Predicting Home Prices

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Presentation For Ames Planning & Zoning Commission

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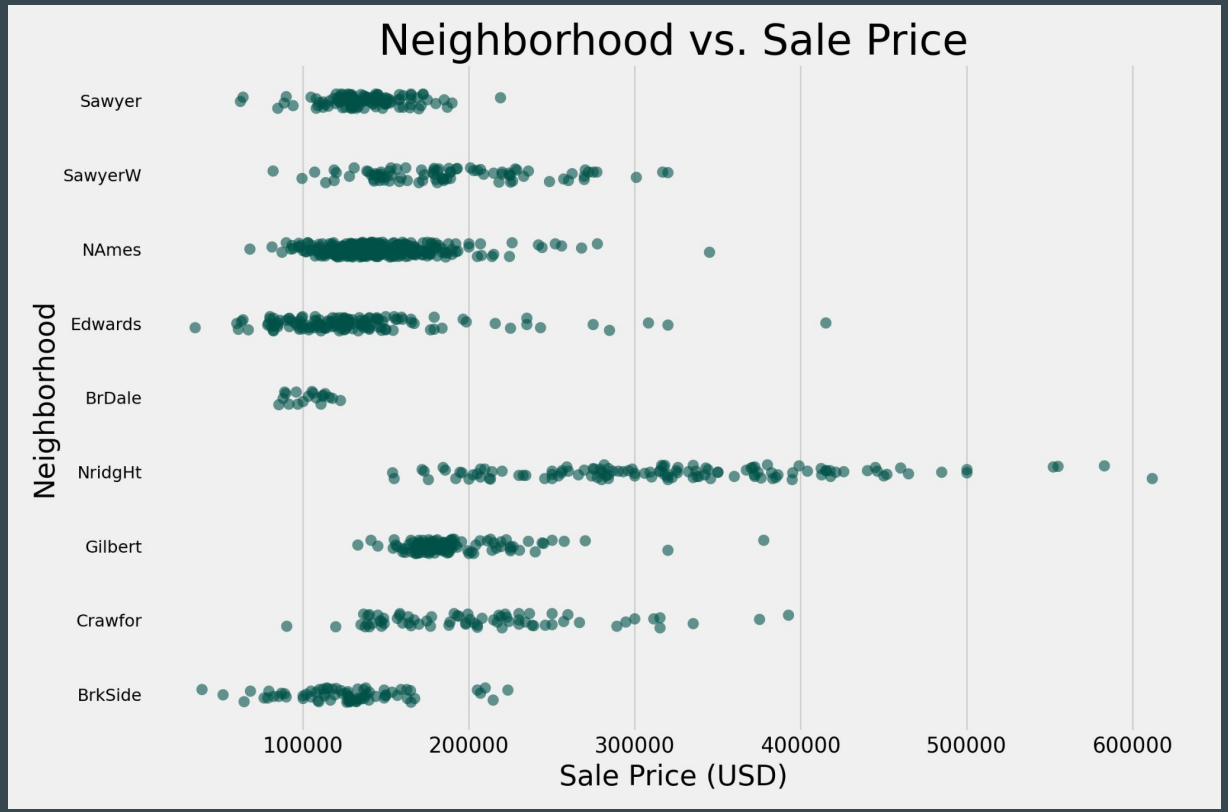
Ames, IA Housing Data

- Dataset of homes sold in Ames, IA between 2006 and 2010
  - Majority of data concerns physical properties of the house
  - Over 2000 houses - each with ~70 points of data
- Sounds like a lot of data. What can we do with it?
  - Predict home prices - with data science!
- What can we do with it?
  - Maintain affordable housing
  - Identify neighborhoods that need attention
  - Shifts in population

