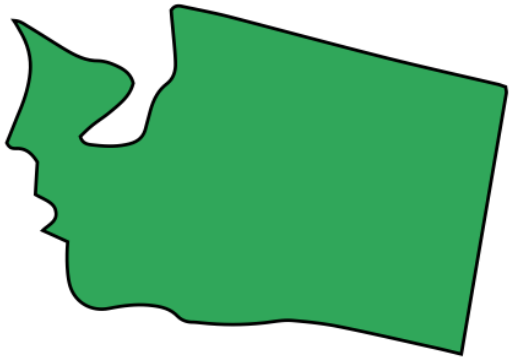
King County Washington
Housing Dataset Analysis



Author: Brennan Mathis

Problems

- Assess predicting factors, and combinations of factors that affect value of home
- Create model to predict housing prices based on criteria provided in dataset
- Find attributes that increase value of house

Factors Assessed

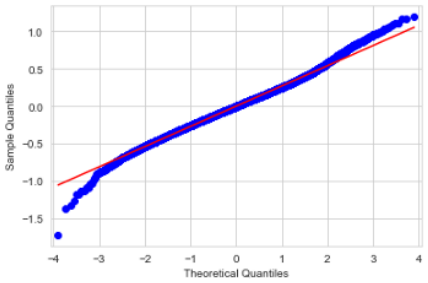
- Bedroom
- Bathroom
- Living Area
- Living Area of Neighbors
- Distance to closest city(Seattle)
- Grade
- Condition
- Age of House
- Renovation Performed

Regression Model

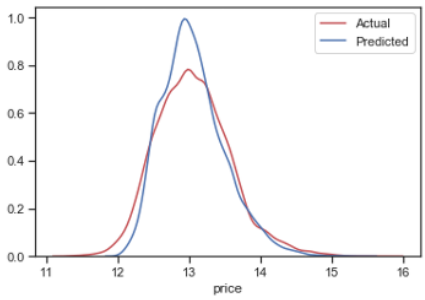
R squared 0.732

P-values < 0.5

Residuals of Model

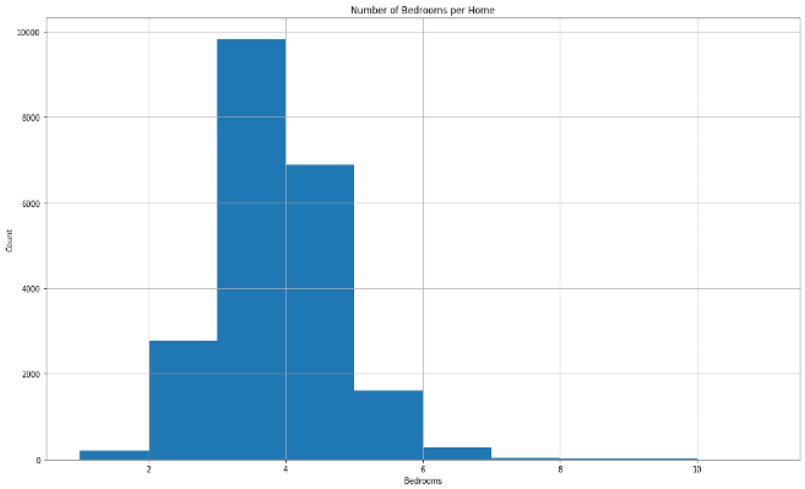


Actual Vs Predicted Target Values



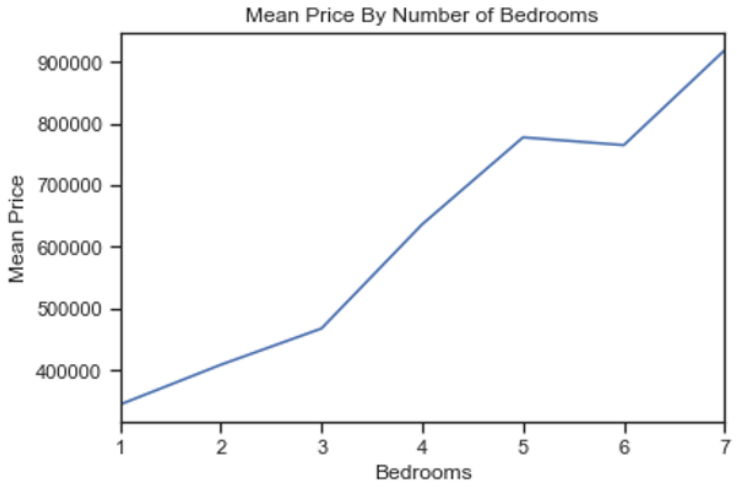
P values indicate chosen features used in model have effect on price

