# Informed Real Estate Investment

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Project 2

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Predicting Worthwhile Investments

- Look to provide a model to find undervalued properties for investment/flipping and assess what factors drive price
  - How well do we predict typical prices?
  - What features dictate the price the most?
- Use Ames, IA as a testbed
  - With success, expand to elsewhere in the Midwest and US as a whole
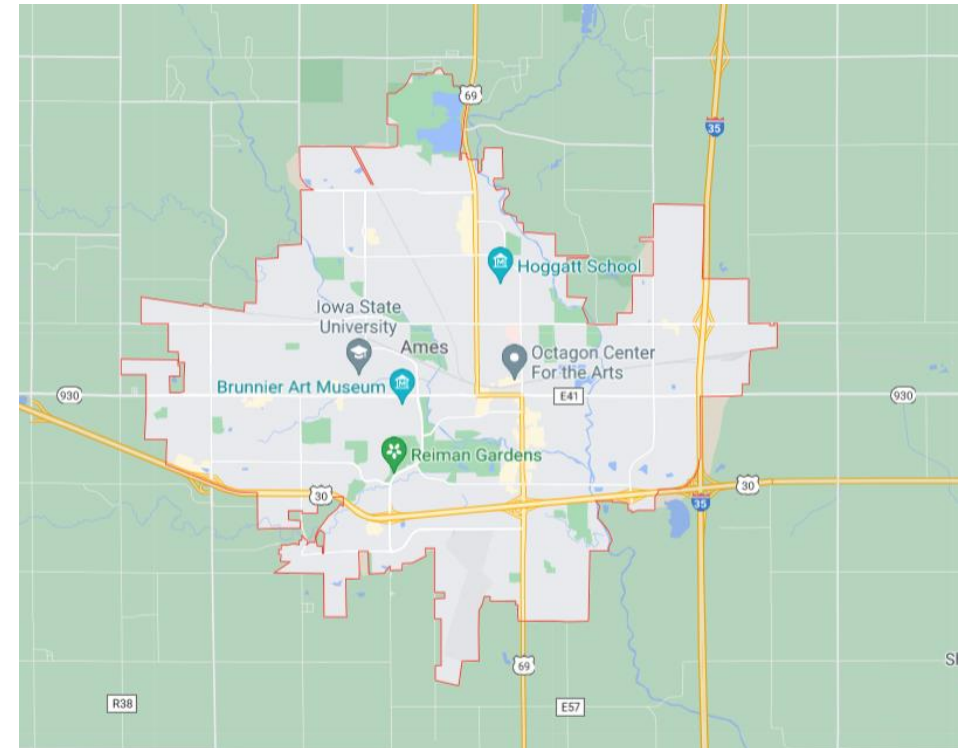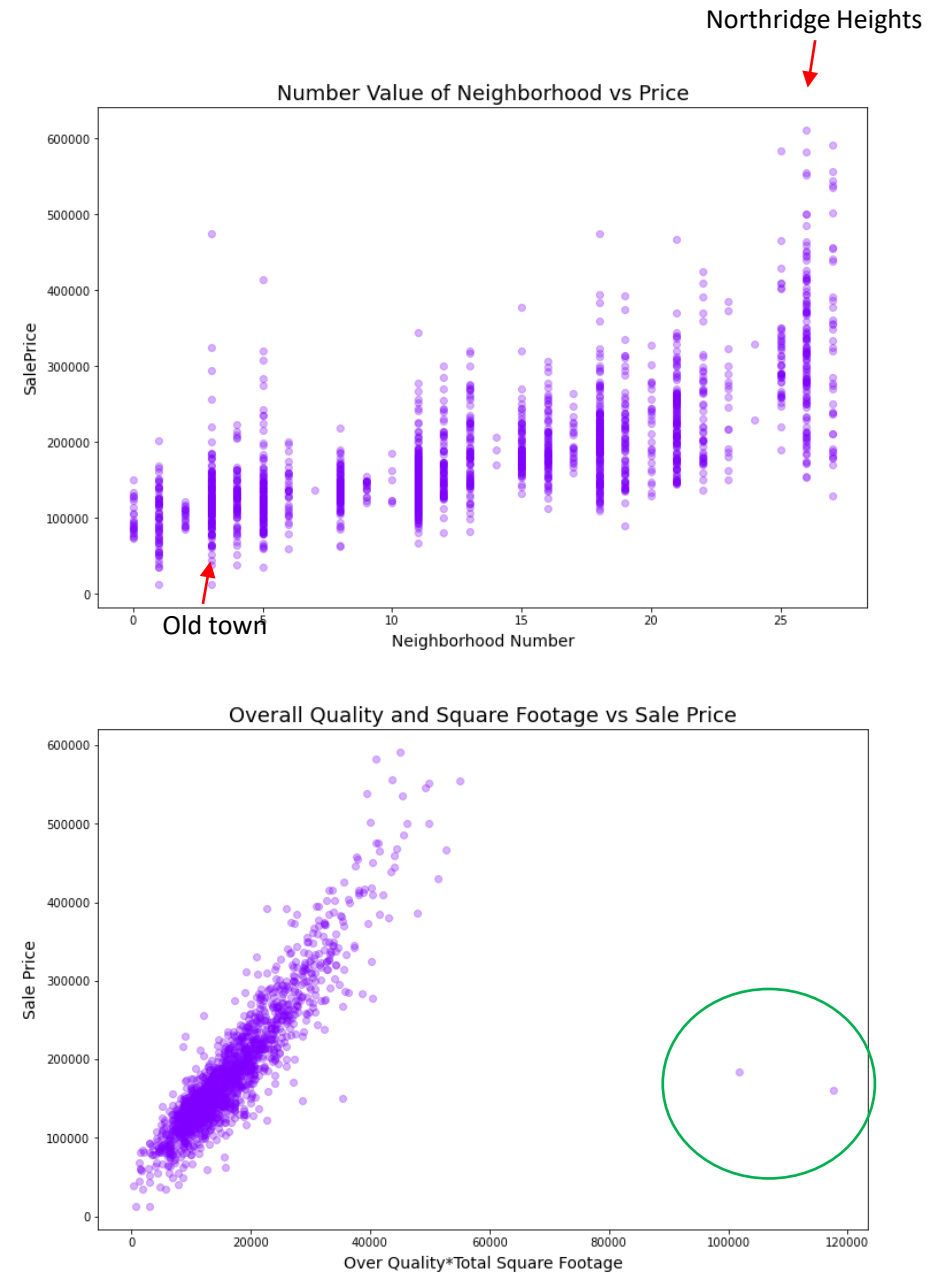
Building a Model

