Predicting Housing Prices in King County, WA

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Business Problem

- What features increase the price of homes in the King County area
- Low end to high end homes included in model

Data

- Dataset was compiled by the county assessor and contains home sales from 2014 - 2015

- Extensive dataset for over 21,500 home sales

- Keep as much data as possible in final model to provide a wide range of prices

Home Features used in Model

- Price
- Bedrooms
- Bathrooms
- Square foot of living space
- Square foot of lot
- Number of Floors

- Waterfront Location
- View Quality
- Condition
- Grade
- Basement
- Zipcode
- Renovations

The Final Model

- A multiple linear regression model was built to predict housing prices
- Final model contained homes ranging from 78,000 to 3.1 million dollars
- Error in price prediction is $108,600, mostly affecting houses on the low end
- Explains 85.2% of the variance in the dataset

Most Impactful Feature

- The feature with the most positive impact on price is the square footage of the house
- For every 1 square foot of living space, the price is increased by 0.03%
- The square footage of the lot doesn't have a big impact on the price of the home

Location, Location, Location!

- Zipcode is the other most positive predictor of price
- The top 10 zipcodes were 142% to 281% higher than the baseline

Top Zipcodes

- 98039
- 98004
- 98112
- 98109
- 98119

- 98102
- 98105
- 98040
- 98119
- 98107

Most Negative Impact

- Homes with that have a basement will decrease the price by 6.11%
- Homes with 3 floors decreases the price by 7.49%
- In general, more floors is less desirable

Waterfront

- Homes that are located on the water are 64.5% higher than similar homes without a waterfront
- These are mostly located in Seattle's most exclusive zipcodes

Renovations and View

- Homes that have been renovated in the last 30 years will increase the price of the home by 8.40%
- Homes with a view rated as 4 (highest rating) will increase the price by 45.59%

Conclusions

- Homes that are bigger are better!
  - Square footage to the home should be added whenever possible during renovations
  - Less floors is better
  - Square footage of lot is not a strong predictor of the price
- Location, location, location! Zipcode is a strong predictor.
  - Opportunities can be found in our top zipcodes that are below the predicted price
  - Waterfront location
- Renovations will increase the price of home

Future Work

- Modify our model into multiple models based on price range
  - 100k - 500k, 500k - 1 million, etc
  - Model will have a lower errors in price prediction
- Explore additional features
  - How does the school district grade increase the price of the home?
- Include longitude and latitude in model to calculate distance from hot spots

Thank you for your time and attention!

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Github: https://github.com/meljoy1099/real-estate-analysis-p2