

Housing Pricing Explained

Real Estate Investors and Agents



Which home
improvements
deliver the highest
return on
investment in the
Ames housing
market?

Data from 2006 to 2010



Introduction

Understand which home improvements provide the highest return on investment is crucial for homeowners and real estate investors. By predicting housing prices before and after potential upgrades, we can make data-driven decisions to maximize property value.

Ames Housing dataset

📊 Training Data: 2,051 records, 81 features on house characteristics

📅 Time Period: 2006–2010 (Year Sold)



🔍 Approach:

- ✓ Exploratory Data Analysis – Understanding key drivers of home prices
- ✓ Feature Engineering & Preprocessing – Transforming data for accuracy
- ✓ Regression Modeling – Predicting home prices with a trained model
- ✓ Model Evaluation – Assessing performance using key metrics

Model Performance

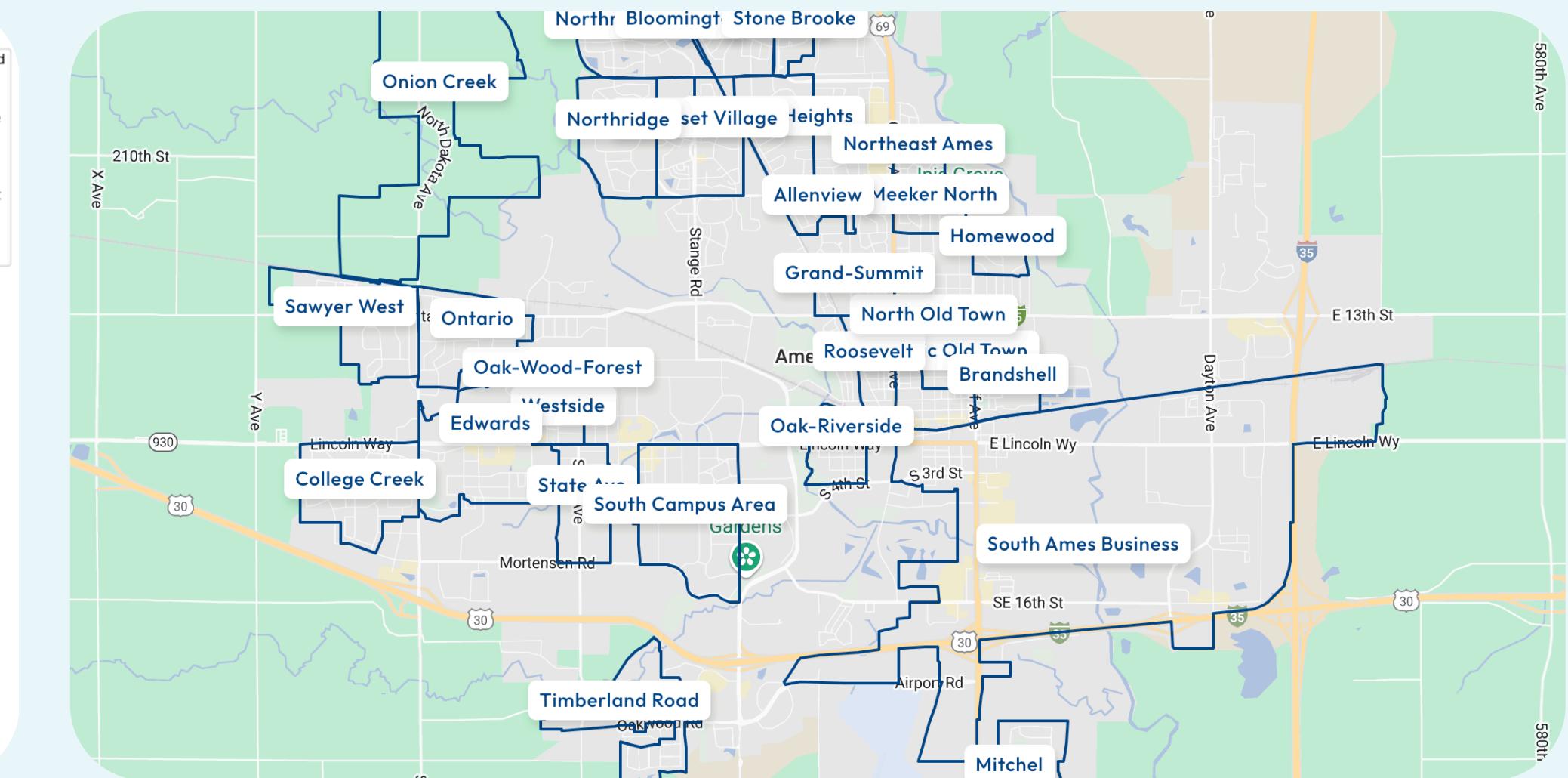
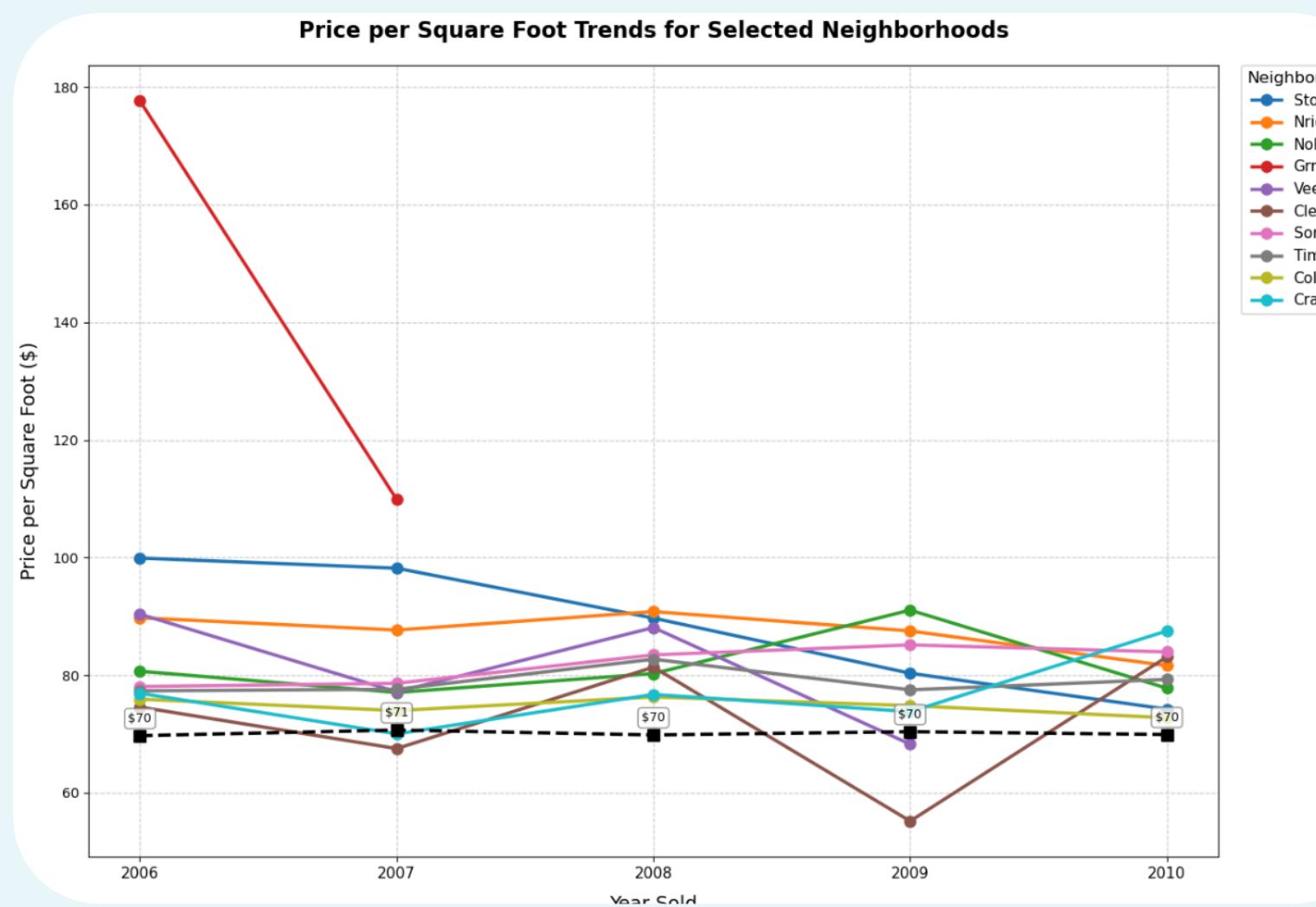
↗ R² = 0.8765 (Good predictive power)