- Built based on qualitative and quantitative assessment of the houses
  - Bring quantity to quality
- Minimize how much we guess wrong
  - Less big loss (and big gains) for consistency
- Fill in gaps for missing info

House Quality vs Price

| Factor	Amount
Starting Predictive Qualities	80
Total Predictive Qualities Searched	1856
Number of Fit Parameters	40

"New" Features

- Some are to make common qualities:
  - Total house sq ft
  - Total number of bathrooms
- Quantify what typically isn't quantified
  - Ex. Neighborhoods
- How the quantities potentially interact
  - Ex. House size * Quality Grade

Number Value of Neighborhood vs Price

Northridge Heights

Old town

Overall Quality and Square Footage vs Sale Price

Major Factors

- The obvious:
  - Lot area, house square footage, overall quality, neighborhood…
- The less obvious:
  - Kitchen quality, how factors interact with each other
- Most influential are interaction terms
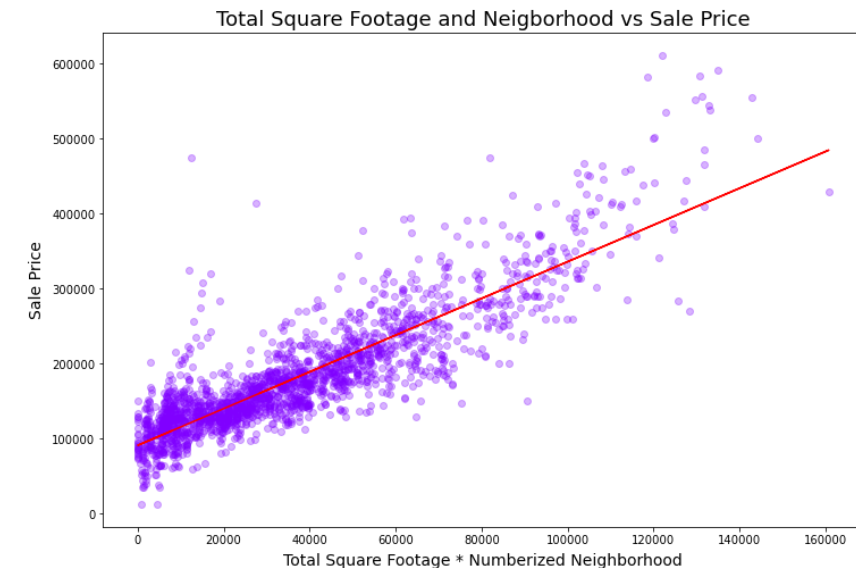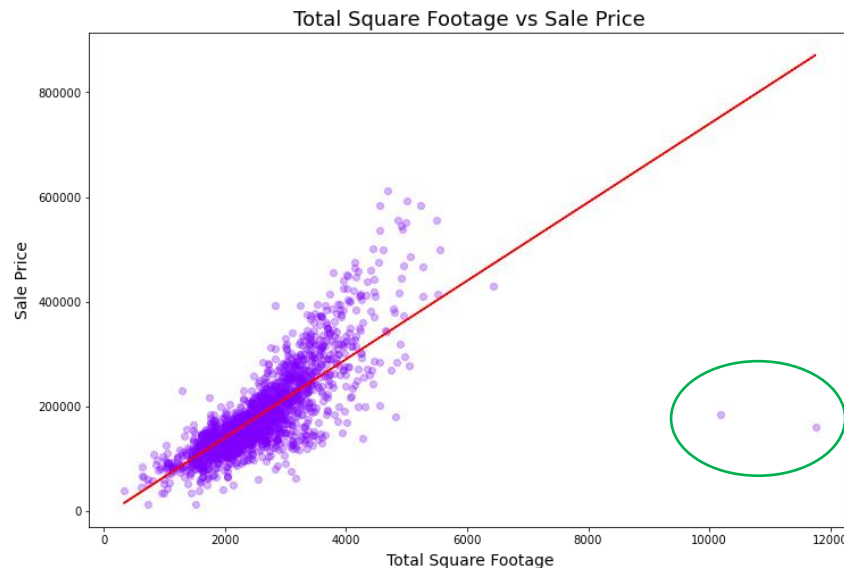
Quality of Model

Metric	Value
R^2	93.8%
RMSE	$20,300
Mean Absolute Error	$14,100

- Vast majority of sales predicted within 20%

- Explain 93.8% of variation in test data

- Root mean square error ~$20k
  - On average guess price within $14.1k

Outcomes

- Focus on the big picture
  - Location, size, kitchen, and how everything come together
- With our model, you can make informed investment decisions
  - Find not only value, but potential
  - More insights than shown here
- *Caveat Emptor*
  - This is to be used as a guide, and a little of your own due diligence is needed

Source