King County Housing Bedroom Analysis



Overall Average Home Price: $540,297
Overall Average Number of Bedrooms: 3.4
3 bedrooms most common(mode), followed by 4 bedroom homes
1 BR House: $ 318,239
2 BR House: $ 401,387
3 BR House: $ 466,294
4 BR House: $ 635,565
5 BR House: $ 786,874
6 BR House: $ 825,854

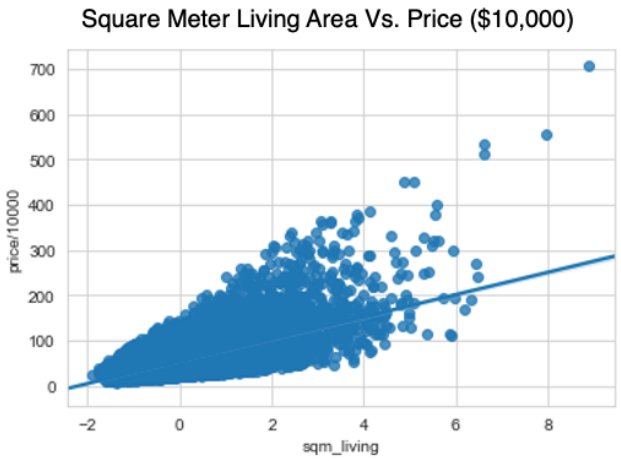
Spend & Save
Value Per Bedroom



Each bedroom in a home can increase the value of a home by an average of $127,573

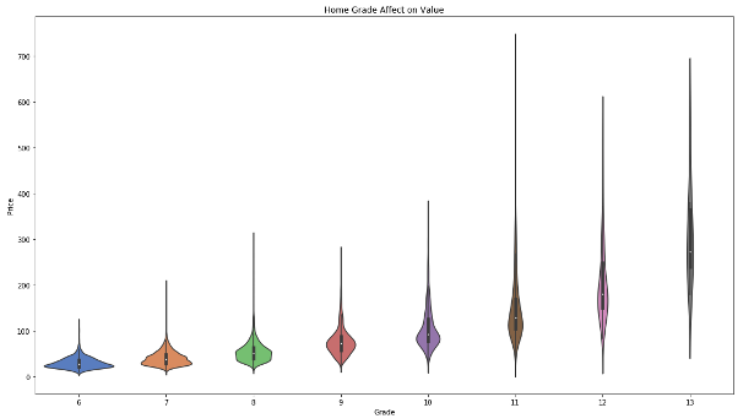
Price per bedroom(average home price/number of bedrooms)
:
1 br house: $329,414
2 br house: $201,122
3 br house: $155,516
4 br house: $158,925
5 br house: $157,375
6 br house: $137,642

More Space = More Value



Each individual square meter of living area can increase value of the home by 0.4%

Good Inspection = Higher Value



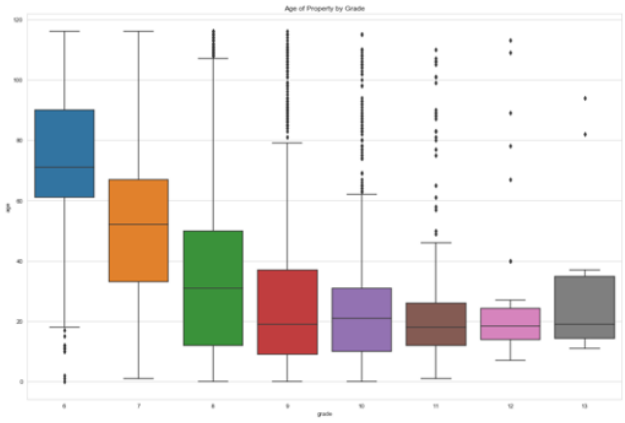
Every increase in grade unit can increase home value by 32%

According to King County government website: 'Classification by construction quality which refers to the types of materials used and the quality of workmanship. Buildings of better quality (higher grade) cost more to build per unit of measure and command higher value.'

