

MODELING HOUSING PRICES

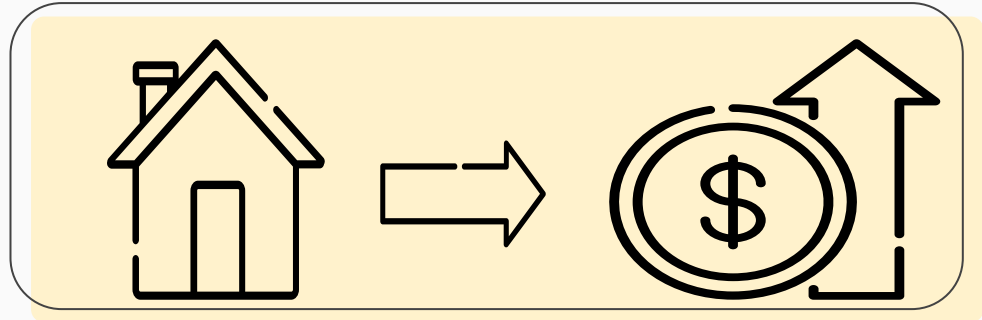
Determining what increases property value with machine learning and what you can do to raise your homes sale value

By Tony Tedesco



PROBLEM

You want to sell your home and to get more bang for your buck, but you don't know how and you don't know how your home is being valued.



ABOUT ME AND MY HYPOTHESIS

My Experience:

- Worked on and off in the real estate business for 8 years.
- Know the ins and outs of what needs to be done to get a good price on a house.

Hypothesis:

- Improve the quality of your home will raise its price



THE MODEL

Data:

- Housing data from Ames Iowa
- Contains over 80 variables

Model:

- Using different machine learning linear regression models to create the most accurate predictions I can





R2 AND RMSE

- R2 score of : 0.9 and 0.91 for training and testing data.
- Rmse of: \$18395

MODEL EVALUATION



Overall Cond * Qual	0.552294
Full Bath	0.560094
1st Flr SF	0.570605
Year Remod/Add	0.583628
TotRms AbvGrd * Full Bath	0.585131
Garage Finish	0.585487
Total Bsmt SF	0.596673
Live Area * Rooms above ground	0.597878
Bsmt Cond * Bsmt Qual	0.605082
Bsmt Qual	0.609761
Year Built	0.619248
Garage Area	0.631171
Garage Cars	0.646694
Kitchen Qual	0.664450
Year built * Year remod/add	0.667488
Garage Area * Cars	0.673557
Exter Qual	0.691883
Gr Liv Area	0.692202
Garage Qual * Overall Qual	0.711082
Live Area * 1st floor sf	0.729011
Overall Qual	0.805259
Bsmt Qual * Overall Qual	0.809219
Overall Qual * Exter Qual	0.822676
Overall Qual * Kitchen Qual	0.822814
Quality * Live Area	0.857914
SalePrice	1.000000

