King County, WA House Price Model

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Outline

- Business Problem

- Data

- Methods

- Results

- Conclusions

Business Problem

1 Help Single Family Home buyers predict house prices for budgeting and validating list prices

2 Use house characteristics important to buyers

3 Focus on accuracy of price over interpreting impact of each feature

Data

- List of over 18,000 property sales in King County with accompanying price and property characteristics

- Covers 2014-2015

- Extensive list of features, not all used in model

- Features included in model:

  - Waterfront property
  - Year built
  - Renovations
  - Basements
  - City
  - Bedrooms
  - Bathrooms
  - Living space square footage
  - Lot Square footage
  - Floors
  - King County Grade

Methods

- Polynomial Regression Analysis
  - Fit all available sales to model
  - Can predict price with included features
- Accuracy of the model: Explains 80% of price difference from average
- Limitations of the model:
  - Chose a more accurate model
  - Complexity limits ability to evaluate impact of individual features

Results: Example Home Buyer

1st Prediction: $499,509

-Not Waterfront
-Built in 2000
-Not renovated
-No Basement
-Redmond
-3 Bed
-2 Bath
-1500 sqft living
-8645 sqft lot
-1 floor
-KC Grade 8

2nd Prediction: $515,362

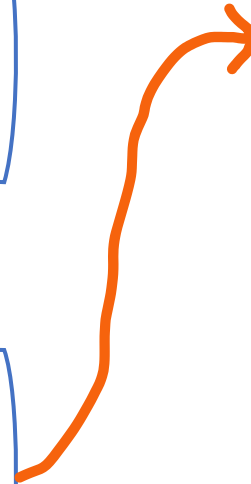Add half bath

3rd Prediction: $598,969

Add 500 sqft living

4th Prediction: $606,408

Reduce age 10 years

5th Prediction: $580,740

Add second floor

Conclusions

- Model provides most accurate prices possible for home buyers to use for predictions.

- Prioritized accuracy over ability to interpret impact of features

Next Steps

- Use model in an app with user interface for inputs

- Develop model that includes price as input and returns likely cities to look for homes with provided characteristics

- Plot city probabilities on a heatmap to guide buyer location choices