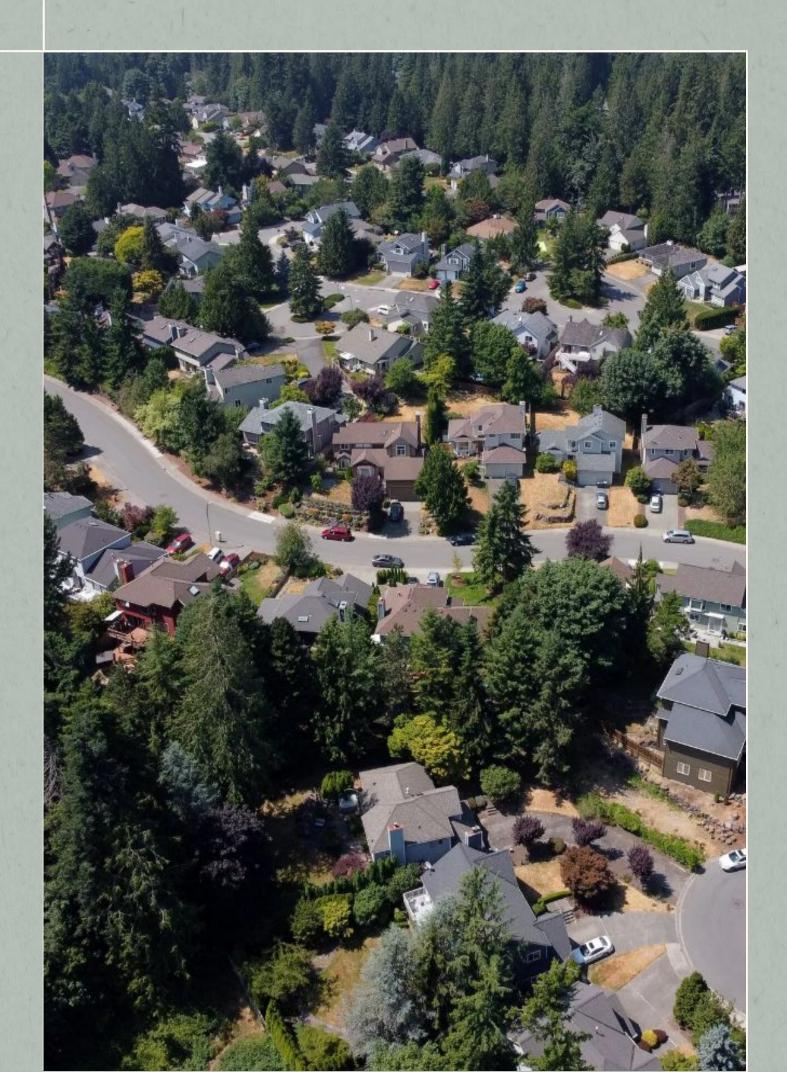
KING COUNTY REAL ESTATE

A Presentation by: Albane Colmenares

09/04/2023



AGENDA

BUSINESS UNDERSTANDING

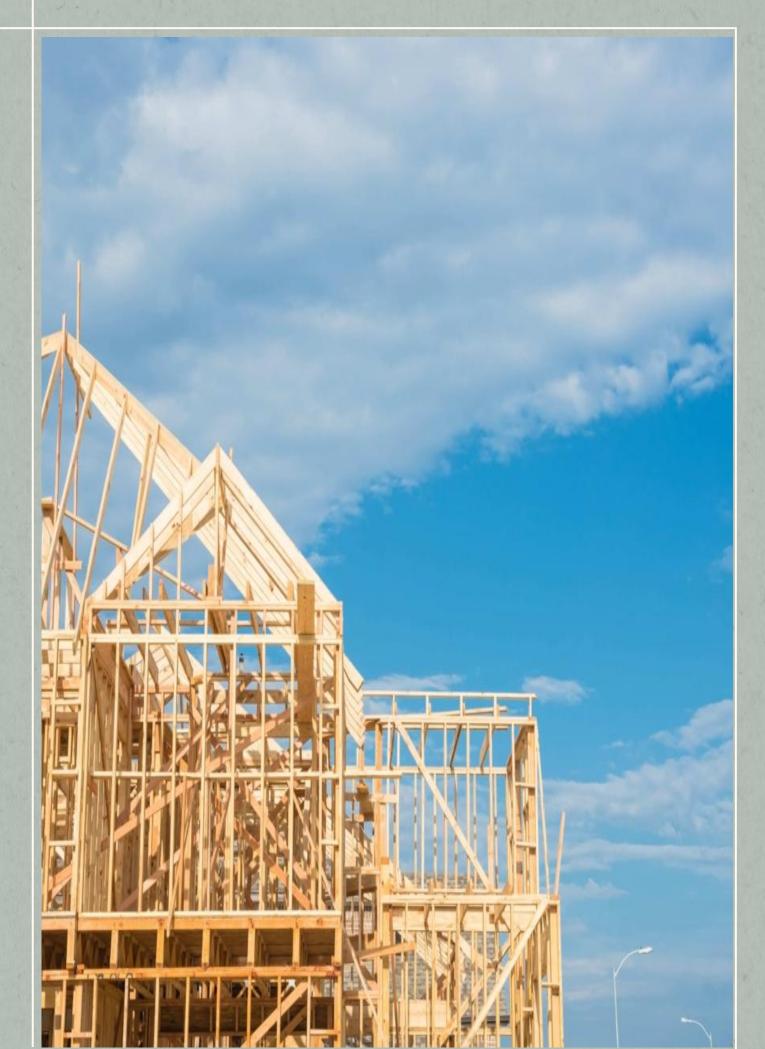
2 MODELING & REGRESSION RESULTS

3 RECOMMENDATIONS & NEXT STEPS





BUSINESS UNDERSTANDING