↙ RMSE = \$28,565.61 (Average error in price predictions)



Housing market trends in Ames

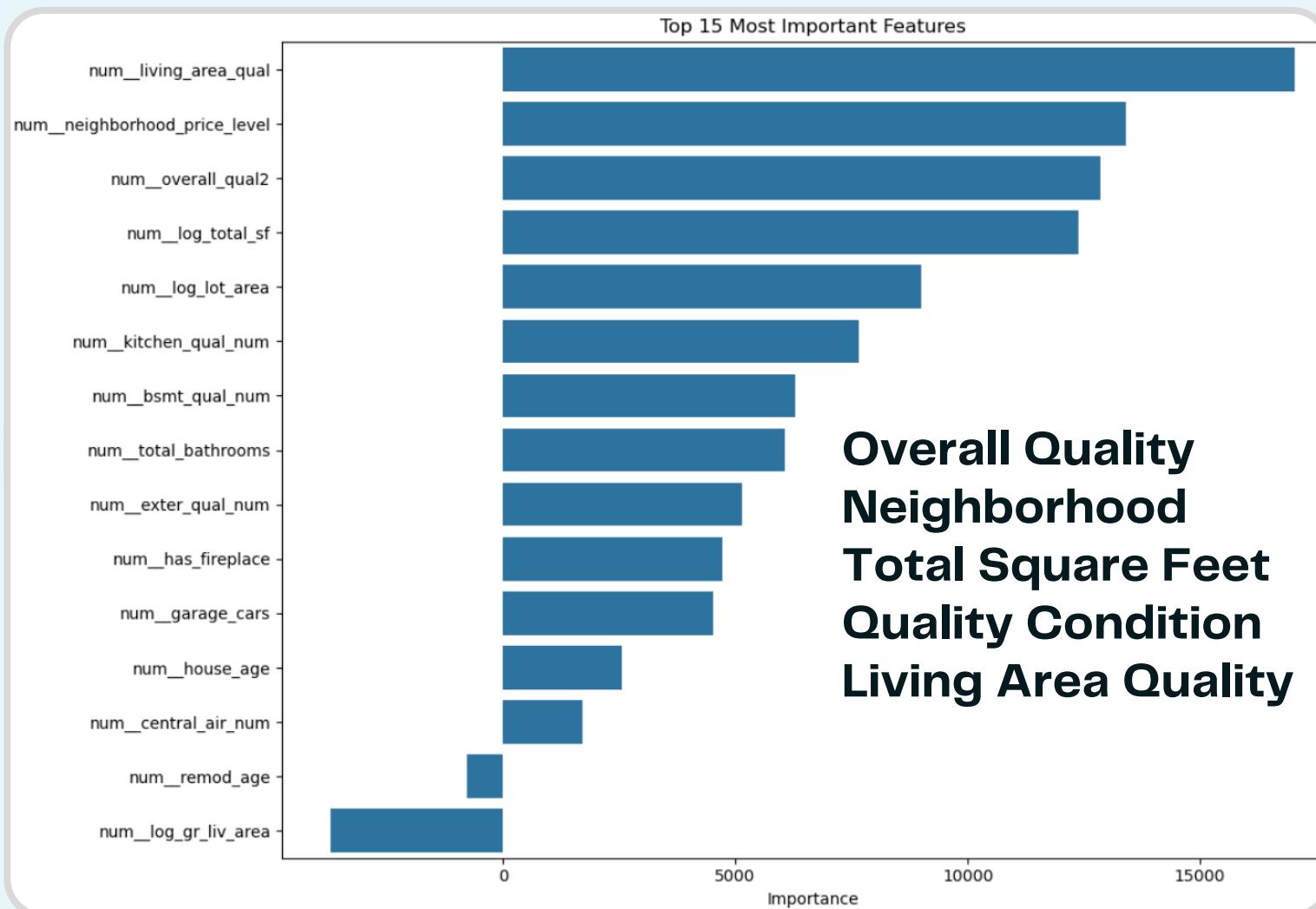
Insights on pricing and investment opportunities available





