

Project 2: Ames Housing Data - Modeling

Jason Lee
WC-S5
7-10-20

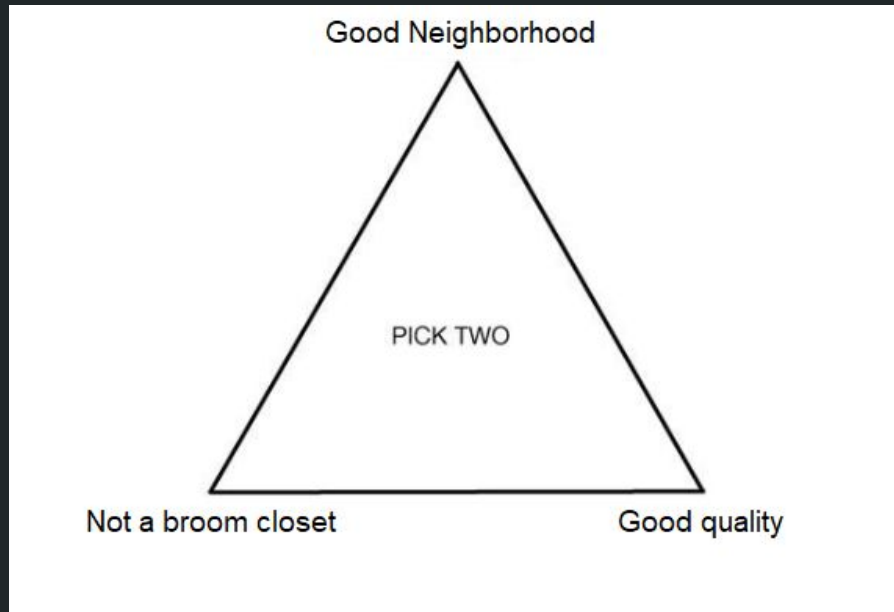
An Old Adage



An Old Adage

Jobs are hard to negotiate (unless you still have your soul)

Homes, however, “just” need more money



But how do you know your dollar is being spent effectively? **How do we determine if that dream house is a steal or a scam?**

Providing a Firm Foundation

We created a model to predict housing sale prices looking at the following qualities:

- Age
- Building Type
- Garage Size
- House Size
- Basement Size
- Neighborhood
- Overall Quality



Model Metrics:

R^2 : 0.9

RMSE: \$25,000

Which Features Matter?

Two Types:

Categorical - Value changes in relation to other types in the same category

- Building type, neighborhood, overall quality (numerical, but subjective)

Numerical - Feature number goes up, price changes

- Age, house size, garage size and basement size

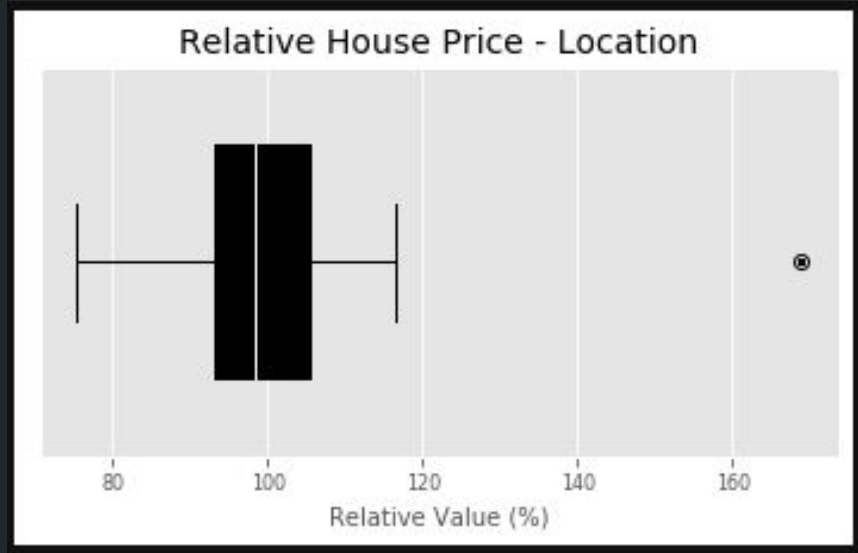
Rating the Categoricals

Of the three, building type matters least, with only a **12.5%** difference in price between the most expensive (single family) to least (duplexes)



Overall quality, however, had a much more profound impact, with top rated houses being priced nearly **2.5 times** more than the lowest quality

Location, Location, Location



Location, surprisingly, is fairly consistent: most neighborhoods clustered within 90-110% relative value, with a few outliers

Budget: Old Town, DOT/RR

Pricey: **GREEN HILLS** (68.9% above average)

Does Size Matter?

Most certainly, especially for your garage and living spaces

For every 1,000 sq. ft. of living room, you can expect price to increase by around 30%



Age is Just a Number

Age was found to have a weak relation with sale price; for every 10 years of age, sale price dropped by just 3%. If we use a new house as our baseline:

- New: 100%
- 10 yrs old: 97%
- 50 yrs old: 86%

So you'll save a few, but may have to deal with complications later

Conclusions

Our goal is not to find your dream house, but to help you understand what factors most affect housing prices and to help inform you if the house you're eyeing is at a competitive price point. There are other factors that affect pricing, but we provide here a baseline for you to work with

Major Factors

Quality
Size

Minor Factors

Age
Location
Building Type

