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King County Housing Price Analysis

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Summary

Regression modeling to predict the price of homes in King County, Washington based on a set of location and home features that will assist King County Realtors (KC Realtors) describe how these features influence the price of a home to sellers/buyers.

LOCATION FEATURES

- Zipcodes performed best in explaining the variance in the King County Housing Data.
- Waterfront adds a significant amount of value to a home.
- Having a larger yard than your neighbor is worth a little, but not a lot.

HOME FEATURES

- Many of the home features such as square footage were significant predictors.
- The addition of grade as a predictor improved the success of the model.

Outline

01 Business Problem

02 Data & Methods

03 Results

04 Conclusions

Business Problem



☒ KC Realtors

☐ Want to know what features are most important to focus on

☐ How to assist their clients

Data & Methods



WHAT'S IN THE DATA

The dataset encompasses homes in King County. It includes 19 features from dates that homes were sold to location features, such as zipcode. Specific home features range from number of floors to square footage.



DATA PREPARATION

Specific predictors were chosen for a location model and a home model.

The same data set was prepared through the same processes and then used to fit linear regression models.



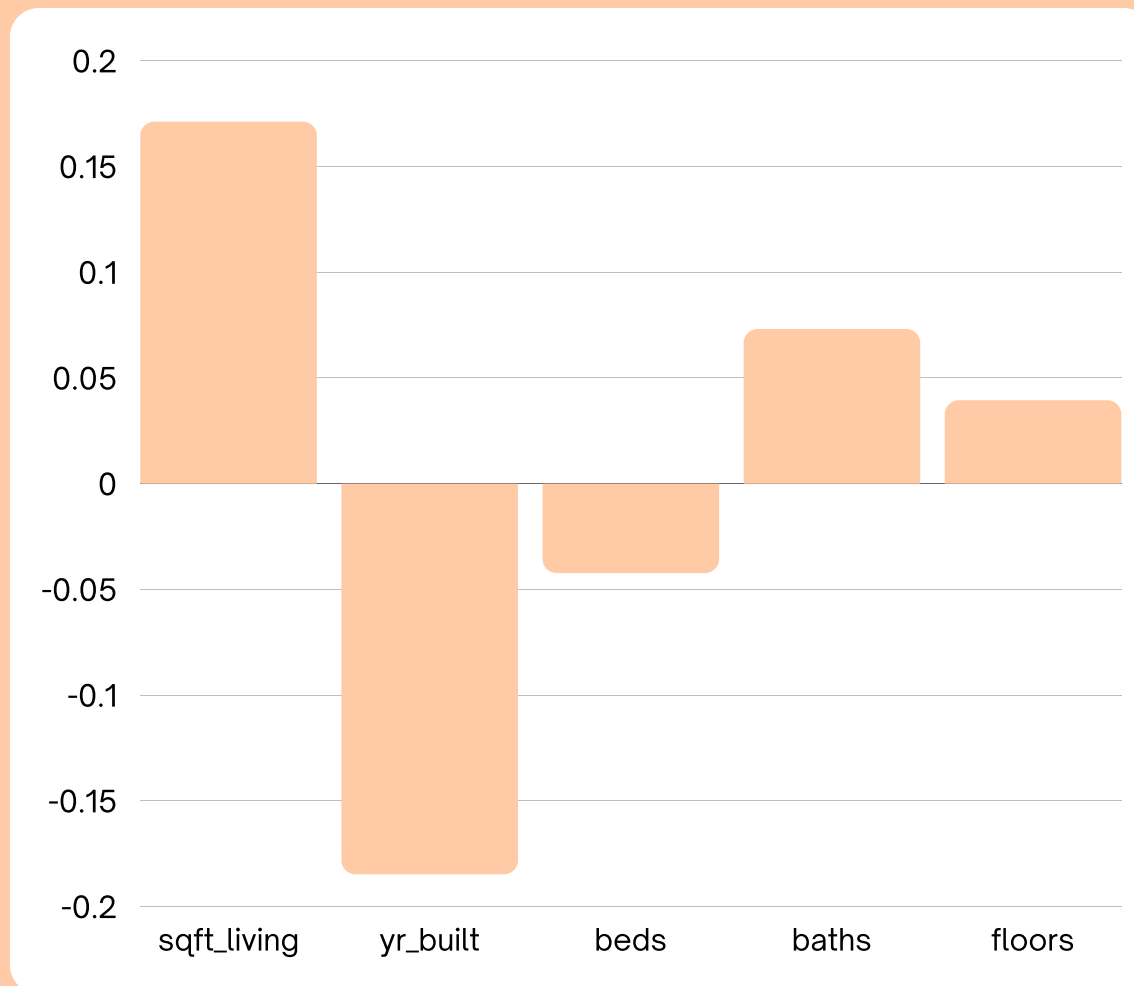
PREDICTORS

- Home square footage
- Year home was built
- # of bedrooms
- # of bathrooms
- # of floors
- Overall condition
- Overall grade
- Zipcode
- Waterfront view
- Lot size ratio

