King County Housing Investigation

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Overview

I use regression modeling to analyze house sales in King County, WA in order to build an appropriate luxury home for Bill Nye the Science Guy.

Outline

- Business Problem
- Data
- Methods Used
- Conclusions
- Recommendations
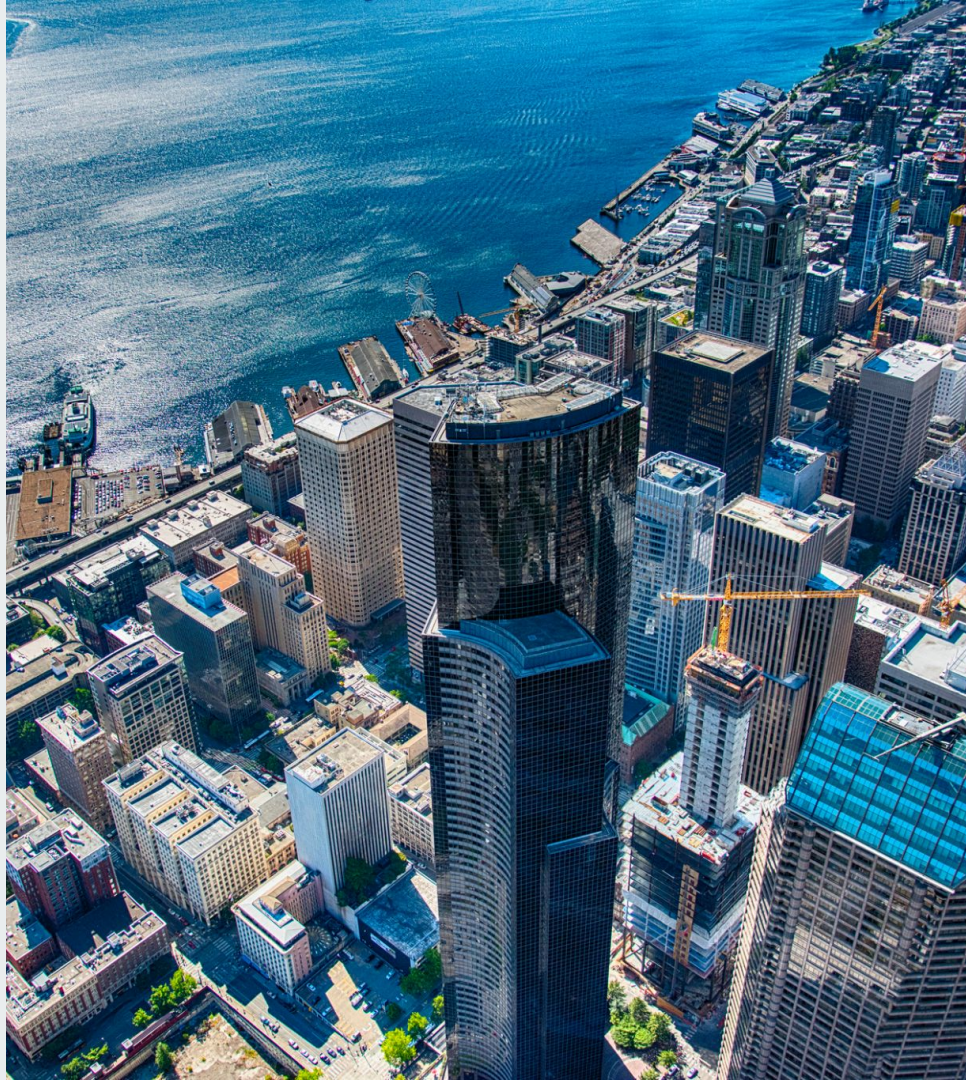- Next Steps

Business Problem

Mr. Nye needs to know how the prices of homes can scale within King County.