...not like this

Photo by Petr Sidorov

Neighborhoods Within Ames

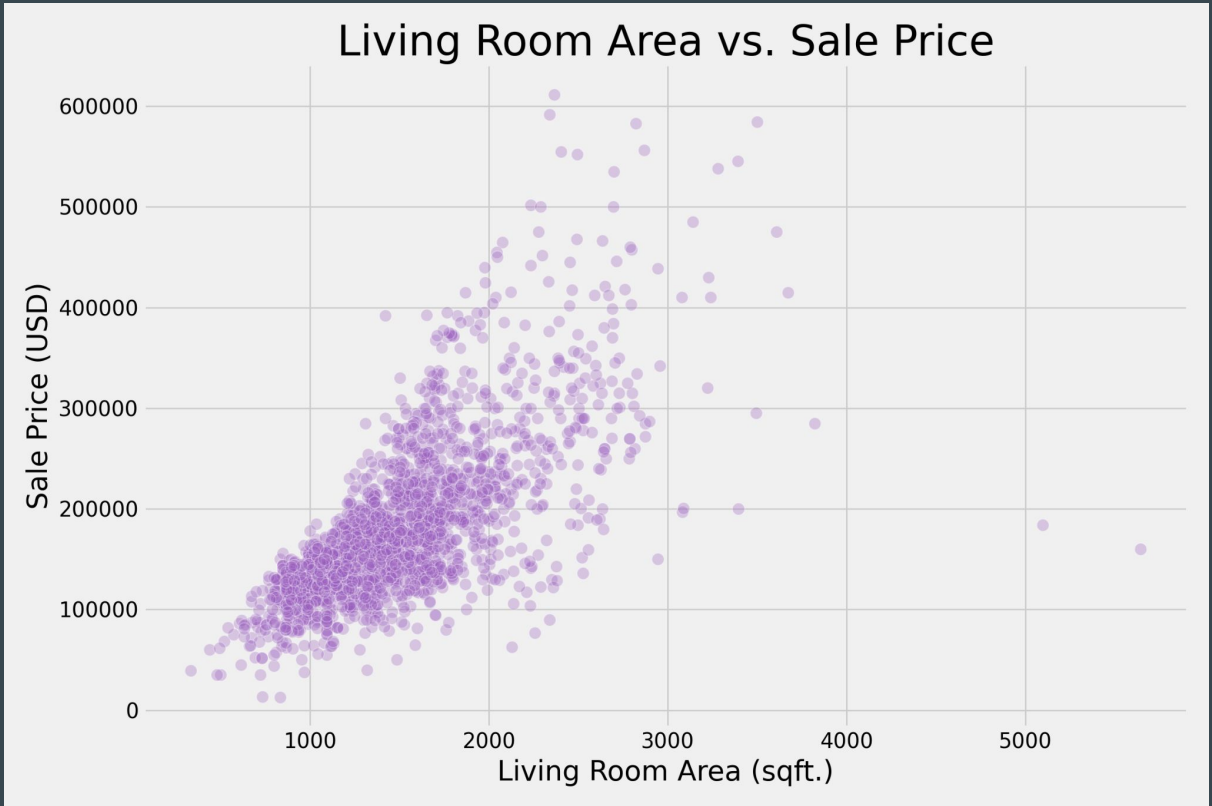


Neighborhoods can offer insight into price range for homes.

North Ames (NAmes) well within $100k - $200k range.

Edwards and Brookside have cheaper homes - is this worth investigating?

Spacious Living Rooms!

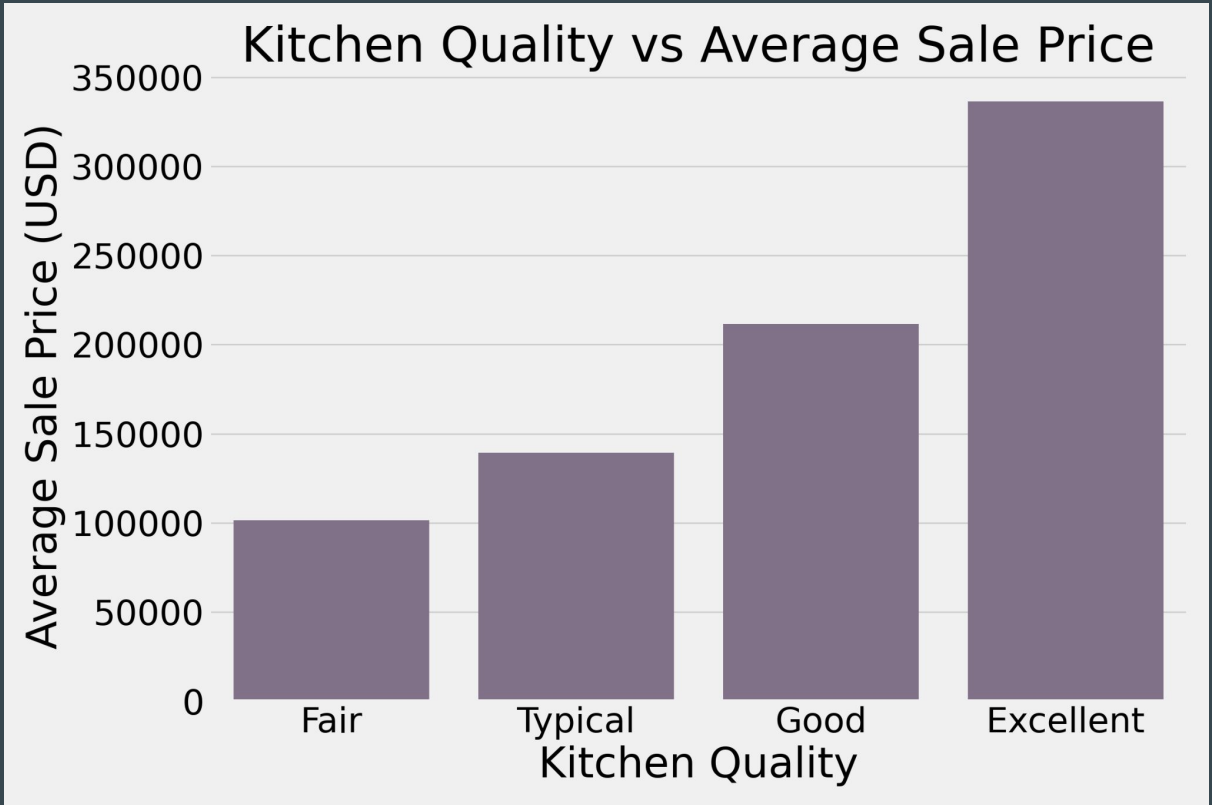


Larger living room spaces equate to higher home prices.

