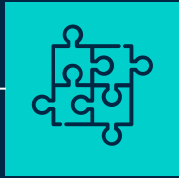# Predicting Home Sale Prices

Wesley Osborne

Introduction

TABLE OF CONTENTS

01
PROBLEM & SOLUTION
Gain competitive Advantage

02
OUR PROCESS
Linear Regression Model Workflow

03
TARGET
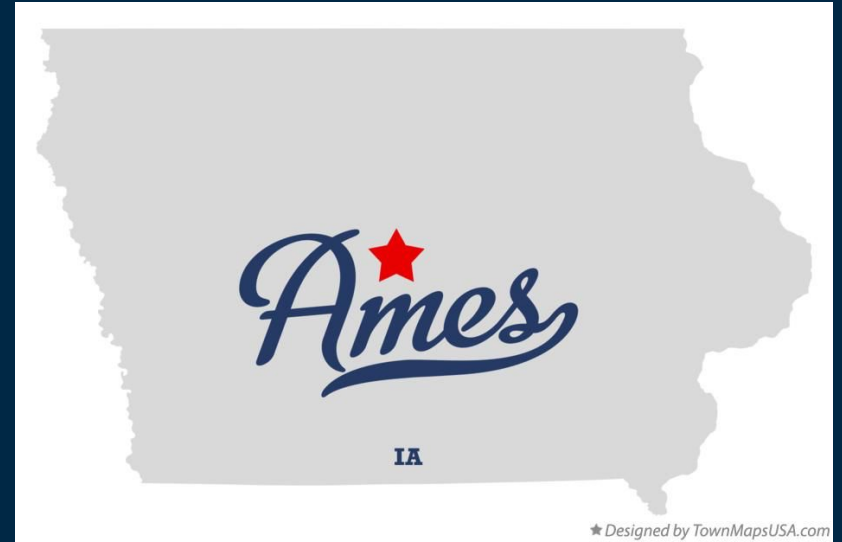Predict Sale price, model recommendation

Problem Statement

Keller Williams Ames wants to gain a competitive advantage against other brokerages in the area. They want to predict the sale price of new homes on the market, to help both their seller agents and buyer agents provide unmatched service to their clients.

image source

Data Source

image source

Solution

Benchmark Simple Linear Regression Model

Features

- Overall Quality
- Year Built
- Year Remodeled
- Masonry veneer area
- Basement sq ft 1
- Above grade living area
- Total basement sq ft
- 1st floor sq ft
- Full Baths
- Total rooms above ground
- Garage year built
- Number of car garage
- Garage area
- Fireplaces
- Bedrooms above ground

Metrics

R2
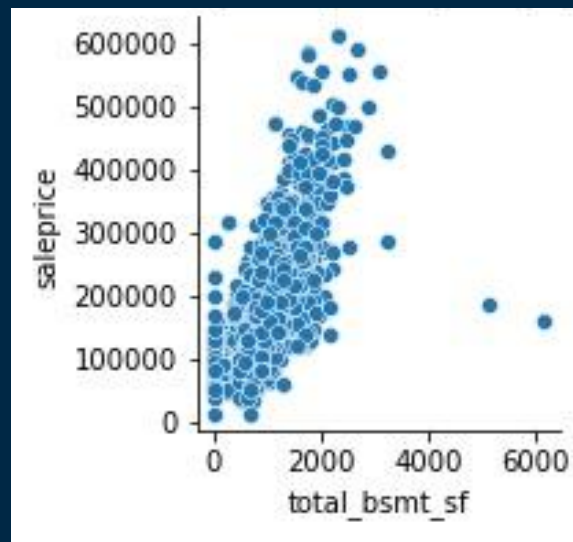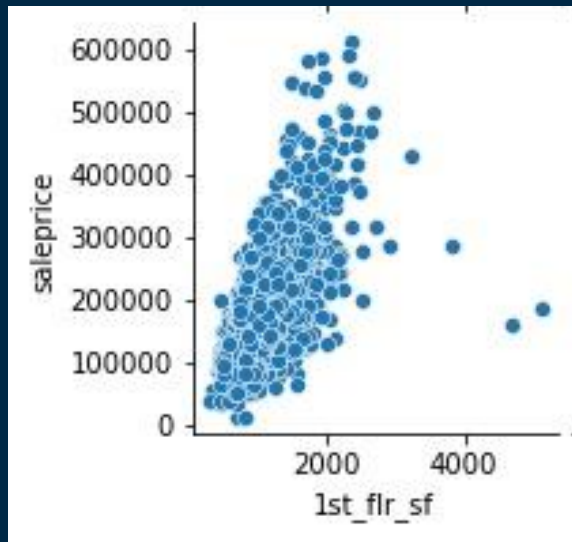
86%