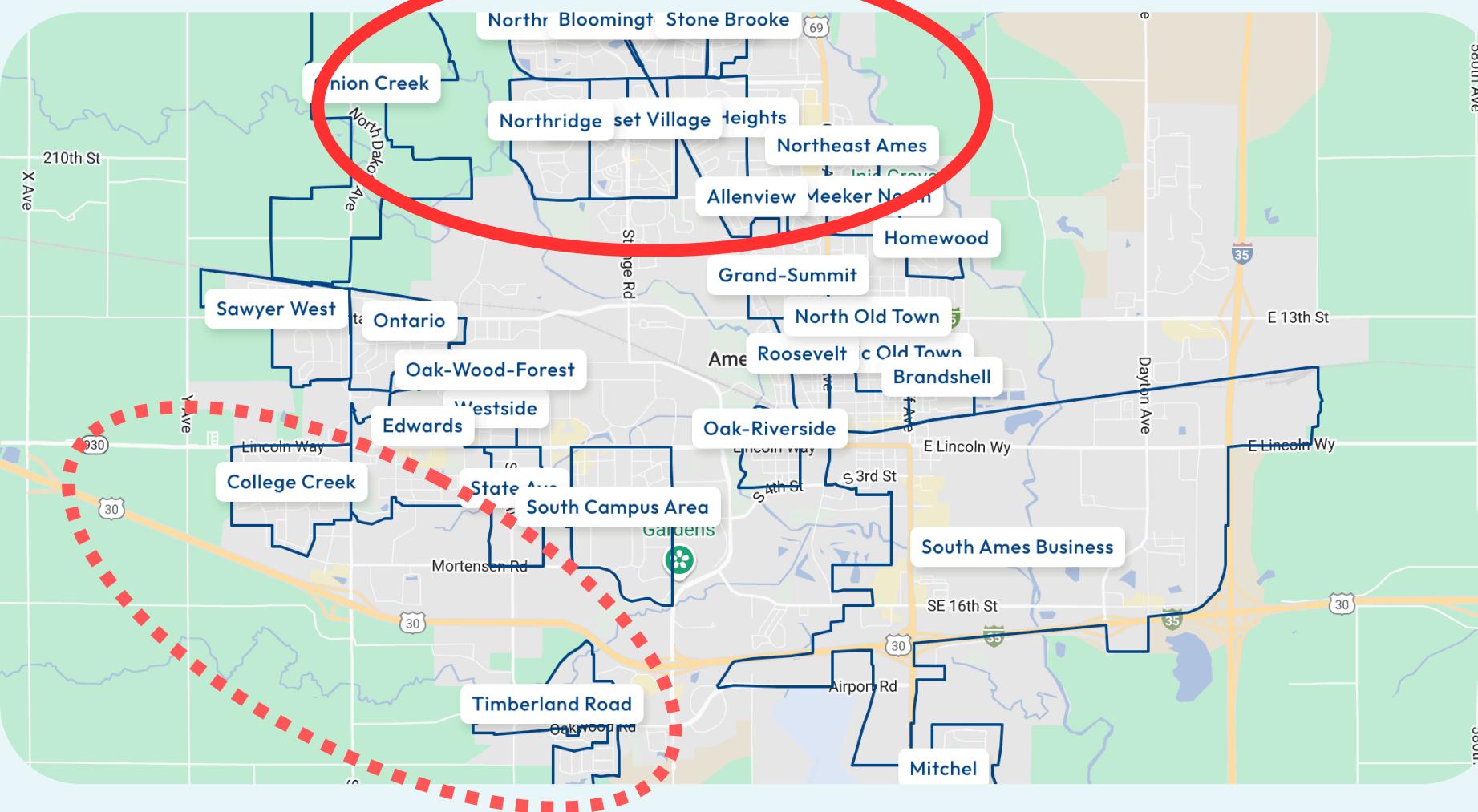
Highest-Value Features

Features that determine the sale price of a house



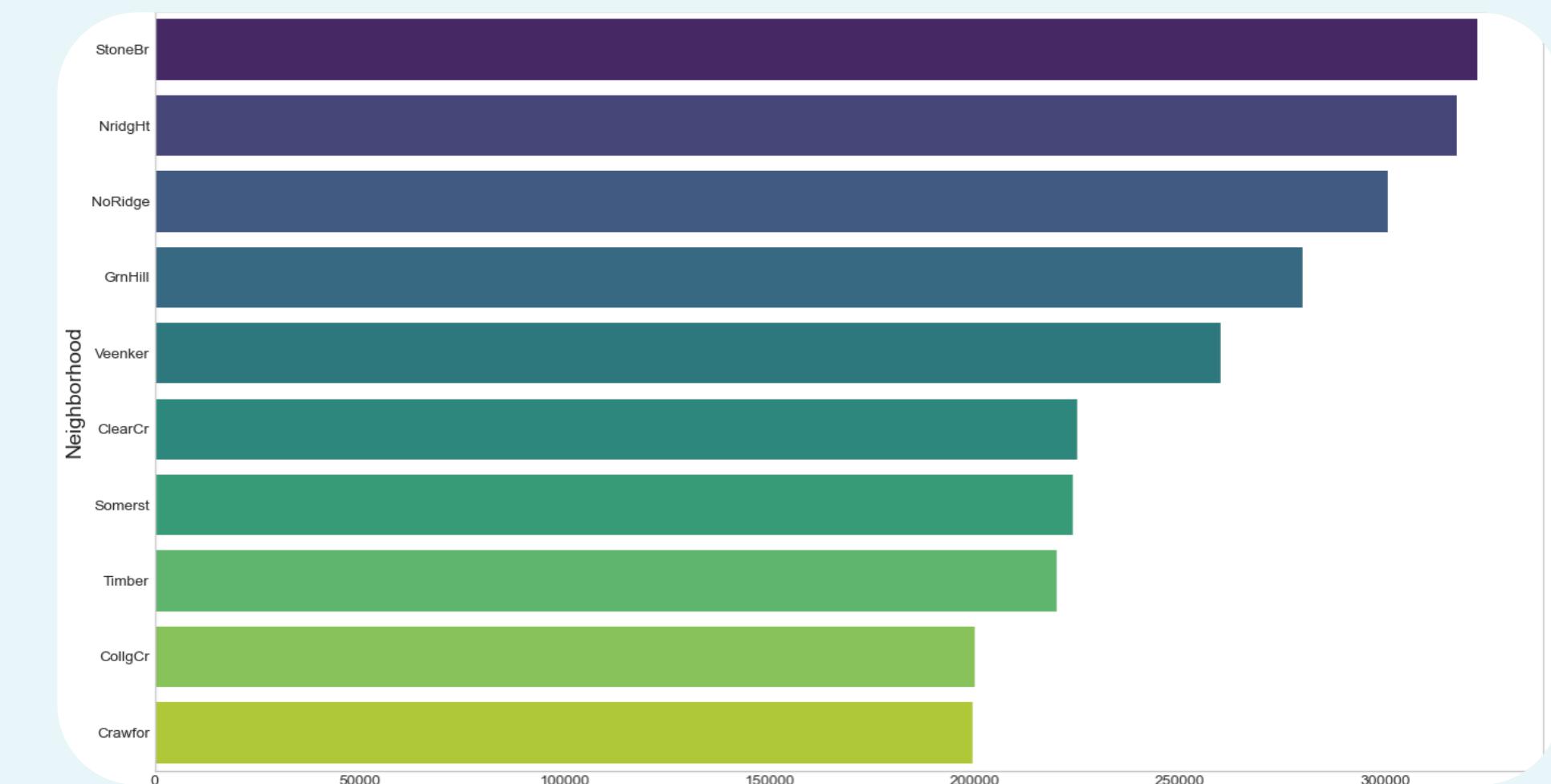
Housing market trends in Ames

Insights on pricing and investment opportunities available



Location is crucial

Price varies greatly by local neighborhood demand.



