Project: Housing Price Analysis

Outline

- Business Problem
- Data
- Methods
- Results
- Conclusions and Recommendations

Business Problem

- A real estate consulting and services company helps homeowners and other customers to buy and sell properties.
- They provide services to customers to evaluate house prices and check what factors are affecting house values.
- We work on this project to provide insights to the real estate company

Business Problem

Business insights to investigate:

- Estimate house prices
- What factors are affecting house price? By how much ?

Data

Source:

- King County Housing Price Dataset

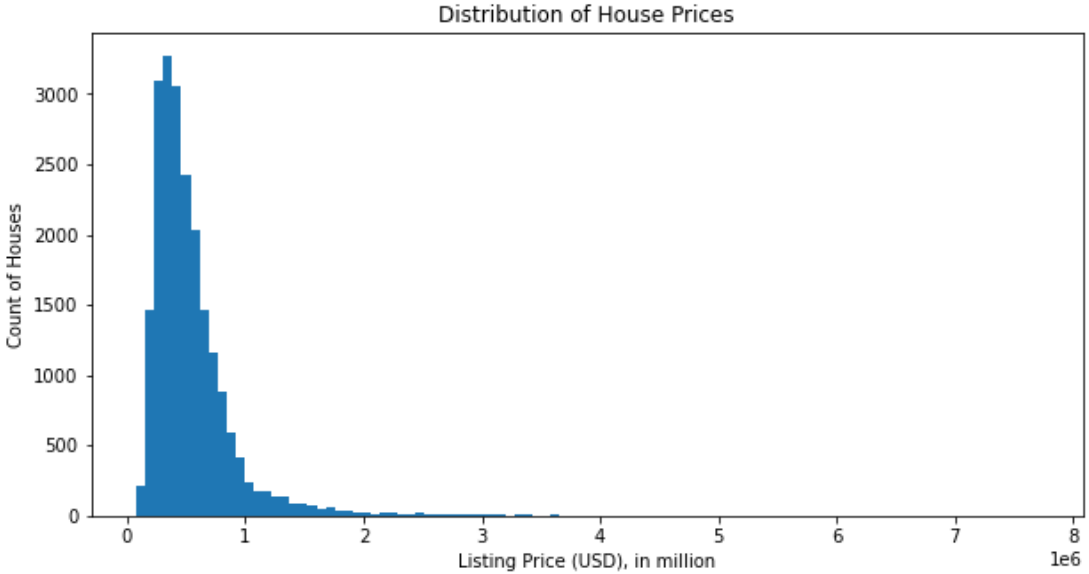
Information:

- Target : House Price
- Living room area, lot size, basement size, in sqft
- Number of bedrooms, bathrooms
- Condition
- floors
- Waterfront category, view
- Year Built, Year of Renovation

Methods

- Regression Modeling Analysis
- Train Linear Regression Models for Price Predictions and variable coefficients

Results

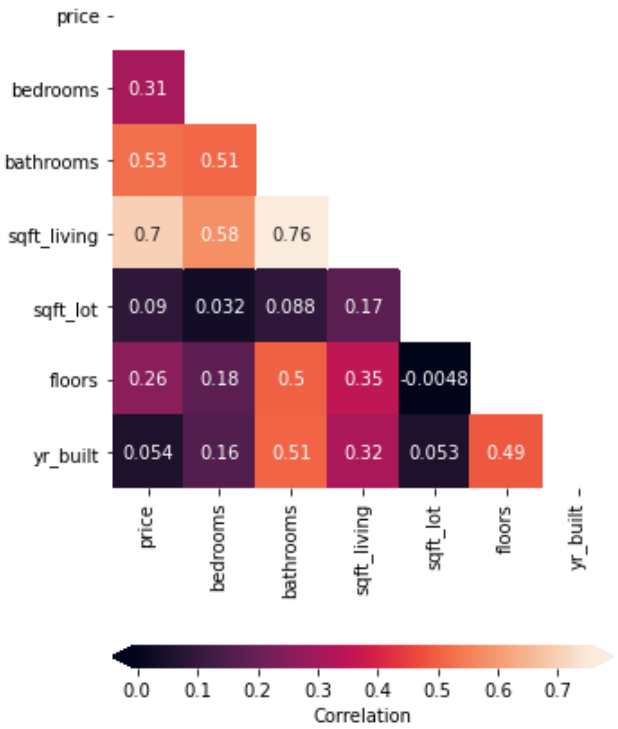


Average house price is at 540, 296

Key Features:

- ‘Number of Bedrooms’, ‘Number of Bathrooms’, ‘living room area’, ‘lot size’
- ‘condition’, ‘floors’, ‘waterfront’, ‘grade’, year built’,

Results



Most correlated Factor to price : living room area

Results – Modeling

Model : Linear Regression Model

- Base model :
  - linear regression with single variable, the most related feature , living room area
- Final model :
  - Multiple linear regression with relevant features.

- Model improvement with relevant features

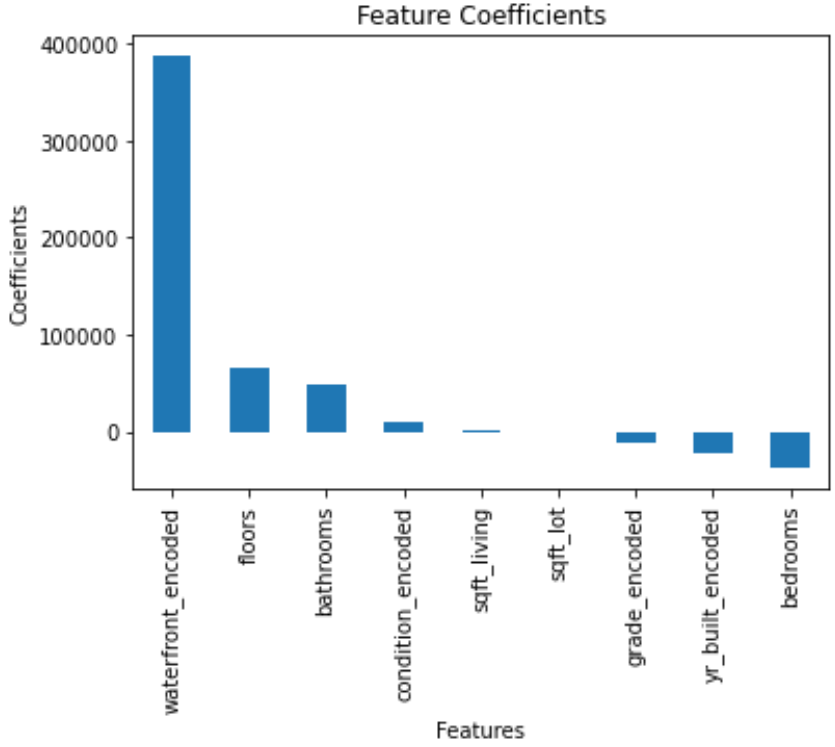
Results

Model Performance

- Coefficient of determination score : 0.52
- Root Mean Squared Error (RMSE) : 183, 580

  average home price : 540,296

Results



Feature Coeffeicinets after converstion

bedrooms	-37371.213679
bathrooms	47755.971065
sqft_living	216.159834
sqft_lot	-0.145950
floors	65992.506014
condition_encoded	10010.159340
grade_encoded	-10961.825614
waterfront_encoded	387030.328313
yr_built_encoded	-21906.701728

Name: Coefficients, dtype: float64

Intercept: 511735.0945469917

Conclusions

regression models for regression analysis of housing price

- Model prediction for house price
- Relevant features affecting house price

Recommendations

- Homeowners: Improve house condition would increase the house value
- Customers: Features to improve home values : living room area, lot size, floors

Next Steps

- Limitations of the model
  - Model performance is not the best
- Non-linear models
- More data

Thank You!

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