

# HOUSING SALE PRICE ANALYSIS IN KING COUNTY, WA

Rebecca Frost-Brewer

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# OVERVIEW

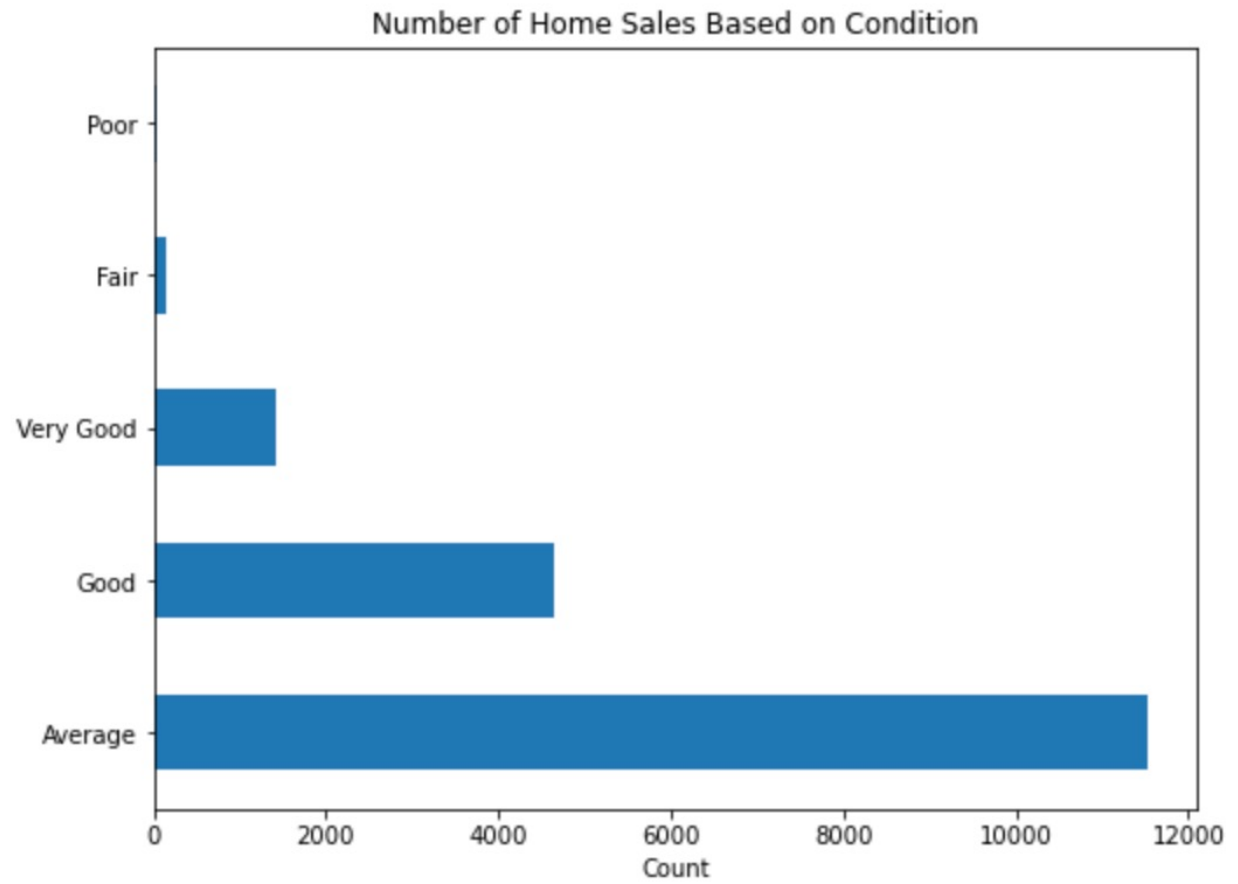
- **Business Problem:** Emerald City Realtors need to provide prospective home sellers with guidance on how to improve the value of their home prior to listing, including the predicted increase in value expected based on improvements to features
- **Business Question:** What features of their home can prospective home sellers change or improve to increase the value of their home, and by amount could this increase be specific to certain features?

An aerial photograph of a city skyline, likely Seattle, showing a dense cluster of skyscrapers in the background and lower-rise buildings in the foreground. A white-bordered box is superimposed over the lower-left portion of the image, containing the text 'BUSINESS AND DATA UNDERSTANDING'.