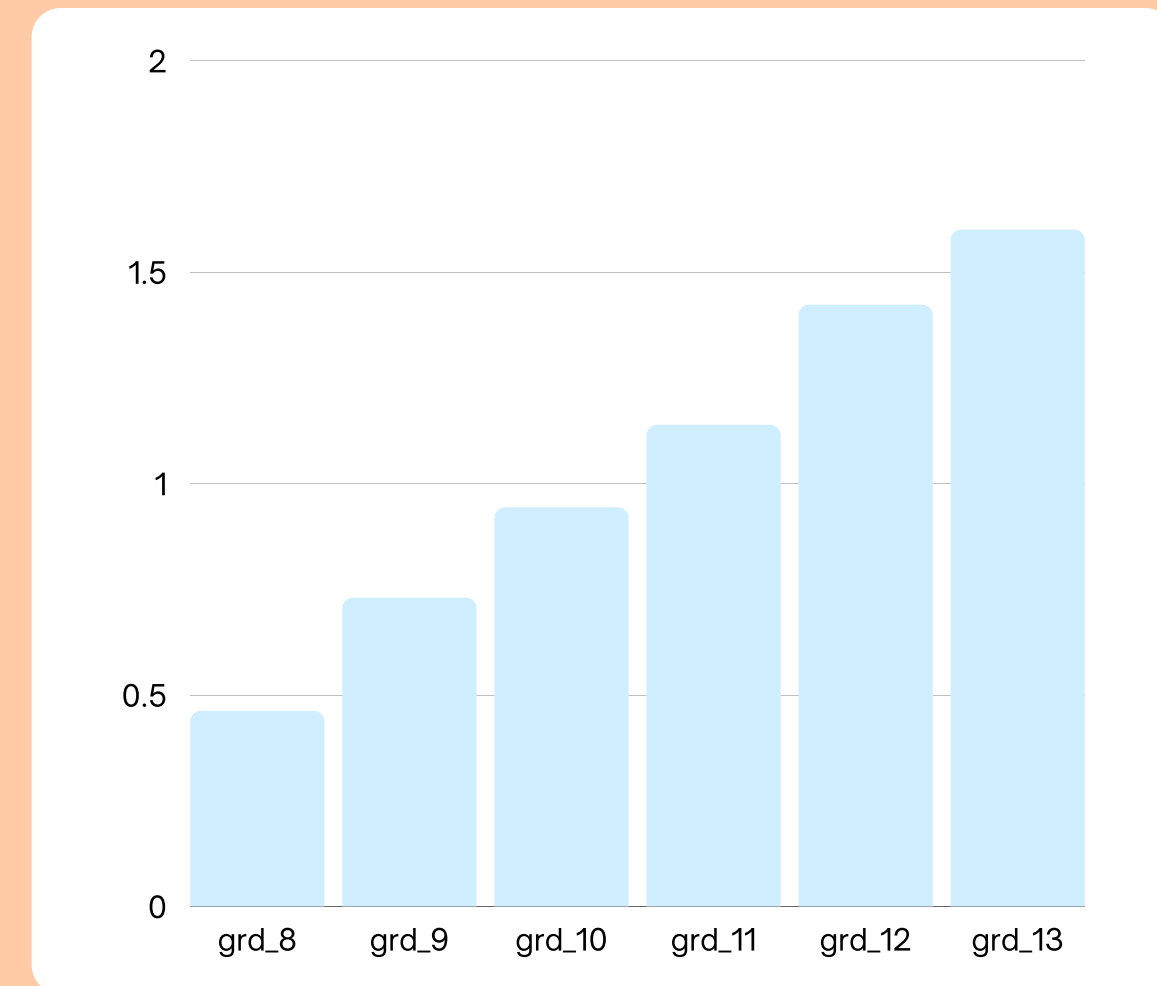
RESULTS

Home Model

Regression Coefficient Size for Home Predictors



Regression Coefficient Size for Grade Predictor



Accounted for 64% of the variance in the data.