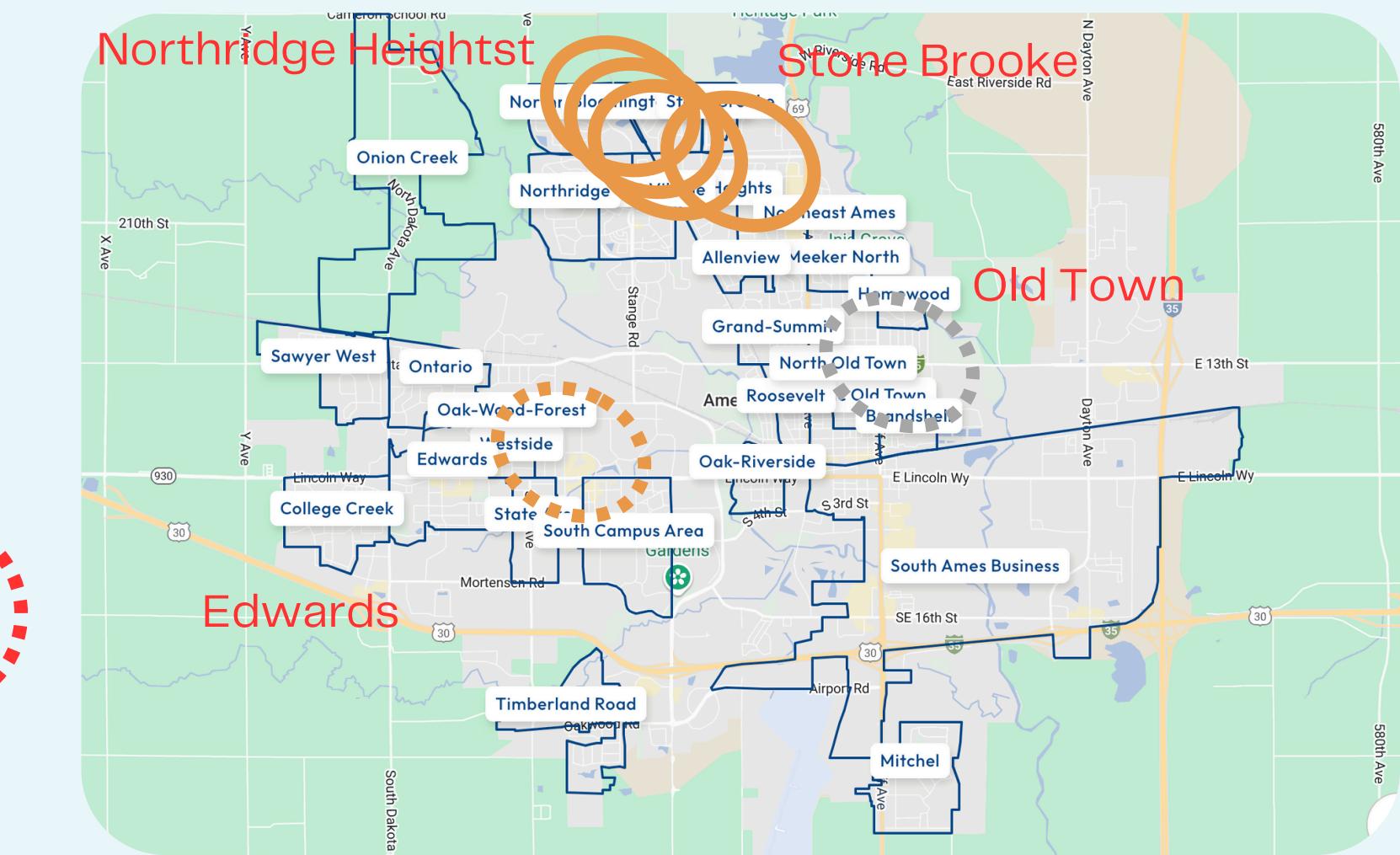
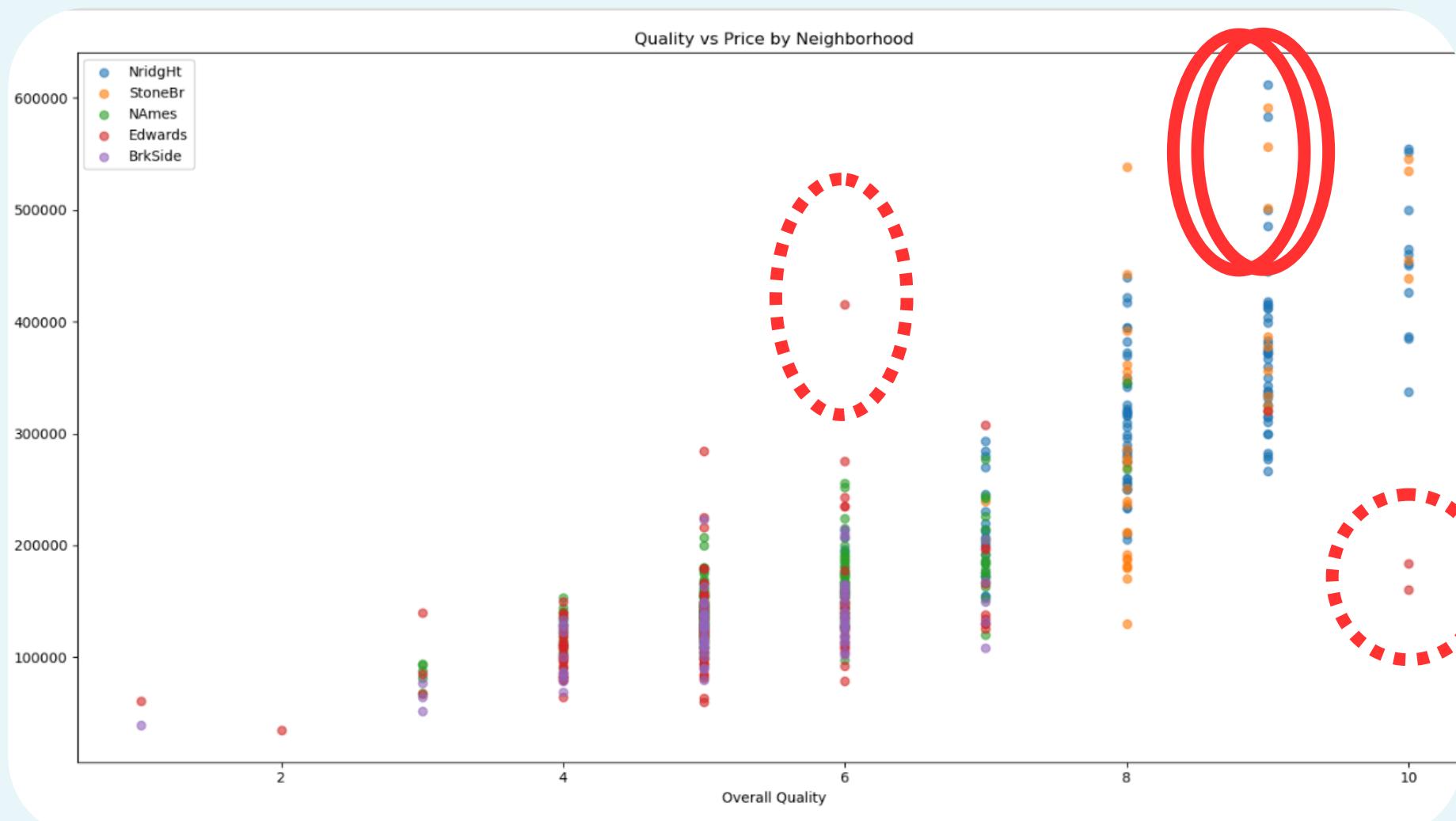
Top 10 Premium Neighborhoods

Different neighborhoods have different pricing.

