



# Residualized Students\*

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\*We'll make sure your dream home comes at the right price

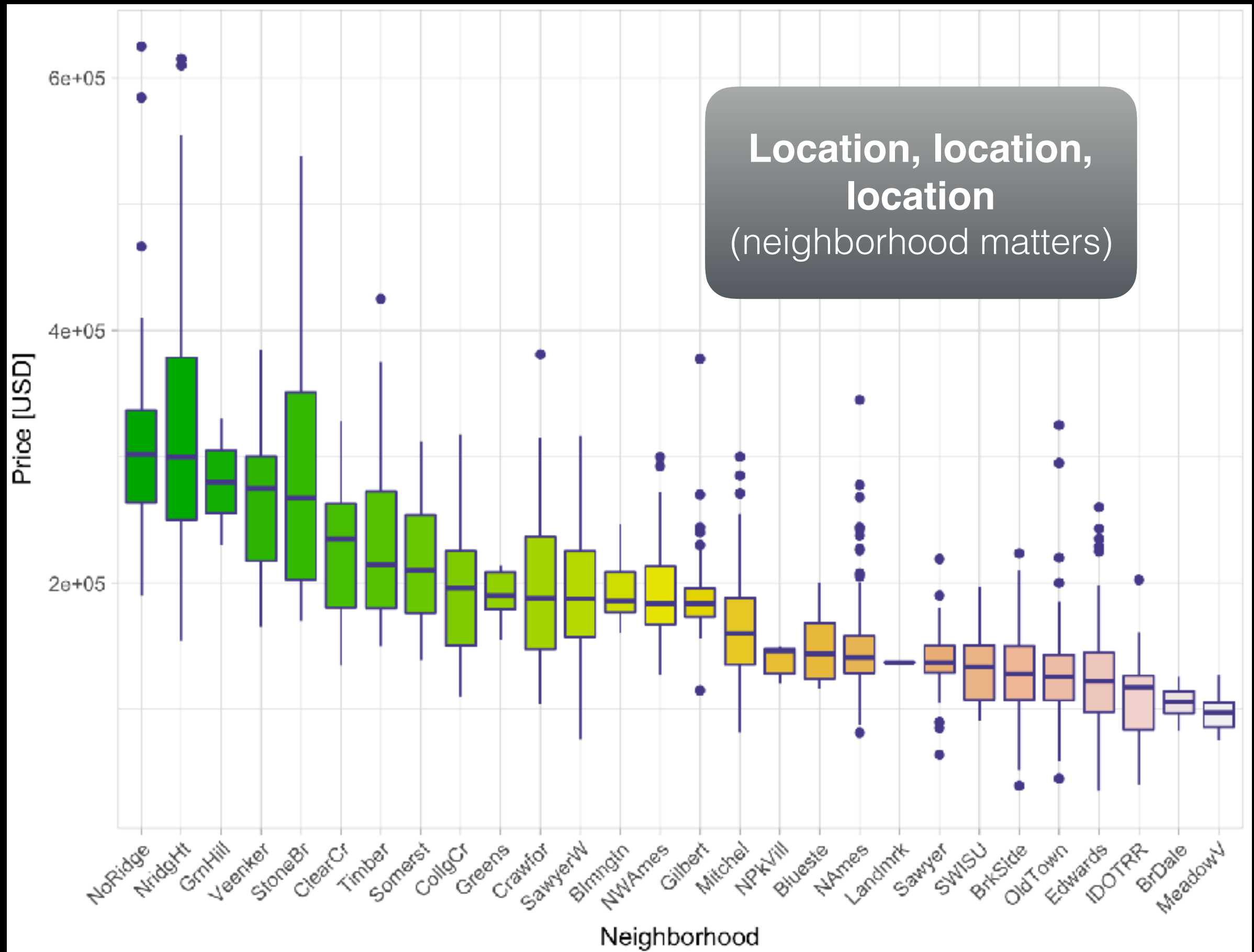


Fig 1: Price by neighborhood

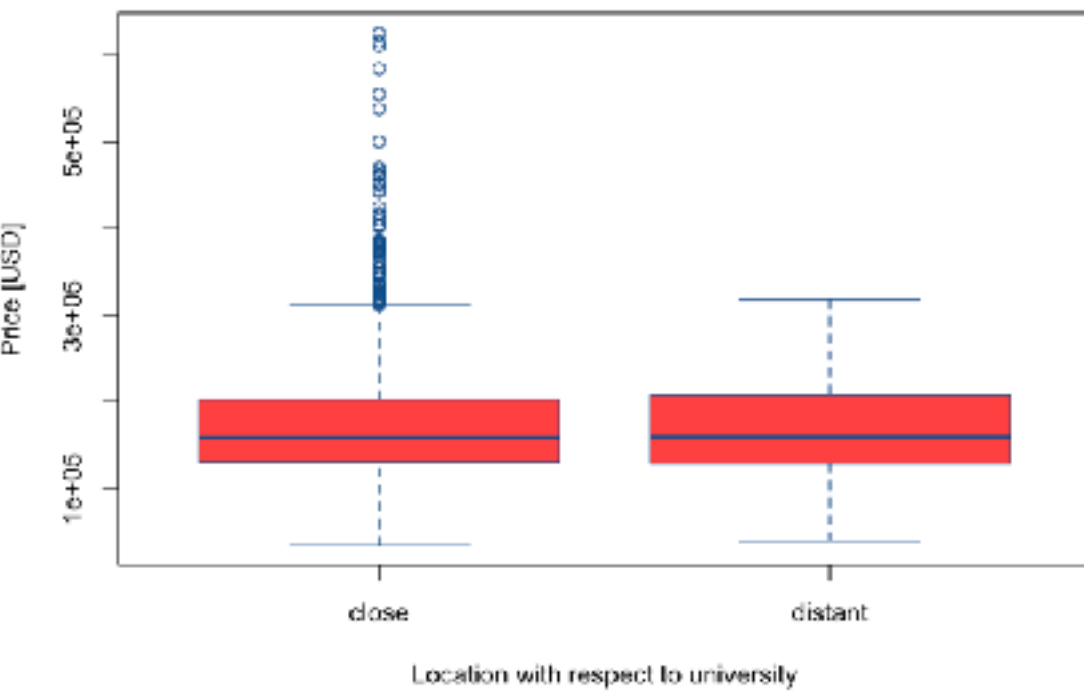


Fig 2: The difference in prices (or lack thereof) between houses close to campus and those further away.