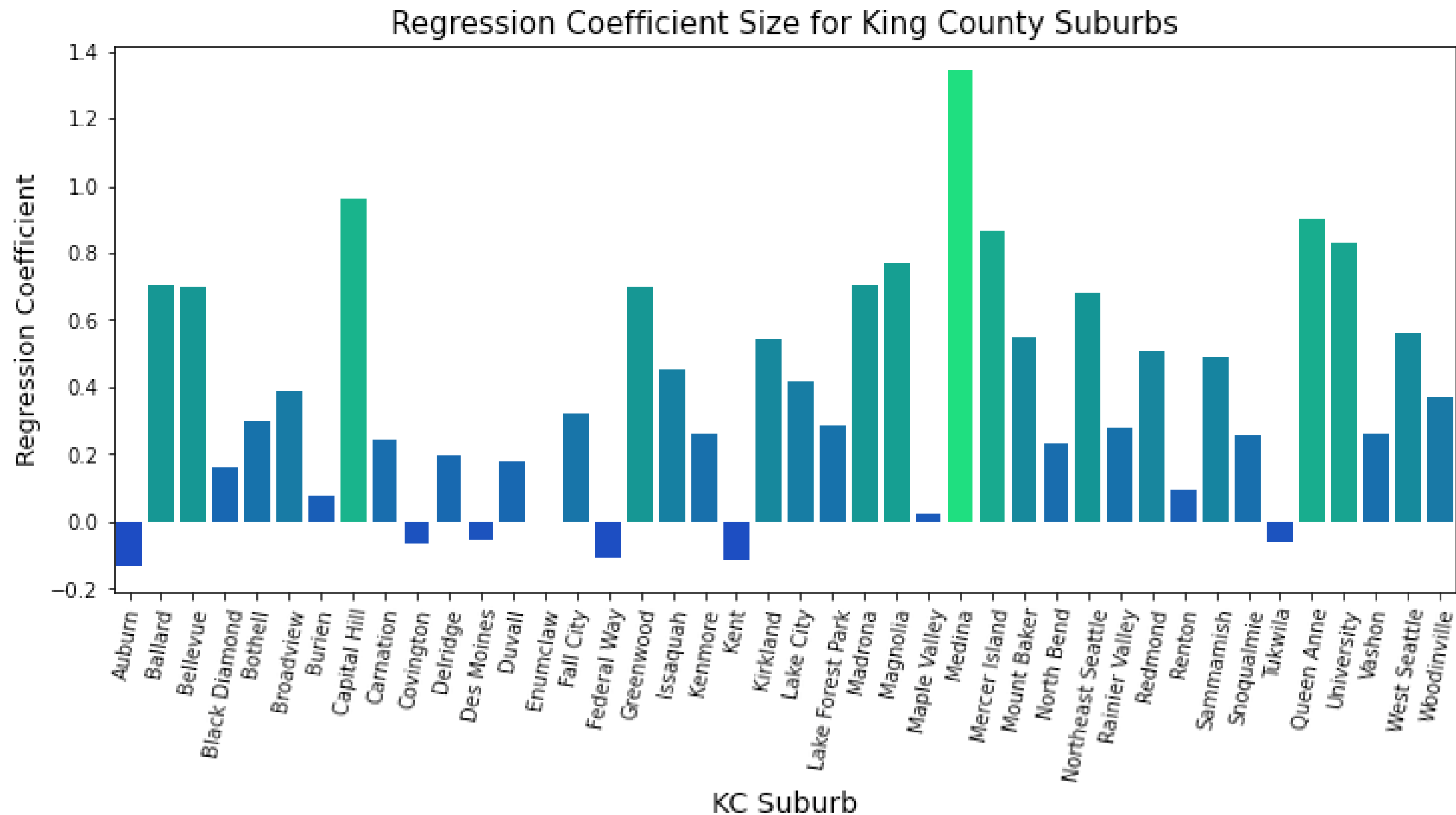
RMSE was approximately 215,618 dollars.

RESULTS

Location Model

- Accounted for 80% of the variance in the data.
- RMSE was approximately 147,000\$ dollars.

Map of Zipcode Coefficients



Conclusions

Location, location, location...



FROM HOME

- Work with King County to understand condition and grade ratings, translating that to clients
- Rather than solely focus on specific number of rooms, size of the home could impact the price of a home more



TO LOCATION

With information on how locations influence price, King County Realtors can:

- Narrow down regions of interest for home buyers based on budget.
- Inform customers new to the Seattle area how price varies across the city.

Next Steps

Improvements to Individual models

IMPROVE HOME MODEL



- Incorporating other predictors, such as if home was renovated or has a basement
- Try different forms of regression

IMPROVE LOCATION MODEL



- Lot size to neighbor ratio, or just lot size?
- Other location boundaries besides zipcode could be tested, such as school district boundaries or census tract.

Next Steps

Combining Models and Reducing Error

Predictive Model

King County Realtors would like to increase the scope of the model to predict values for homes they list. This will:

- Ensure their homes are priced accurately and fairly.
- Can tell homeowners which exact details of their home contain its value
- Can verify appraisals done by other companies

We can achieve this by reducing error in our existing models by:

- Combining the location and home models. More successful features capture more variance
- Create different prediction models by subsetting data into different price teirs.
- Identify features whose relationships with price might not be linear, and try different forms of regression to reduce error



Thanks for listening!

Reach out to us if you have any questions or concerns.

Resource Page



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