High-Quality Neighborhood and Price

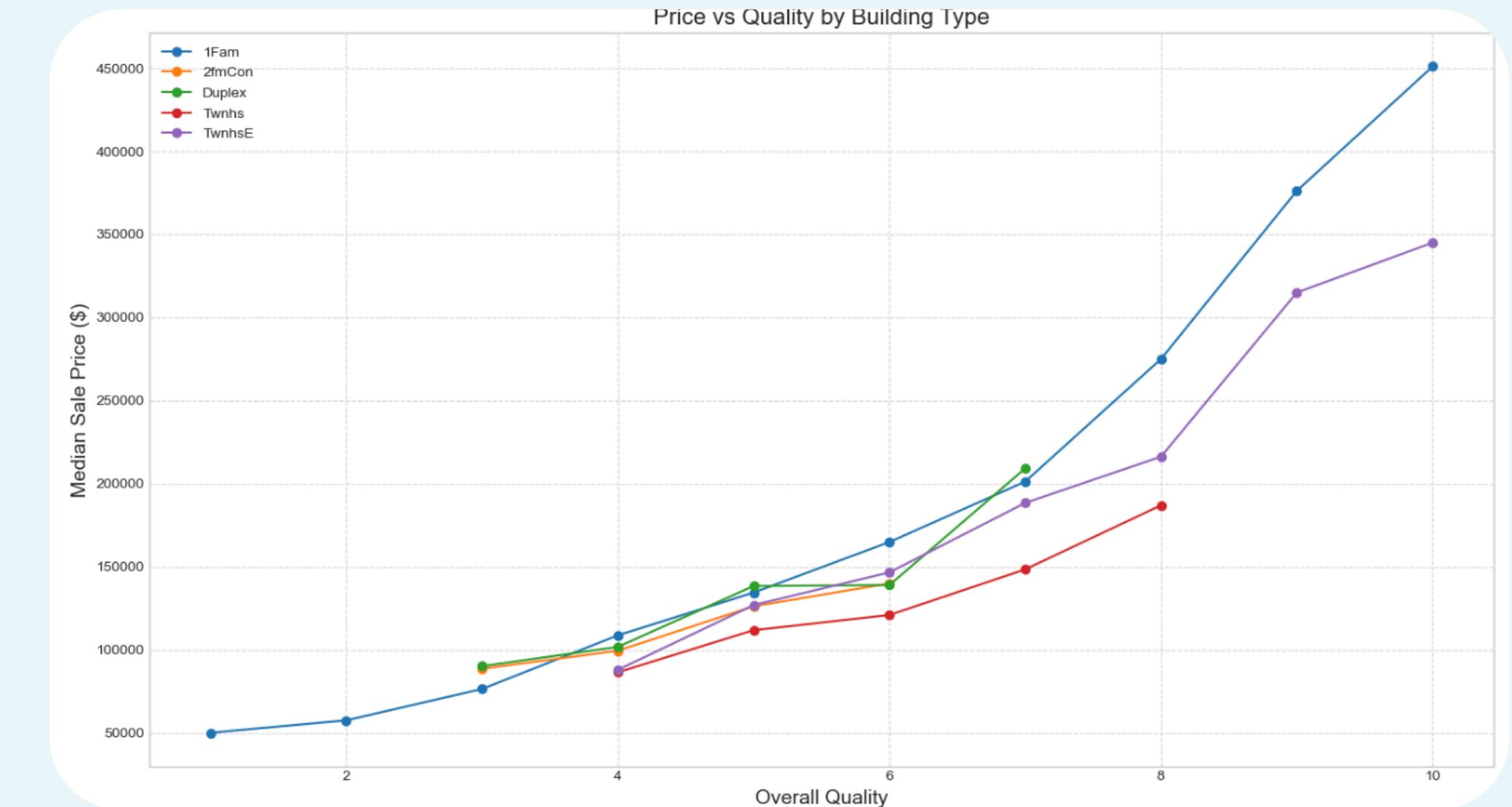


Insights on pricing and investment opportunities available



Single Family Homes with High Quality

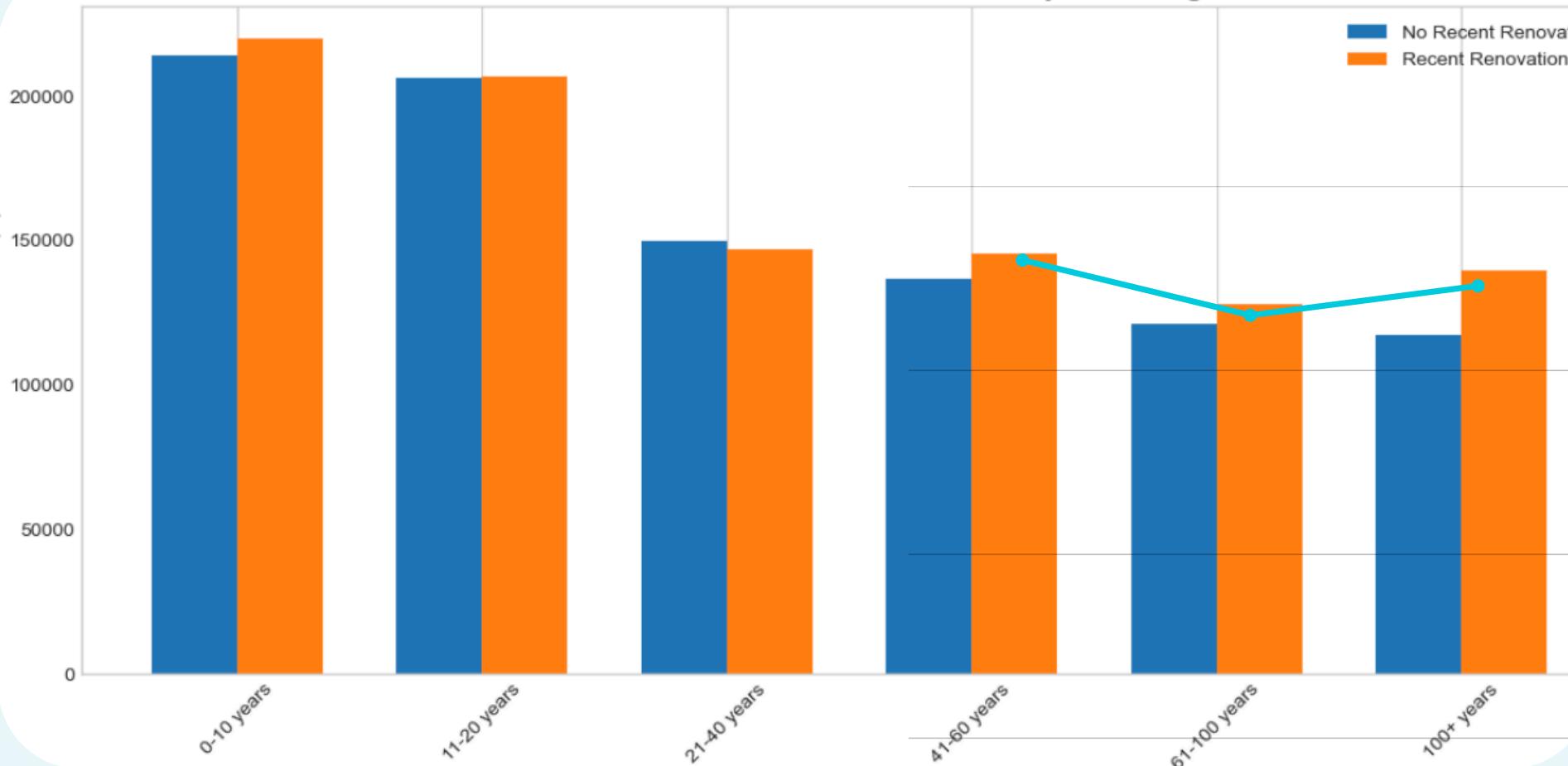
Insights on pricing and investment opportunities available