RMSE

29,234

86%

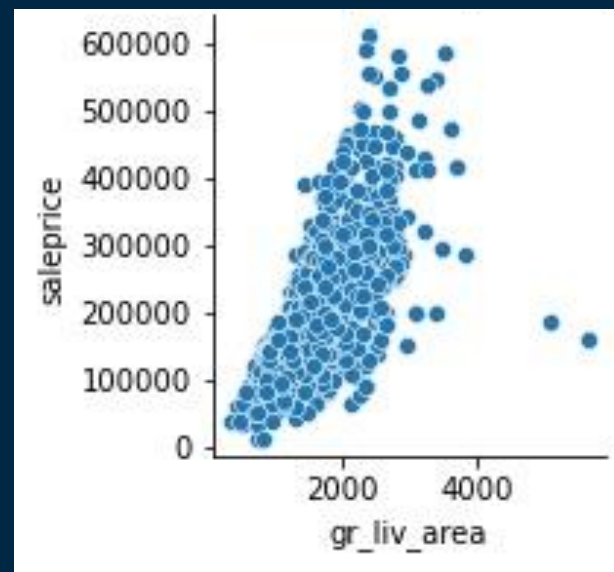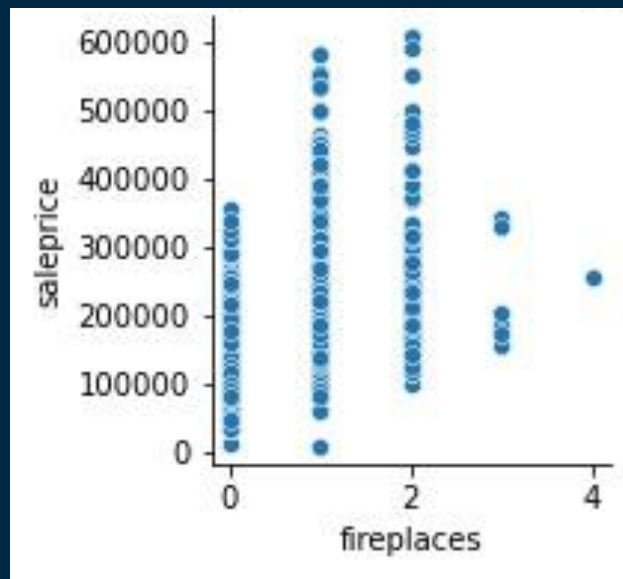Of the variation in sale price is explained by the features in the model
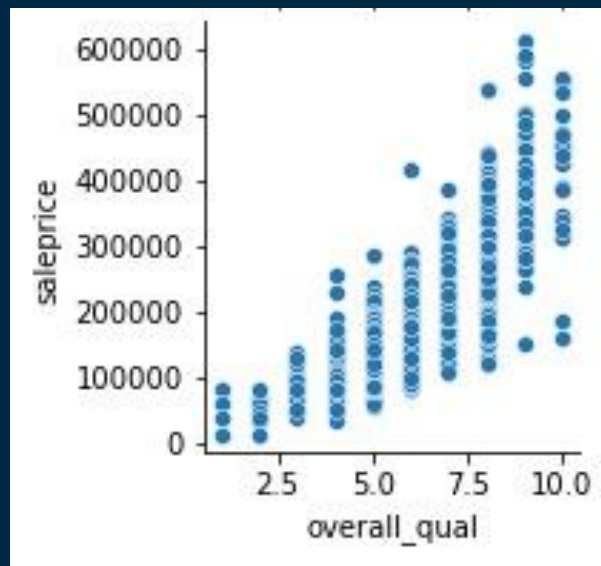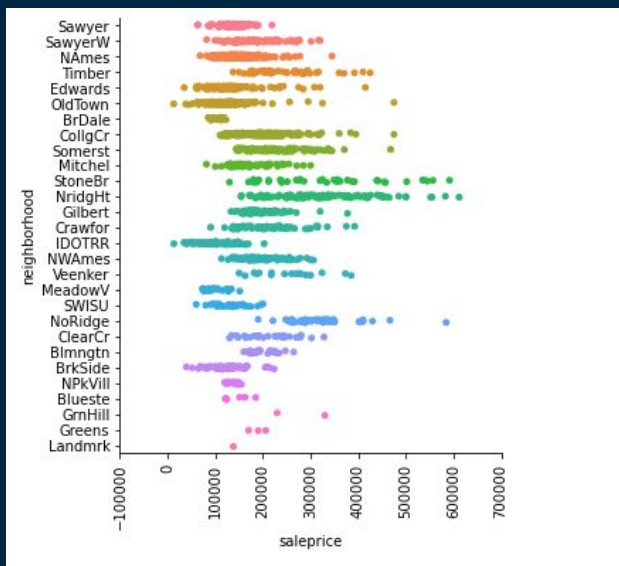
Model Workflow

Insights

Insights

Insights

Model 2

Linear Regression Model

Features

- Included all features from Benchmark model
- Added all positively correlated columns to the sale price

Metrics

R2

85%

RMSE

29,856

Model 3

Linear Regression Model

Features

- Included all features from benchmark model and model 2
- Add categorical features such as:
  - Neighborhood
  - Building type
  - Garage type
  - Heating
  - Central Air

Metrics

R2

74%

RMSE

39,674

Model 4

Linear Regression Model

Features

- Included features from model 3
- Removed features deemed to be not as important:
  - Garage year built
  - Open Porch sq ft
  - Pool area
  - Roof style
  - Roof material

Metrics

R2

71%

RMSE

41,953

Ridge vs. Lasso vs. ElasticNet

Ridge	Lasso	Elastic
Metrics	**Metrics**	**Metrics**
R2	**R2**	**R2**
74%	82%	28%
RMSE	**RMSE**	**RMSE**
39,560	31,980	65,322

Recommendation
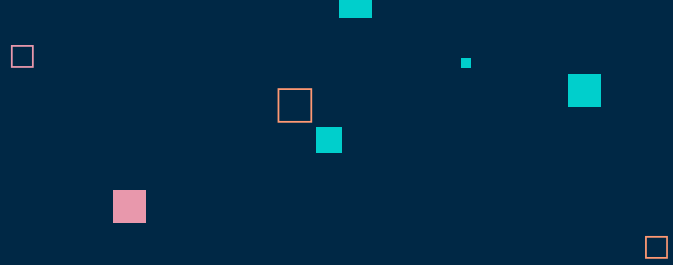
Improvements

- Full Bath
- Garage Year Built
- Bedrooms Above Ground

Questions?