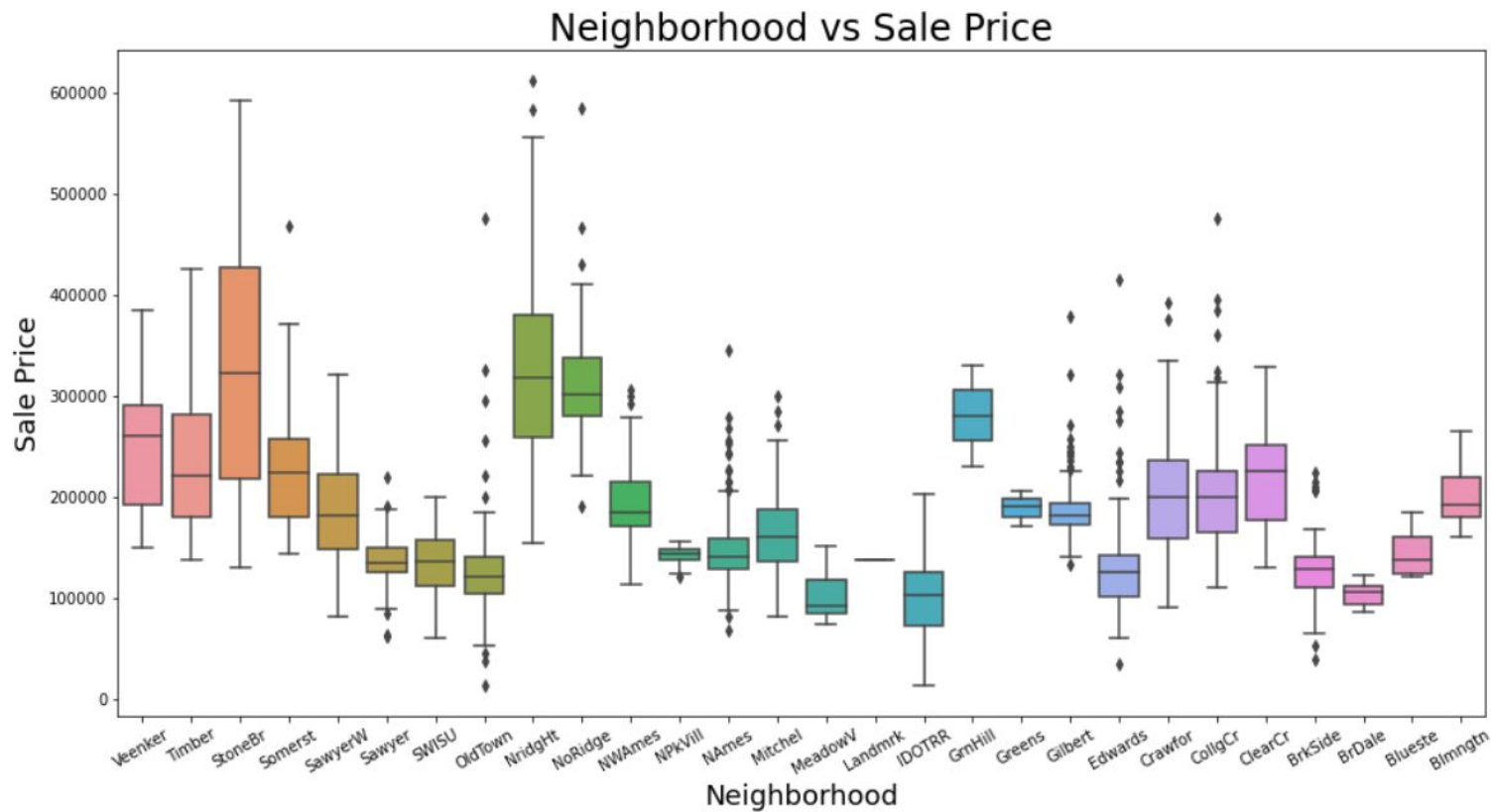
How can we use a linear regression model to best predict house sale prices in Ames, Iowa?