Sale Price versus Total Square Feet by Overall Quality

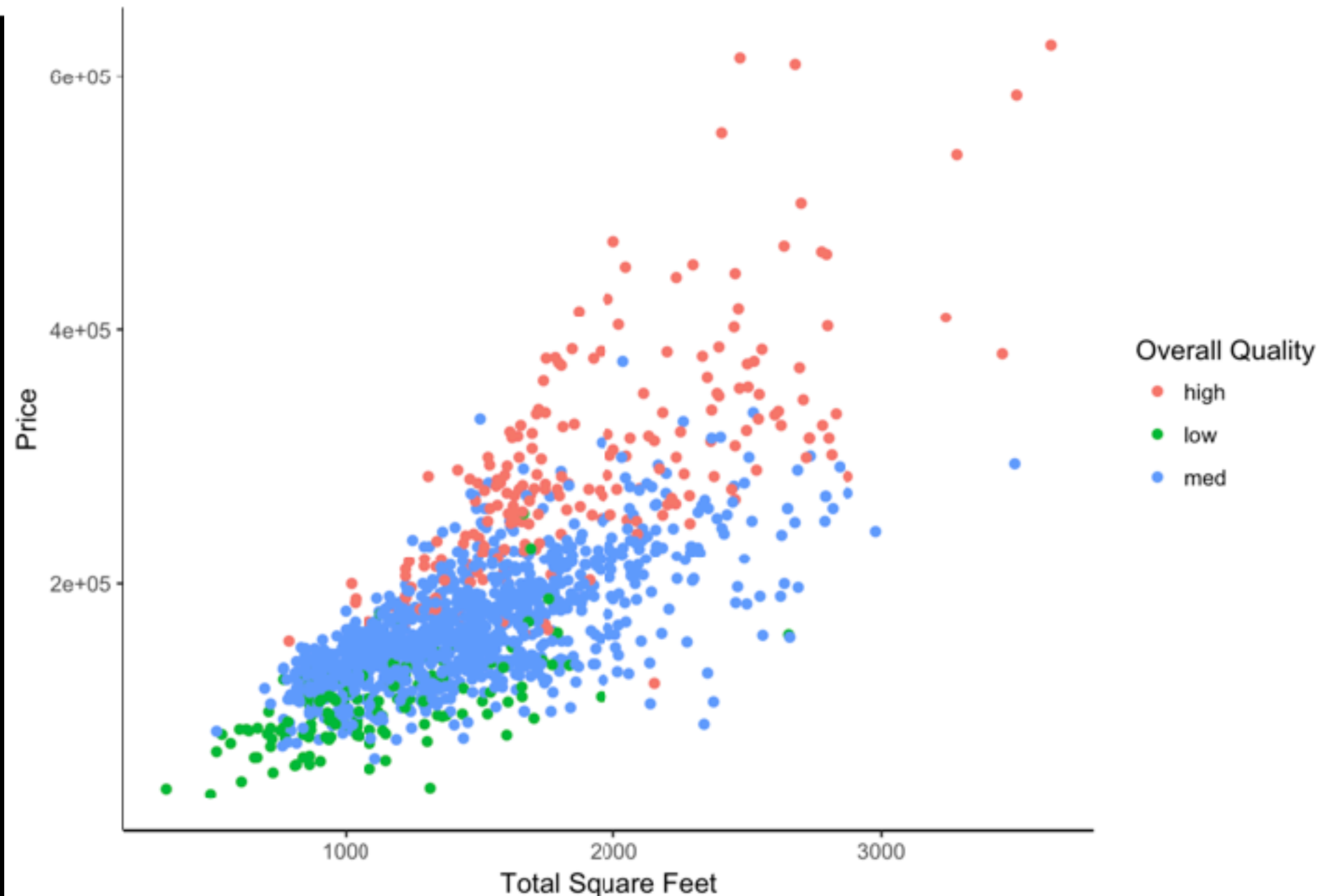
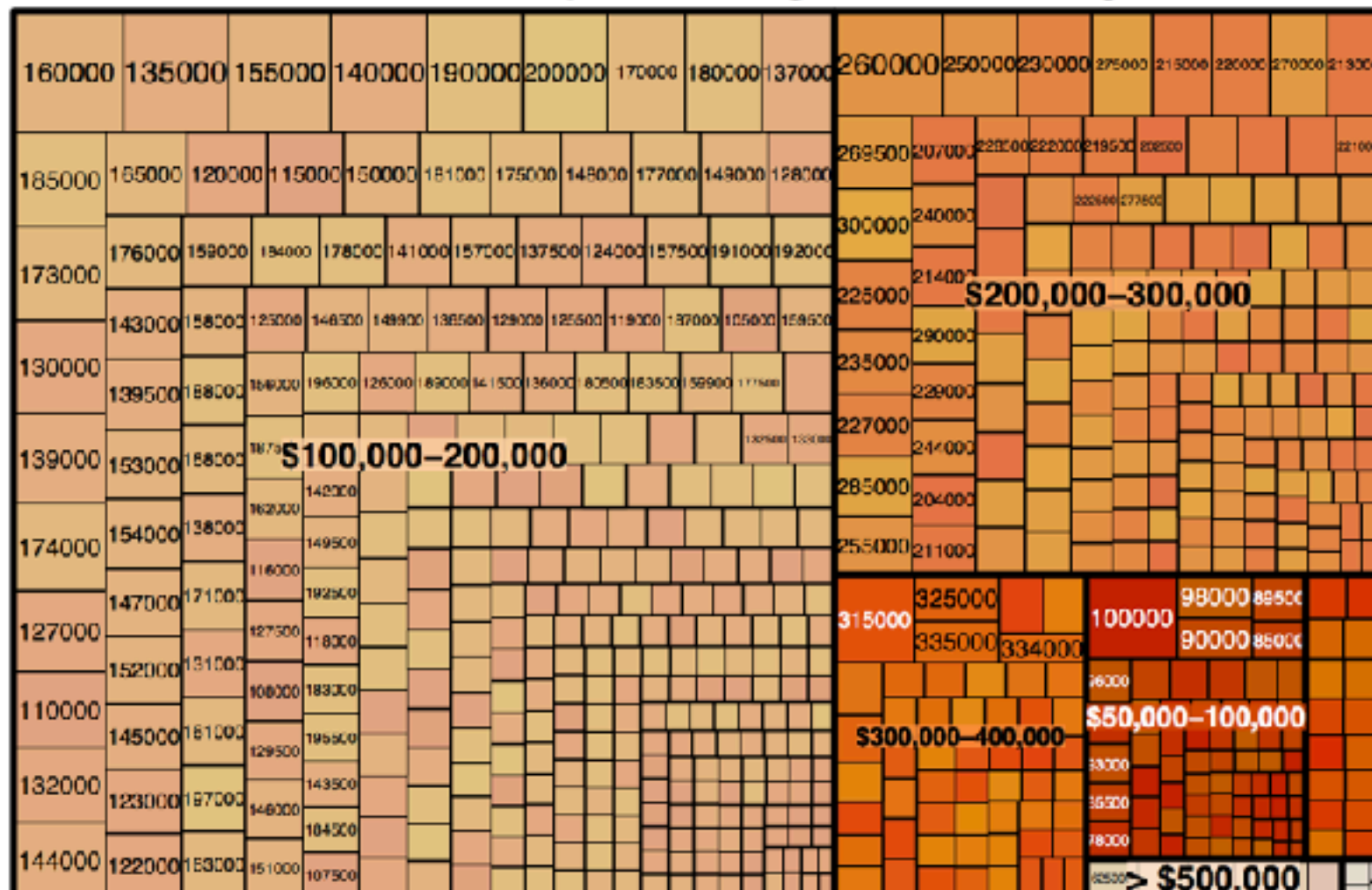