Research indicated that this held true for the area of different house spaces.

Larger homes command a higher price.

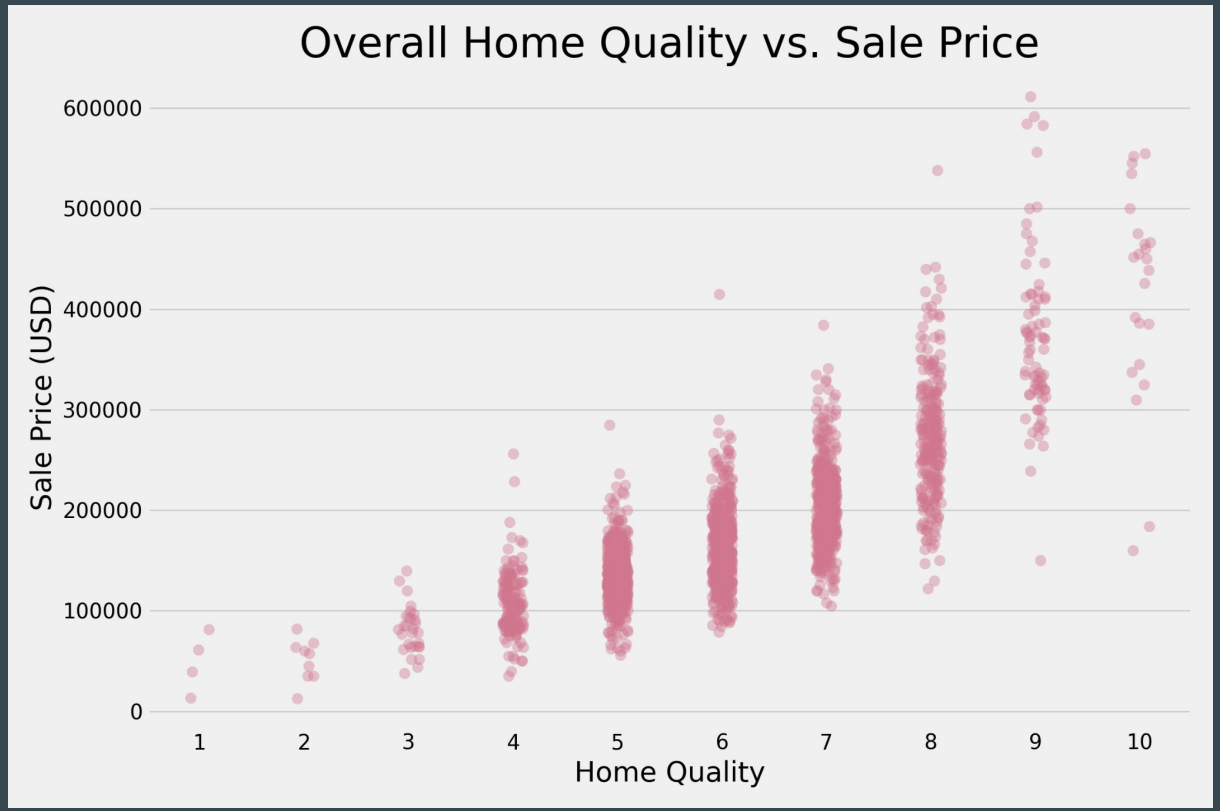
Home Is Where the Food Is



Home prices are higher when the kitchen quality is better.

...is this true overall? Let's take a look at overall quality of homes.

Paying More For Quality



The highest quality homes - 10 being the highest - are sold for more.

Knowing all of this, can we predict how much homes sell for in the future?

Future Home Prices - In Detail

Yes, we can predict future home prices using information from the Ames Housing dataset!

What did we consider?:

- Neighborhood
- Living Room Area
- Overall Quality

About 80% of fluctuation in home prices can be explained by these three factors.

- Ignoring living room area and overall quality, can say that home price will be about $52910 higher than average if located in Northridge.
- Ignoring neighborhood and overall quality, can say that home price will go up by $54 per square foot of living room space.

Is This A Good Model?

Given the information provided, the model is better than assuming the average. It could be improved upon, but we couldn't directly interpret it. Also...

CITIES ARE SOCIO-TECHNICAL ASSEMBLAGES - Fábio Duarte and Priyanka deSouza

Data Science and Cities: A Critical Approach

Ames is more than its buildings. People in Ames may fall prey to existing bias from collected data that does not consider the social and political aspects of how the data is generated. Think critically about the data before making predictions.

Was the data profit driven? Where is the data coming from?

Where To Go From Here

Consider exploring the intersection between data and social science for more rounded data collection and interpretation.

Make Ames data sets available to anyone for use.

While models that are interpretable may not be as good as ‘black box’ models, they maintain accountability.

Photo by Riley Edwards