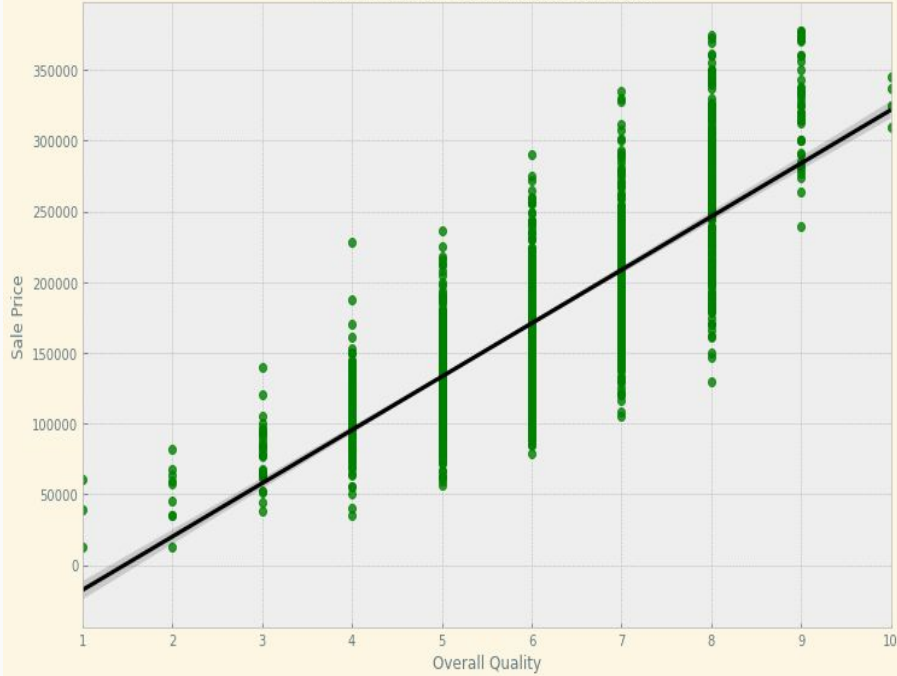
MODEL INTERPRETATION

The best predictors of the sale price of a house are:

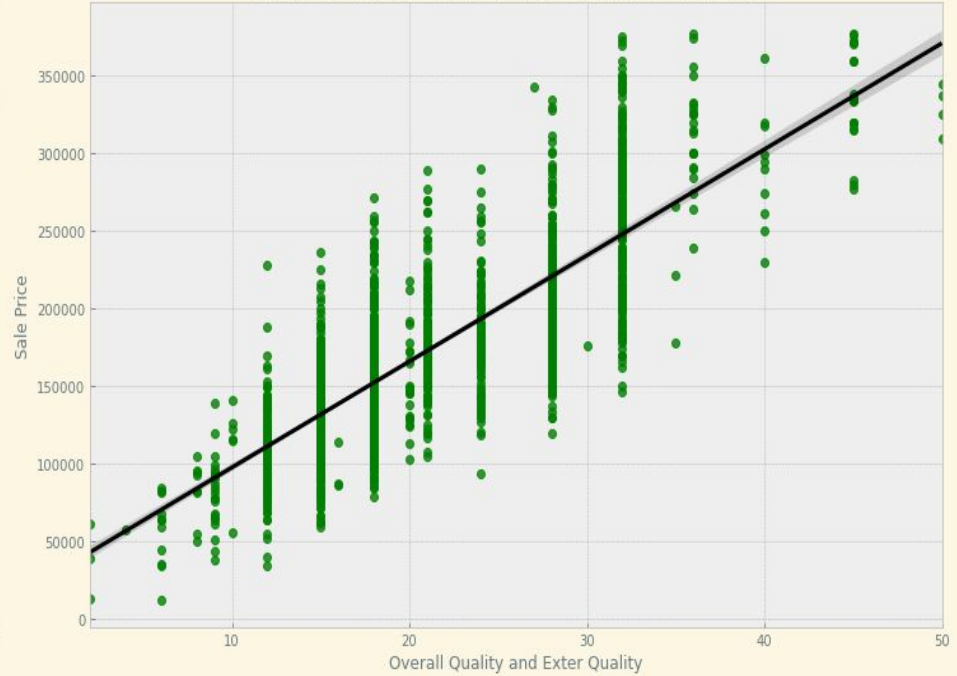
- Overall Quality
- Overall Quality and Quality of certain parts of the house
- Size/Square footage