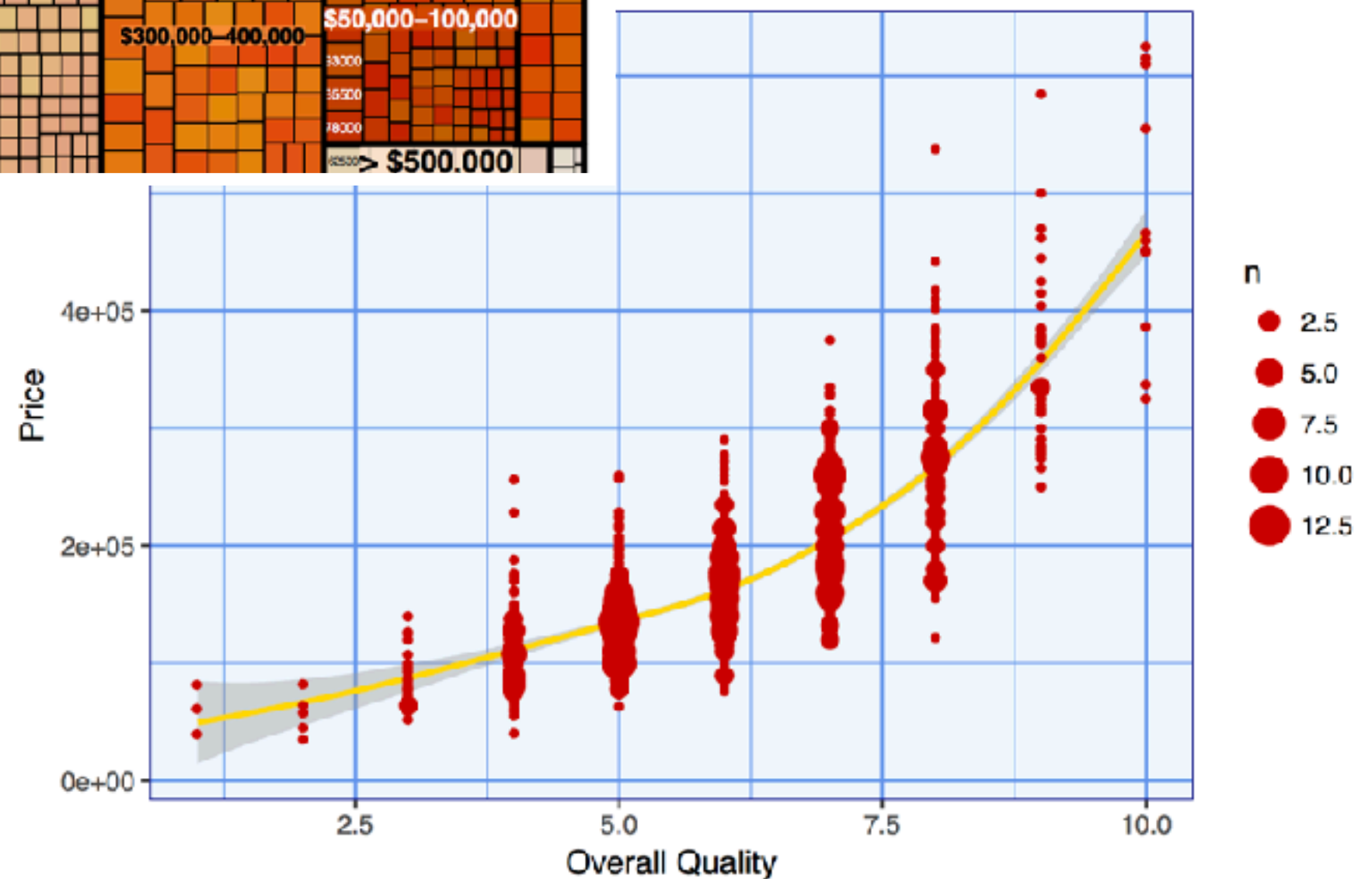
Fig 3: The change in prices with respect to total square footage, stratified by overall quality

