

Predicting House Prices in Ames, Iowa

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Why is this important?

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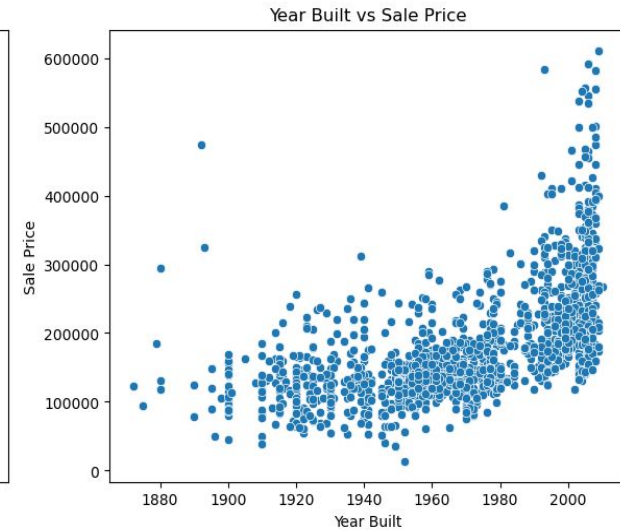
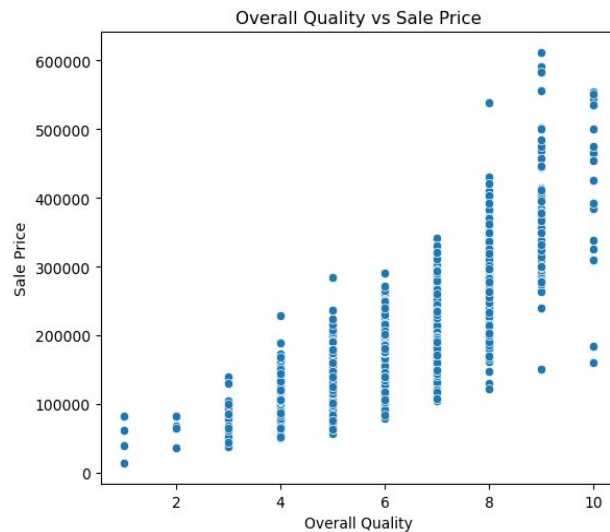
- Important for offer and Demand
- Knowing house's value helps buyers and sellers

Assumption

- Data represents the Ames, Iowa housing market.
- Features chosen have a significant influence on house prices.
- Model's performance in Ames, Iowa, will generalize to similar housing markets.