# Sale Price of Houses in Ames



- Right skewed
- Peak is right around the \$150,000 - 200,000

# Neighborhoods in Ames

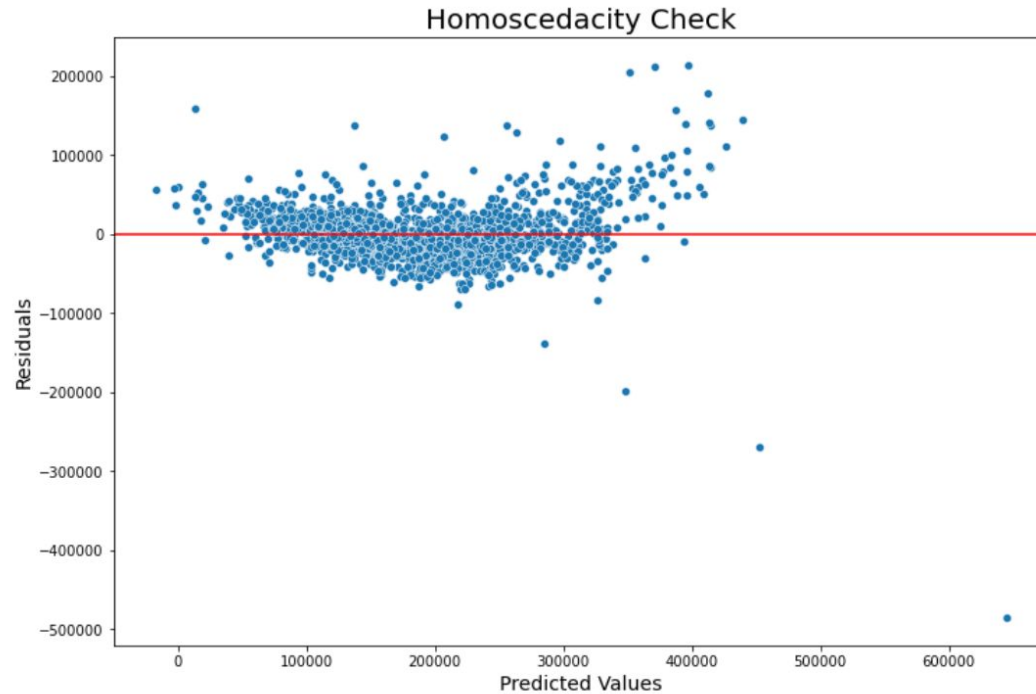


# Multiple Linear Regression Requirements

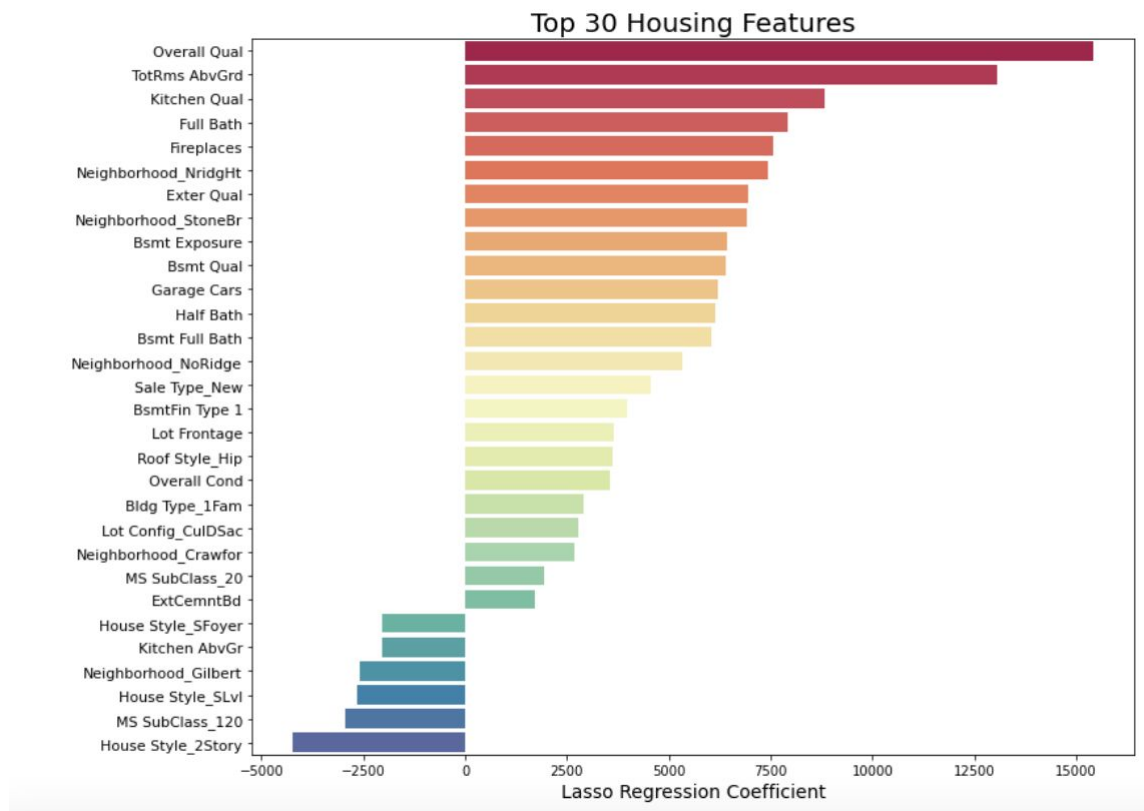
- **Linear Relationship**
  - Outcome variable vs independent variable
- **Multivariate Normality**
  - Residuals are normally distributed
- **No Multicollinearity**
  - Heatmap shows some multicollinearity
  - Garage cars, garage area and Year Built, Garage Yr Built
- **Homoscedasticity**
  - Variance of error are similar across independent variables



# Homoscedasticity



# Feature Correlation to Sale Price



# Linearity of predictions



- The final model accounts for around 88% of the variation in Sale Price of a home
- Model is able to predict the Sale Price within approx. \$26,000

## Limitations

- Only accounts for Ames, Iowa
- 2006-2010 was during economic crisis
  - Home prices were plummeting at this point

# Recommendations

- Improve the overall material and finish of the house
- Improve the kitchen quality
- Improve external quality of the house
- If possible, improve garage size to fit more cars