


# King County Housing Analysis

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# Outline

- Business Problem
- Summary
- Data
- Methods
- Results
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# Business Problem

- Home owners in King County want to renovate and sell home
- Home owners don't know what factors are important for determining a home's value
- Need to determine what type of renovations to complete in order to maximize home sale price

# Summary

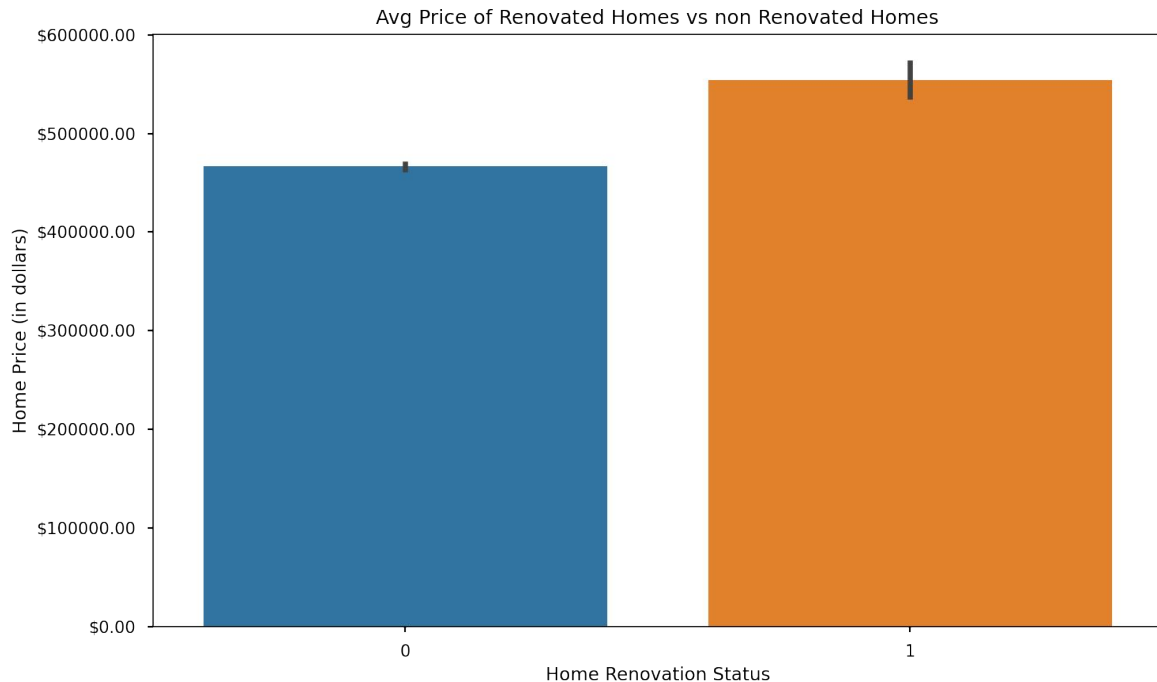
Multiple linear regression analysis of King County home sale data identifies actions homeowners can take to renovate their homes to ensure highest home price:

- Conduct a renovation, no matter how small
- Improving grade of the home is the biggest factor
- Increasing the condition of the home can make a difference

# Data & Methods

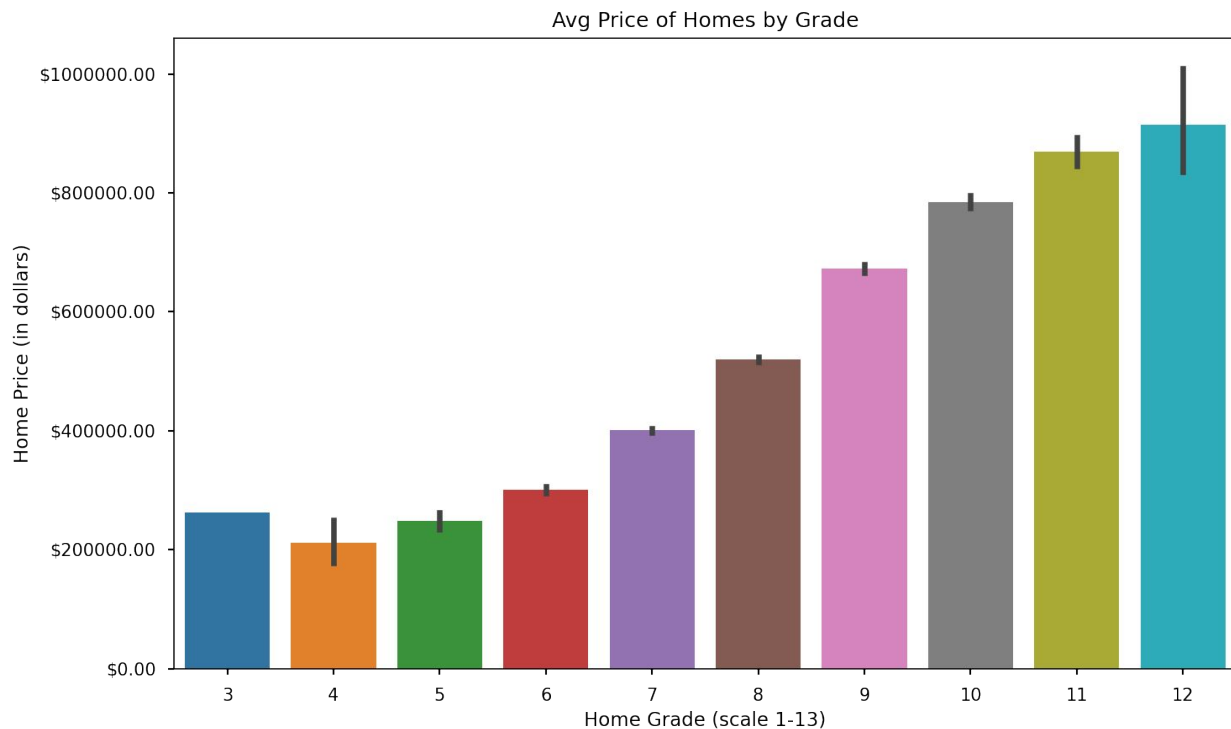
- Data sourced from King County Housing dataset
- Data included information on home price, date built, square footage, grade, condition, renovation date, zipcode, number of bed/bathrooms, and various other features
- Dataset encompassed 20180 movies from 2014-2015
- Conducted multiple linear regression analysis leveraging these data