Goal: Discover a solid house price to build a new home for Bill Nye in King County, WA

Data

We are using the King County House Sales Set

- The data file is in this GitHub Repository as kc_house_data.csv
- column_names.md provides descriptions for column names

Methods Used

- Looked at relationships between data metrics

- Created models using linear regression. Refined each model for added accuracy

- Used feature scaling in order to see which features are most important towards

  the price of a home

Conclusions

Findings

- Many homes in King County that are above $2 Million are unreliable for predicting house price, and must be considered outliers
- Homes above $1 Million are a tad-bit unreliable as well

Most impactful data in order of absolute value with scaled data:

- grade, yr_built, sqft_living, bathrooms, floors, bedrooms, condition, waterfront

Conclusions

According to our scaled model:

- The grade of a house given by Kings County, and its size in Square Feet have the most positive impact in house price
- At the same time: The amount of bedrooms & the year a house was built have the most negative impact on house price

Conclusions

Our final model is best to be used for homes up to $900K in price

- Our final model uniformly predicts the test data with the training data, save for a few outliers here and there. Is reliable around 50% of the time

From here, we can use our final model to finally come up with actual blueprints for the perfect home
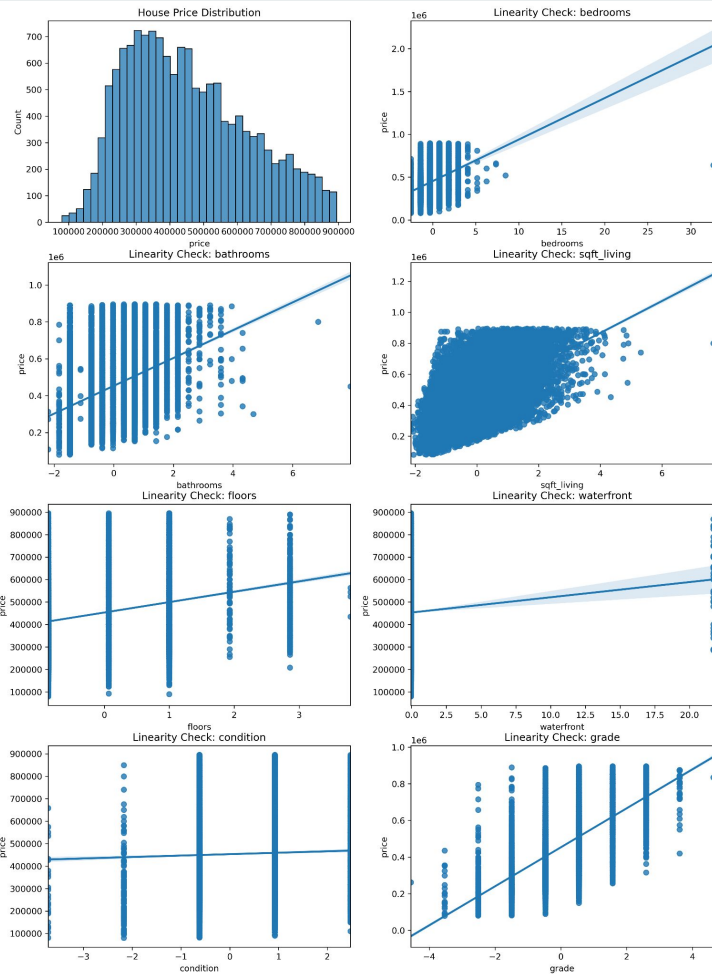
Recommendations

- Build a house that maximizes square footage & keeps the bedroom count low
  - Have large bedrooms rather than a high number of bedrooms
- Inspect what qualifies for a highly graded home in King County
- Build a house that is under $900K in price, since our model is unreliable above that price range

Recommendations

These charts show positive linearity on

various metrics with price data

Recommendations

Actionables:

- Prioritize adding more square feet to the the home.
    - More square feet = More Value
    - Open Floor Plan

Prioritize owning a newer home, even. If you resort to buying. Because the older a home is, the more its value decreases

Next Steps

- Look into cost effective ways to build a home for the best deal
- Contact King County for guidelines on highly graded homes
- Design a home with a moderate amount of square feet, bedrooms, and 2 floors!

Next Steps

Mr. Bill Nye feeling excitement for the creation of his future home!

Questions?