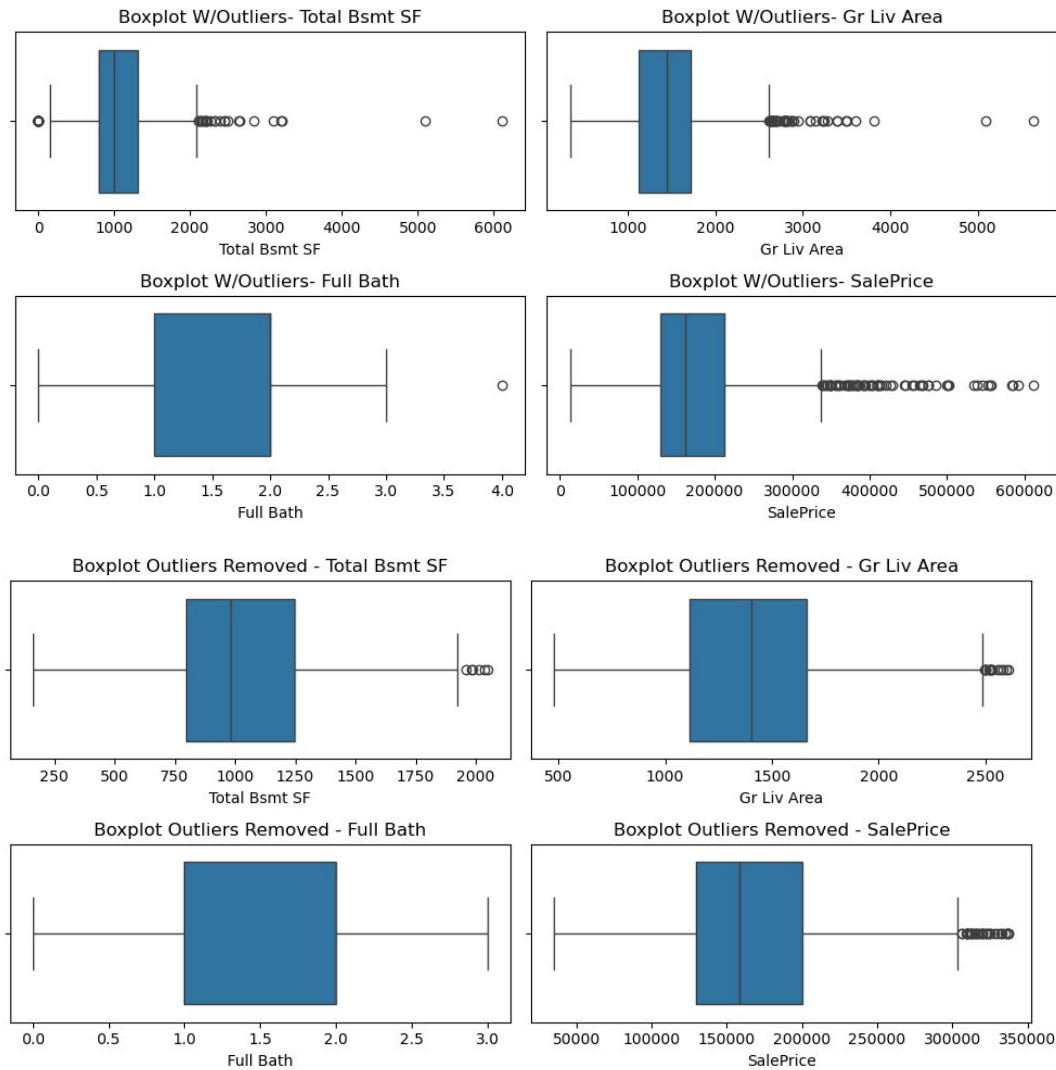
Data Exploration

- Features & Target:
 - Overall quality
 - Living area size
 - Basement size
 - Year built
 - Sale price (what we're trying to predict)



Data Cleaning

- Selected features with strong correlation with house prices.
- Filled in missing data points
- Addressed redundancies in the data
- Removed outliers



Predictions evaluation

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- Ridge Model:

Train set RMSE: 23051.6, Test set RMSE: 22483.6

Confident Interval: (19965.7, 24746.6), R^2 : 84%

- Lasso Model (add RMSE):

Train set RMSE: 57941.6, Test set RMSE: 55937.2

Confident Interval: (49784.1, 61477.6)

- Baseline Model (add RMSE)

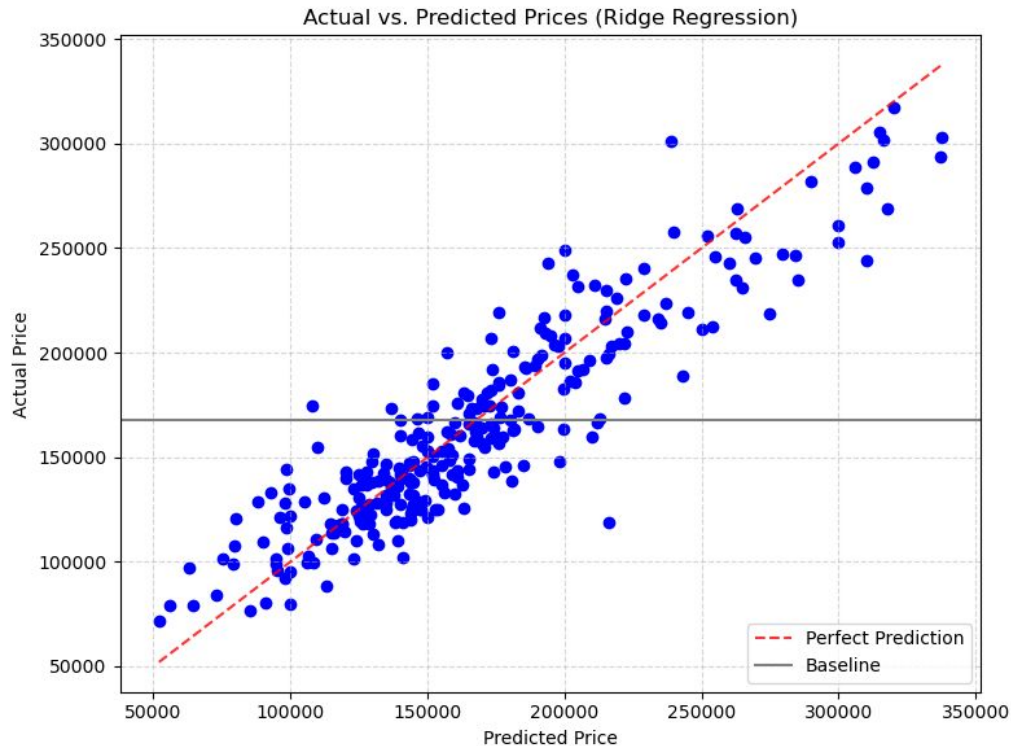
Train set RMSE: 57143.7, Test set RMSE: 55934.2

Results

- Most important features:

Overall quality, living area, and basement size significantly influence house prices in Ames, Iowa.

- The ridge regression model performed the best.
- The lasso model performance is weak



Conclusion

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- Improve home quality and space to increase value
- Buyers: prioritize desired features
- Real estate pros: use this for better pricing estimates

Thank You

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Reference Dataset:

<https://www.kaggle.com/competitions/adobe-dsb-34/data>