Effect of Total Square Footage on Price Range



Plot 5: Tree map of Total Square Footage, Binned by Listed Price.

Plot 6: Price by overall Quality



# Methods used to develop simple/complex models

- Scrupulous data cleaning using dplyr and tidyr
- BIC to narrow down the number of variables for simple model
- Boosted tree for relative variable importance
- Pruned decision tree to show us relevant interactions and
- Again BIC to converge on final complex model

<b>bias</b>	<b>max.dev</b>	<b>mean.dev</b>	<b>RMSE</b>	<b>Coverage</b>
-156.1364	64352.67	11229.45	14983.7	0.966

# Two Houses to Purchase

PID	price	price_to_pred_ratio	TotalSq	Overall.Qual	Neighborhood
527182020	130000	0.7556536	1204	8	StoneBr
534479120	105000	0.8349797	1376	5	NAmes

- The two houses we recommend purchasing are in the Stone Bridge and North Ames neighborhoods, respectively
- Both in top 10 underpriced houses; both below the median housing price for that neighborhood
- Both of reasonable size in square footage, falling in the middle to low end, relatively speaking
- Overall Quality of 8 and 5, respectively. Could see a big uptick in price with some remodeling to the latter, as we saw in our graph that this uptick generally happens around the 7.5 quality mark.



# Insights into Predicting Sales Price

- Despite our initial beliefs: proximity to Iowa State (main employer in town) did not have a significant influence on price