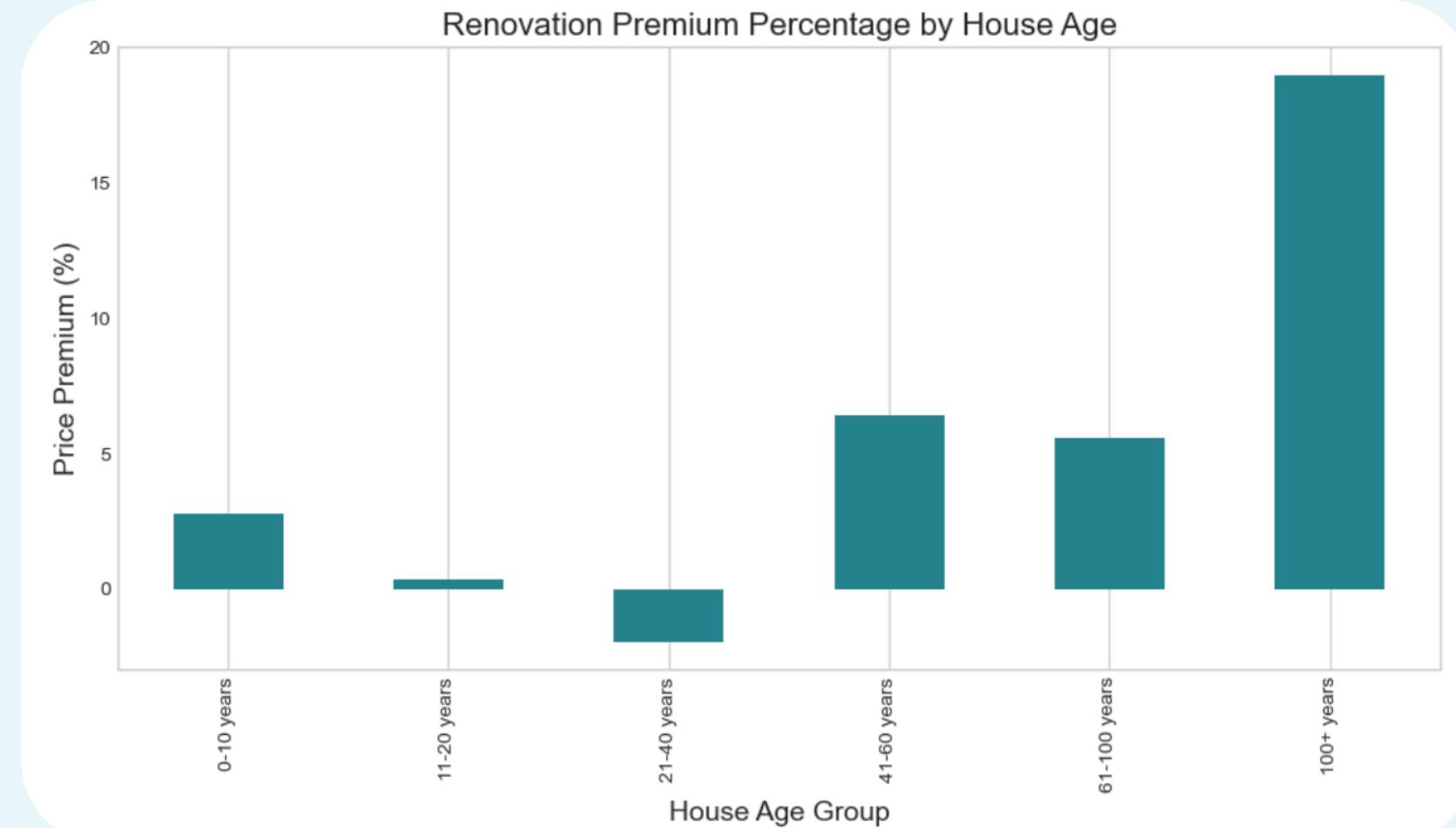
Home Improvements?

Insights on pricing and investment opportunities available

Price Premium for Recent Renovations by House Age

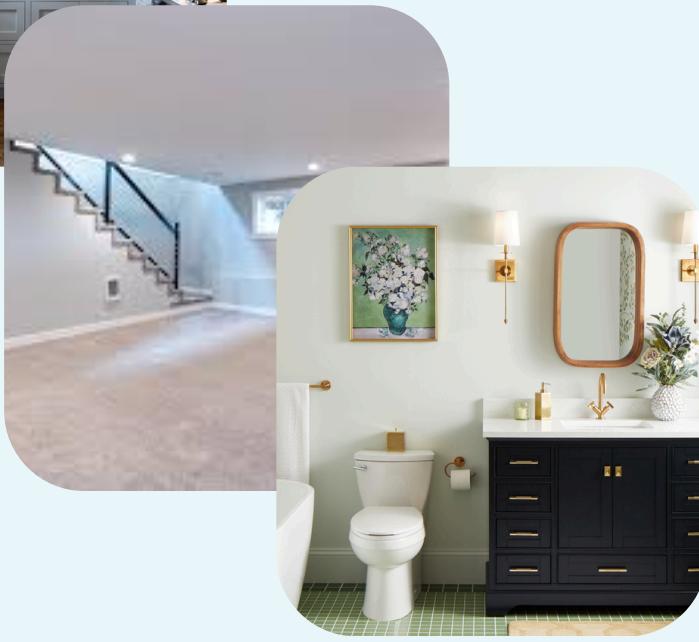


Renovation Premium Percentage by House Age



Key Insights for Investors

Properties where modest quality improvements can shift market perception



**Kitchen Ren, Basement Touch,
Bathroom Ren**

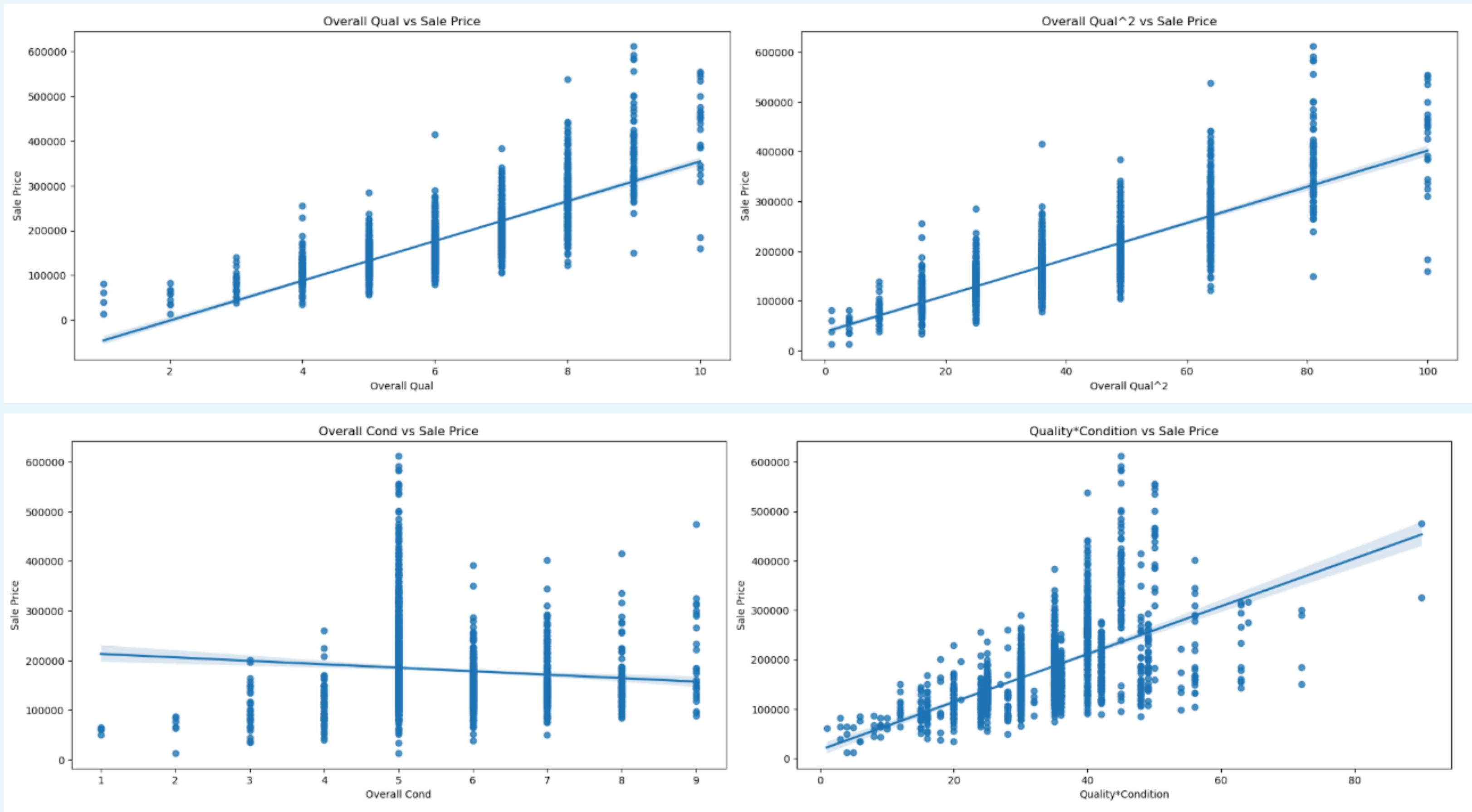
Add a Older properties (41-60) with good bones but outdated features