# Results



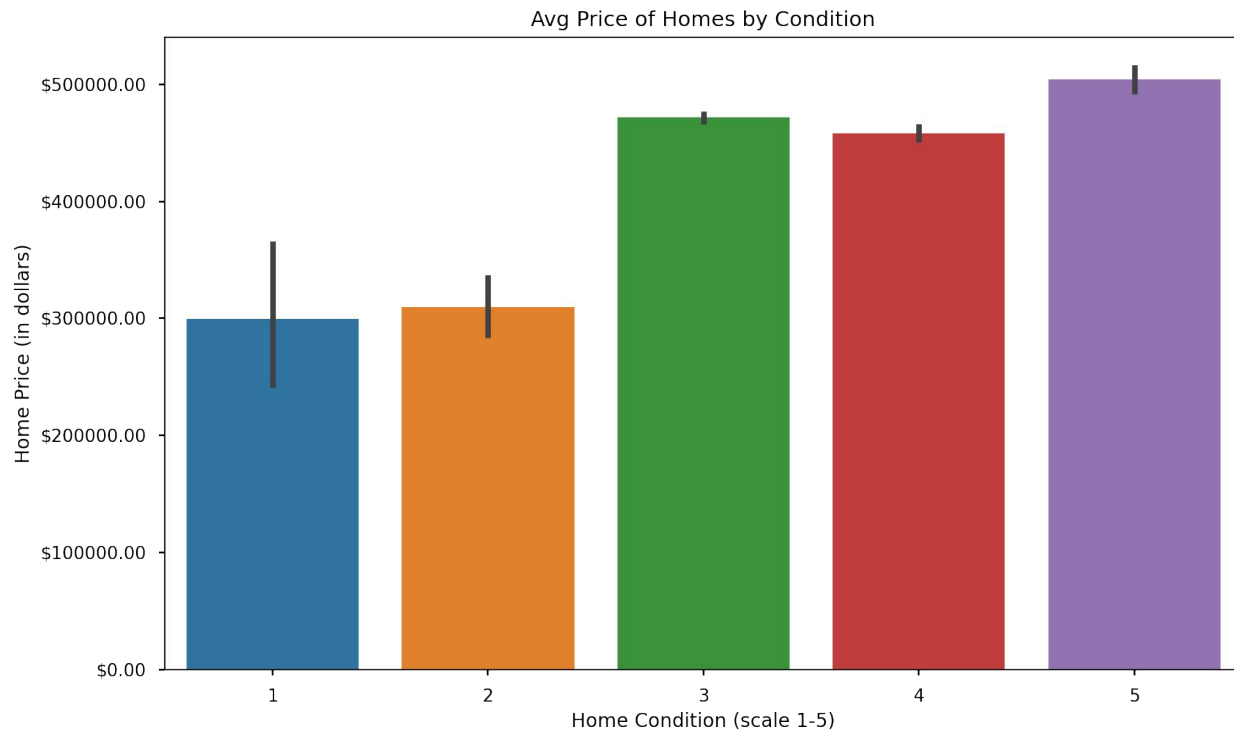
- Homes that underwent renovation of any kind were significantly higher priced
- Renovation could potentially increase price by \$30,000

# Results



- Homes with a higher grade sold for a higher price
- An increase in grade of one level could increase price by \$40,000

# Results



- Homes in better condition sold for higher price
- An increase in condition of one level could result in increase in price of \$20,000



# Conclusions

- **Any renovation is better than none.** As evidenced by a positive coefficient of 32,199.82, simply the fact that a home was renovated at all, in any capacity, could result in an increase in home price of over \$30,000. Based on those results, I would recommend that homeowners conduct some kind of renovation, no matter how small.
- **Grade is king.** With a positive coefficient of 42,070.53, increasing the grade of a home by one level on a scale from 1-13 could result in an increase in home price of over \$40,000. Grade is defined by King County as an overall grade given to the housing unit based on King County grading system from 1 to 13, where 1-3 falls short of building construction and design, 7 has an average level of construction and design, and 11-13 have a high quality level of construction and design. If a homeowner can improve the grade level of their home, whether by improving the construction or design of the home, it could pay large dividends.
- **Condition is last, but not least.** Represented by a positive coefficient of 22,825.45, increasing the condition of a home by one level on a scale from 1-5, could result in an increase in home price of over \$20,000. Condition is defined by King County as an index from 1 to 5 based on the overall condition of the home. Homeowners should focus on improving the condition of the home, potentially by replacing appliances or other run down features of the home.

# Next Steps

- The model and analysis are not complete solutions, nor are they perfect.
- The final model still struggles with multicollinearity issues, as all multiple linear regression models do, and does not perfectly meet the assumptions of normality and homoskedasticity.
- I believe that the model is accurate to a degree that makes it useful for homeowners in renovation decision making, and is easily interpretable.
- I could improve this analysis in the future by further transforming and scrubbing the data to better meet the assumptions of linear regression, and by acquiring more data on other features related to housing that could help better predict home prices

# Thank You!

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