PUTTING IT IN AN UNDERSTANDABLE WAY

Overall Quality compared to Sale Price

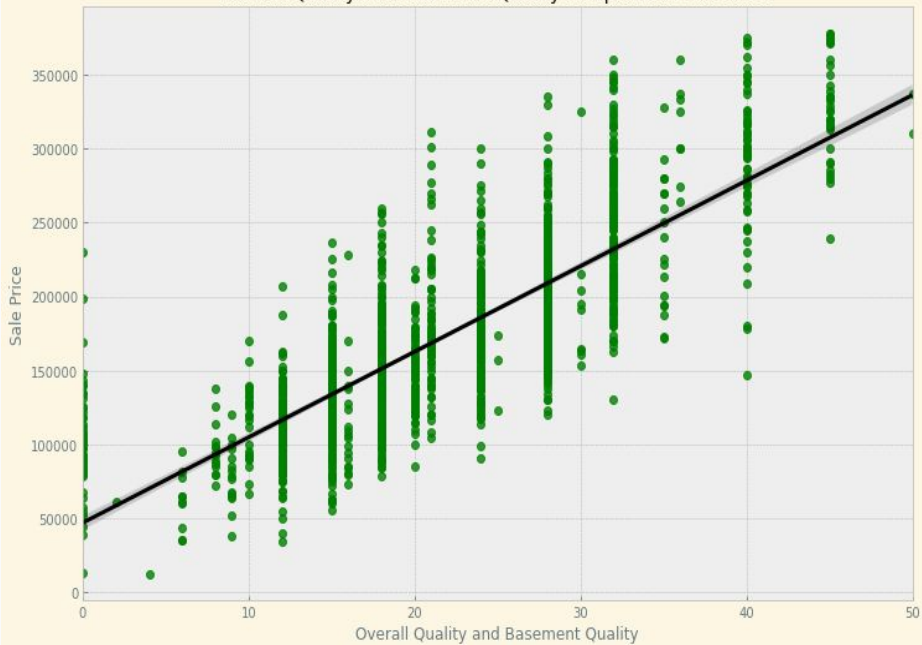


Overall Quality and Exter Quality compared to Sale Price

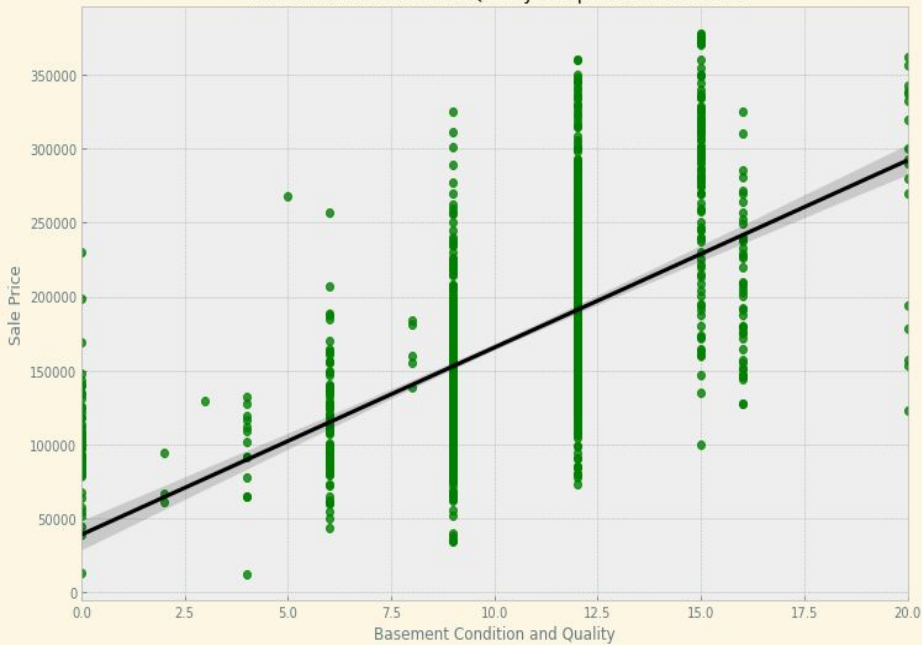


CORRELATION OF QUALITY AND SALE PRICE

Overall Quality and Basement Quality compared to Sale Price

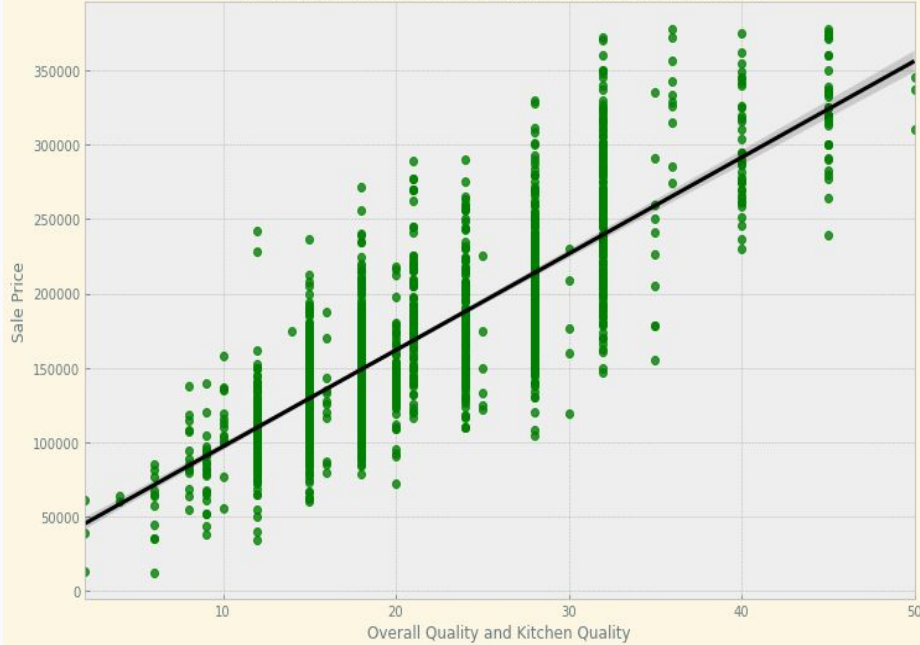


Basement Condition and Quality compared to Sale Price

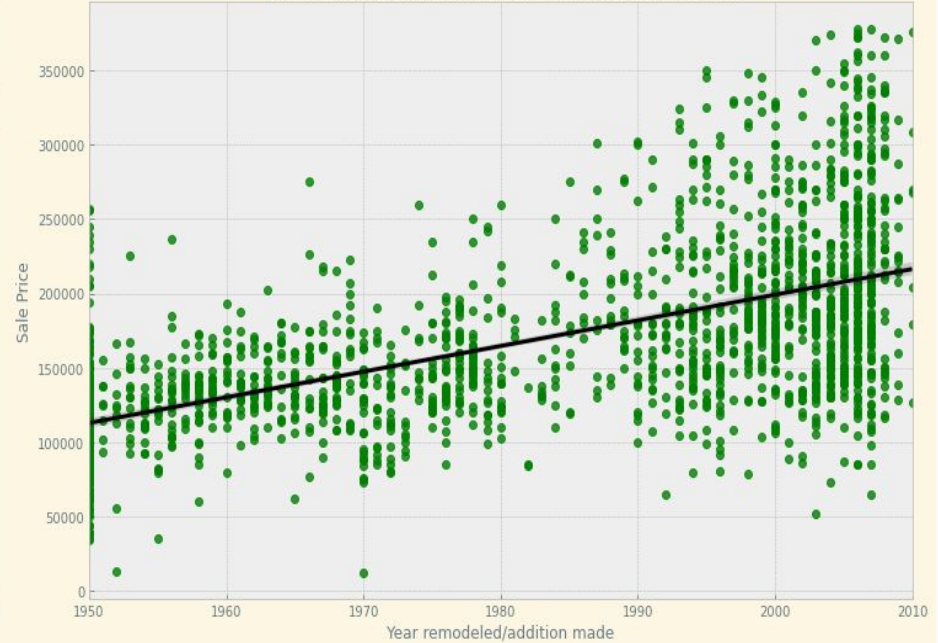


ONE MORE TIME FOR GOOD MEASURE

Overall Quality and Kitchen Quality compared to Sale Price



Year remodeled/addition made compared to Sale Price



CONCLUSION

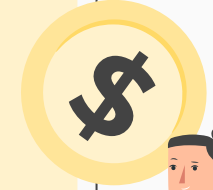
Hypothesis was correct:

- There is a positive correlation quality and sale prices
- Quality is king!
- Home improvement is the best way to increase sale price

WHAT TO DO WITH THIS INFORMATION:

Recommendations:

- Repaint interior and exterior
- Landscaping
- Lots of cleaning!
- Repair and replace anything old or broken
- Make it look better than the day you bought it



THANK YOU

Does anyone have any questions,
or comments?

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