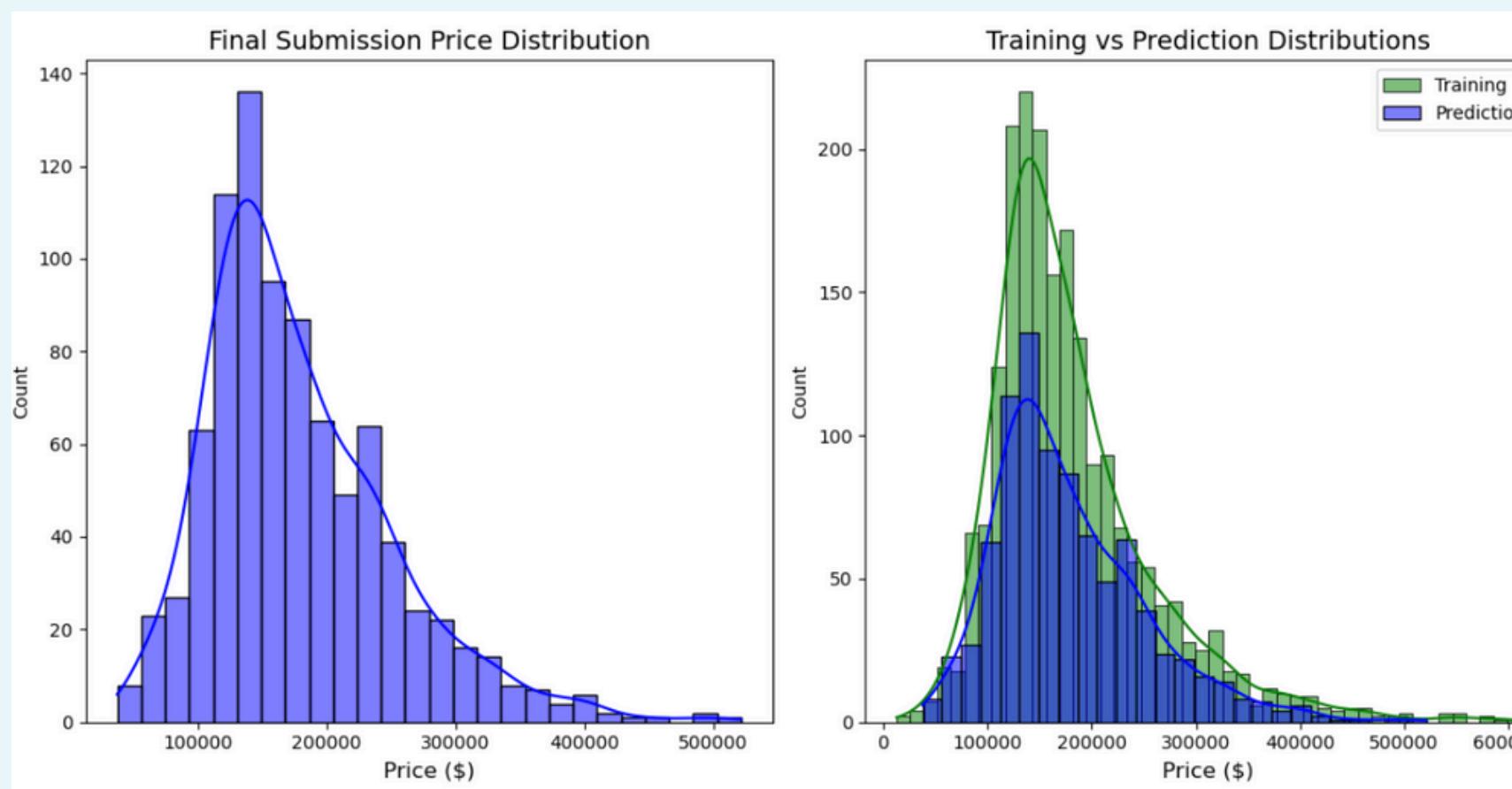
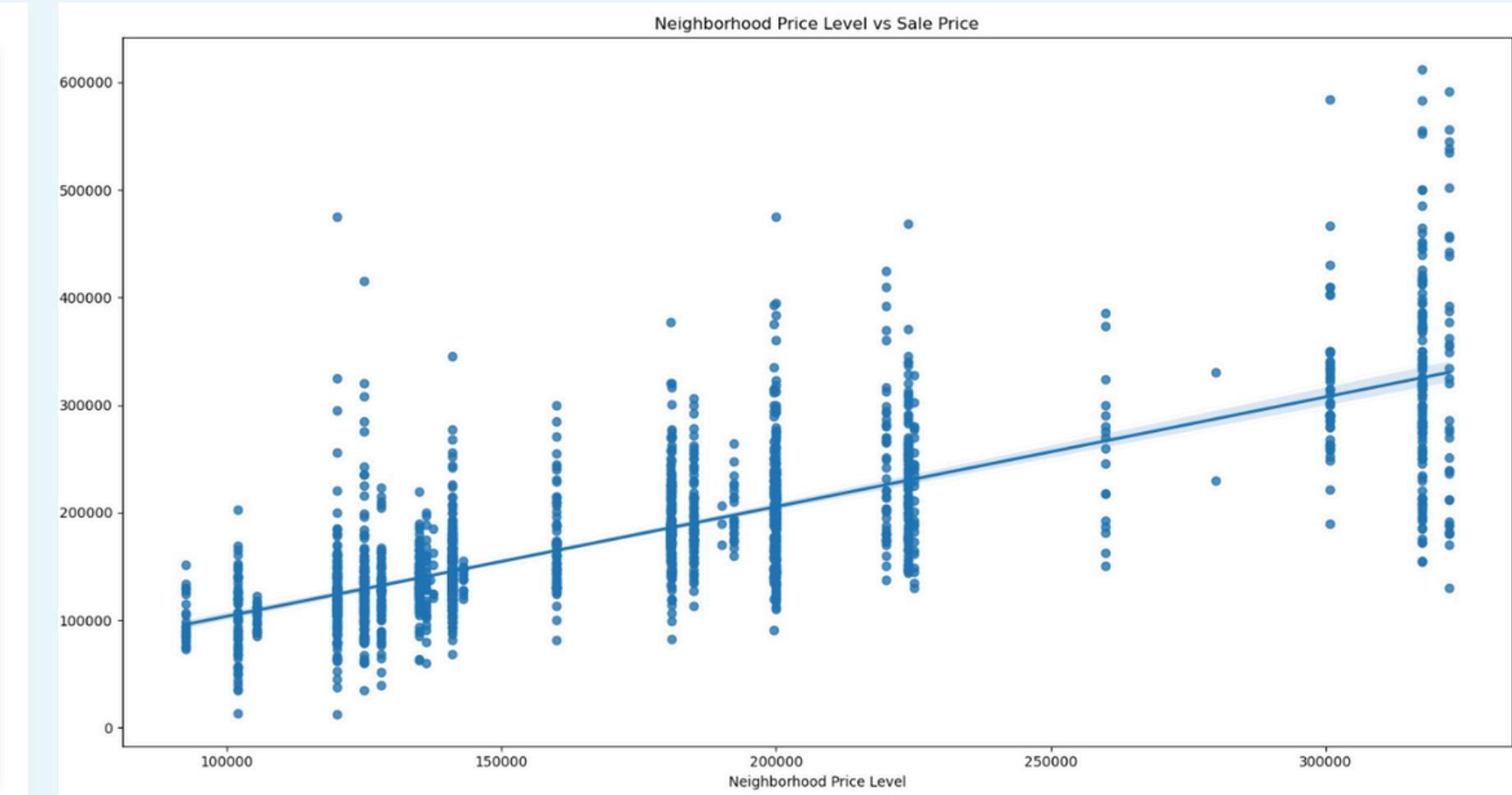