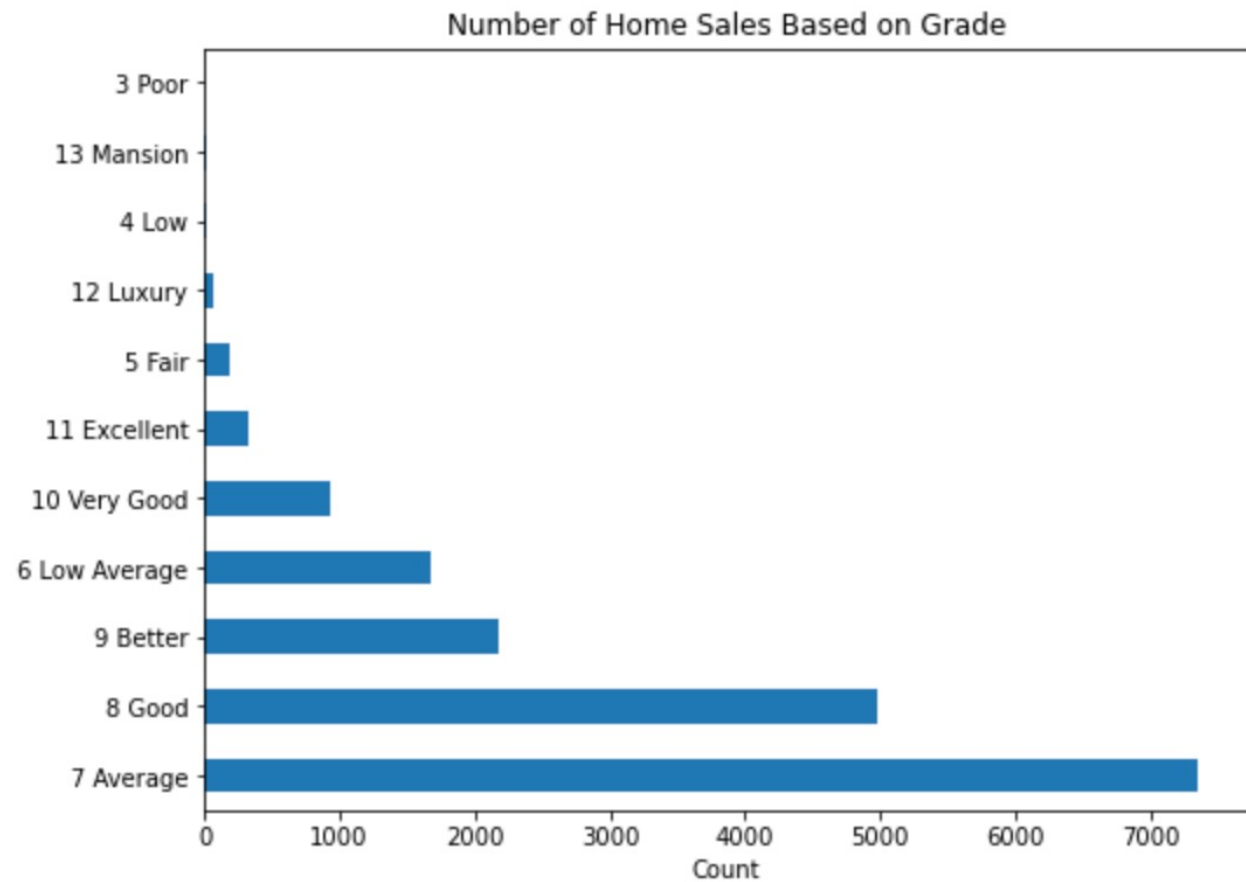
## BUSINESS AND DATA UNDERSTANDING

- Stakeholder: Emerald City Realtors
- Data: King County House Sales dataset encompassing housing sales of 2014 and 2015, with 20 features related to the homes' sold
- Business Value: Data-drive recommendations will be valuable to Emerald City Realtors because they will help prospective home sellers confidently ascertain how they can improve the value of their home, and if the investment is worth the cost

EXPLORING  
THE DATA



EXPLORING  
THE DATA



# MODELING



Linear regression allows us to convey a linear relationship – such that we can observe a one unit increase in  $X$  results in a one unit increase in  $Y$



In this business case, using regression models allows for us to determine how sale price is impacted by different features and to what degree



Building complex models with multiple features allows for us to be able to make more accurate, data-driven predictions

FOR  
EXAMPLE



- In our final model, all features have a statistically significant linear relationship with sale price
- While holding all other variables constant:
  - The addition of a bathroom increases sale price by \$29,020
  - The addition of one floor level increases sale price by \$41,040
  - Improving a home's condition from Average to Very Good increases sale price by \$38,810
  - Improving a home's grade from Better to High Quality increases sale price by \$82,180



## REGRESSION RESULTS



## RECOMMENDATIONS



Improve the grade of your home from Better to High Quality, which is predicted to increase the sale price by \$82,180



Adding an additional bathroom to your home is predicted to increase its sale price by \$29,020



Each additional square foot of living space is predicted to add 81.12 dollars to the sale price; a 600-square foot addition would be predicted to increase the sale price by \$48,672

## LIMITATIONS

- In our final model only explains 57.5% of the variance in the data
- The Mean Absolute Error (a performance metric) is 106248.25, which means our predicted values may vary from actual values by as much as \$106,248.25

## NEXT STEPS

- Collect more recent sales data for more accurate representation of the market
- Investigate influence of zipcode on sale price

THANK YOU