Represents the construction quality of improvements. Grades run from grade 1 to 13. Generally defined as:

1-3 Falls short of minimum building standards. Normally cabin or inferior structure.
4 Generally older, low quality construction. Does not meet code.
5 Low construction costs and workmanship. Small, simple design.
6 Lowest grade currently meeting building code. Low quality materials and simple designs.
7 Average grade of construction and design. Commonly seen in plats and older sub-divisions.
8 Just above average in construction and design. Usually better materials in both the exterior and interior finish work.
9 Better architectural design with extra interior and exterior design and quality.
10 Homes of this quality generally have high quality features. Finish work is better and more design quality is seen in the floor plans. Generally have a larger square footage.
11 Custom design and higher quality finish work with added amenities of solid woods, bathroom fixtures and more luxurious options.
12 Custom design and excellent builders. All materials are of the highest quality and all conveniences are present.
13 Generally custom designed and built. Mansion level. Large amount of highest quality cabinet work, wood trim, marble, entry ways etc

Relationship between Home Grade and Age

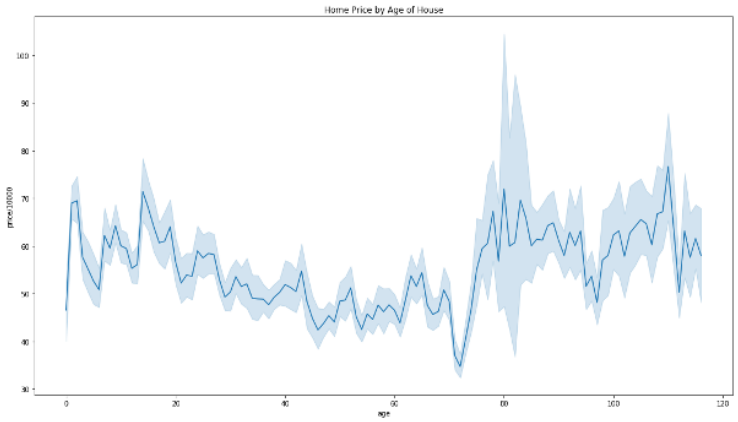


Newer homes consistently earn higher grade during home inspections

Older homes trend lower average grades on home inspections

Recall that price average increases as grade increases

Home Age Affect on Value



Strong deviation from mean of price occurs starting around home age of 75-80 years.

Example of how age can depreciate value as home ages

Renovating older homes can prevent the lower end of the price fluctuation

Condition and Grade have a stronger overall effect on price, especially on older properties, some of which present much higher values dependent on those criteria

Renovation Effect on Homes Over 50 (Years Old)

A historic house generally meets several criteria before being listed by an official body as "historic." Generally the building is at least a certain age, depending on the rules for the individual list. A second factor is that the building be in recognizably the same form as when it became historic. Third is a requirement that either an event of historical importance happened at the site, or that a person of historical significance was associated with the site, or that the building itself is important for its architecture or interior

Price on x axis
Density on y axis

Renovated homes: Average Price: $ 768,902/ Average Grade: 7.75 out of 13/ Only 3% of homes are renovated
Non-renovated homes: Average Price : $ 532,140/ Average Grade : 7.65 out of 13/ 97% of homes are not renovated
Average Price for Non-Renovated Homes with Grade over 7: $ 701,337
Renovating your home before selling can increase the value of your home by at least $60,000 to over $200,000 depending on other property features

Business Recommendations

- Renovations result in significant increase home value for homes over 75 years old, consider renovating older buildings.
- Consider home improvements prior to inspection to increase grade of inspection to increase house sale value.
- When selling to families, consider number of bedrooms for the price per bedroom, average price per bedroom decreases as number of rooms increases, there is upsell potential.

Future Analysis

- Polynomial regression analysis
- Weighted features, what features are the most important features relating to price?
- Assess possibility of different types of housing, examples: apartments, condos, townhomes, farmhouses, population demographics and likelihood of demographic preferences for home features
- Minimize error potential in model

Thank you.