Undervalued properties in neighborhoods with strong price to quality ratios

NrighT and StoneBr Command the highest prices

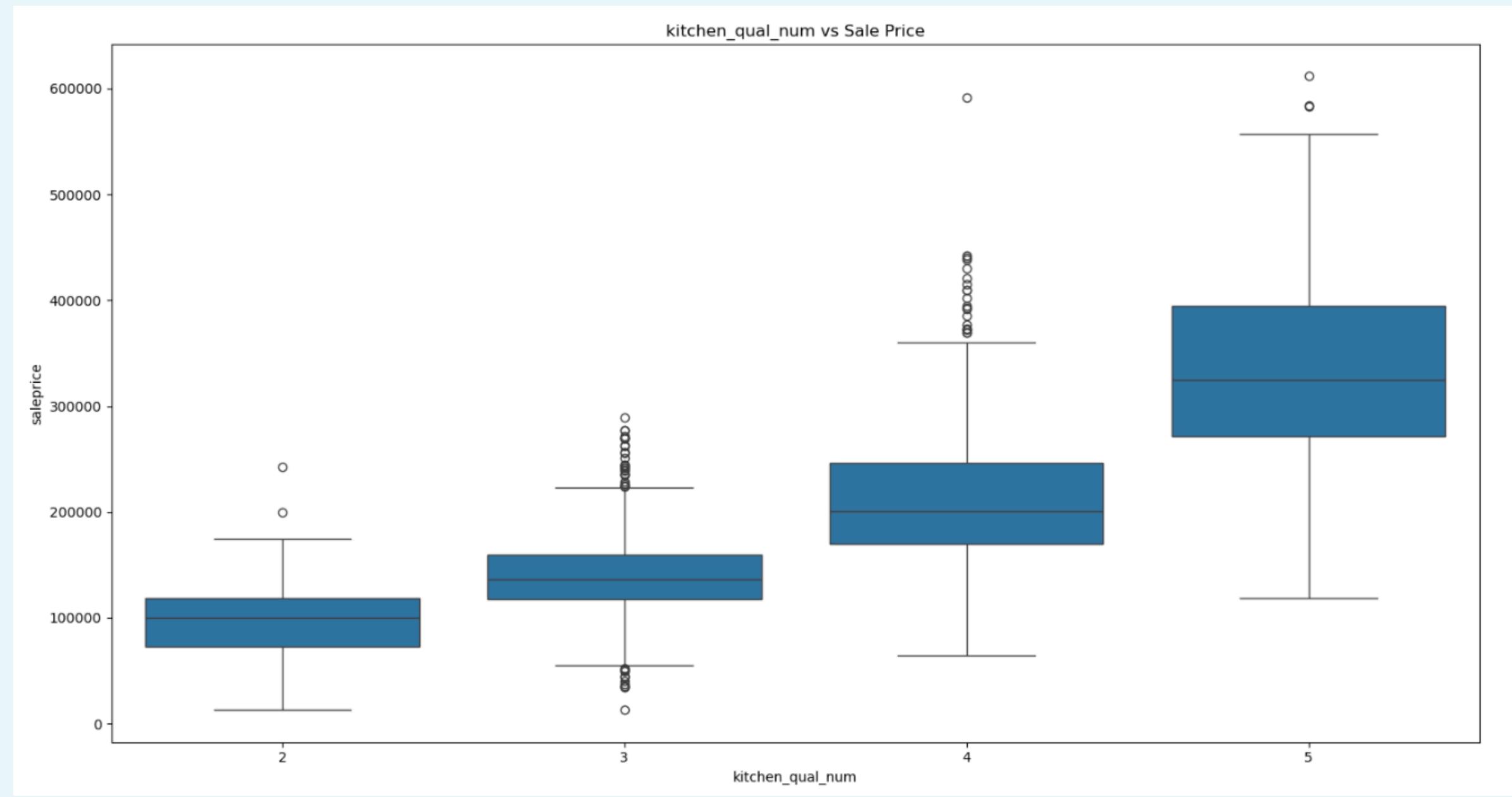
**Thank you for
attending!**





RMSE of 27086.47 Approximately on average my model predictor is off by 27086.47

R²: Relative to the baseline my model explains 87.65% of the variability of the data



kitchen quality or whether a home has a fireplace, seem important at first. But when analyzed with all the data, the model suggests they don't contribute much—or even have a slight negative impact—likely because other features already capture that information. Lower predicting power (negative)

References

- <https://www.homes.com/neighborhood-search/ames-ia/>
- <http://www.revenueproductions.com/blog/8-reasons-to-target-prospective-customers-outside-the-bullseye>
- <https://images.signaturehardware.com/i/signaturehdwr/summer23-powder-room-hero>
- https://www.familyhandyman.com/wp-content/uploads/2023/08/FHM-Dream-Garage-Double-Decker-Car-Storage_FT-FH07SEP_481_12_004_KSedit.jpg
- Conversations with Claude
- Conversations with Chatgpt
- Conversations with Deepseek