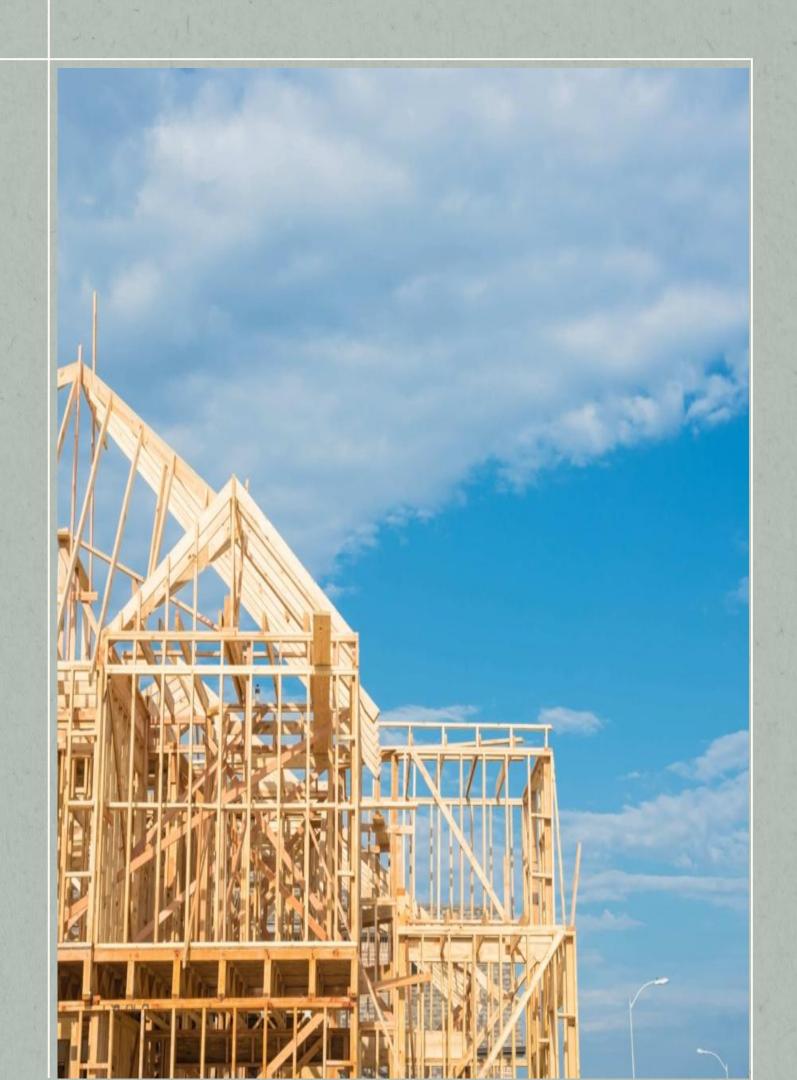


RENOVATIONS:

HOW WILL THEY IMPACT YOUR SELLING PRICE?



MODELING



MODELING

1. Simple Linear Regression

- Highest correlation with price
- Initial simple linear regression
- Removal of outliers
- D. New simple linear regression

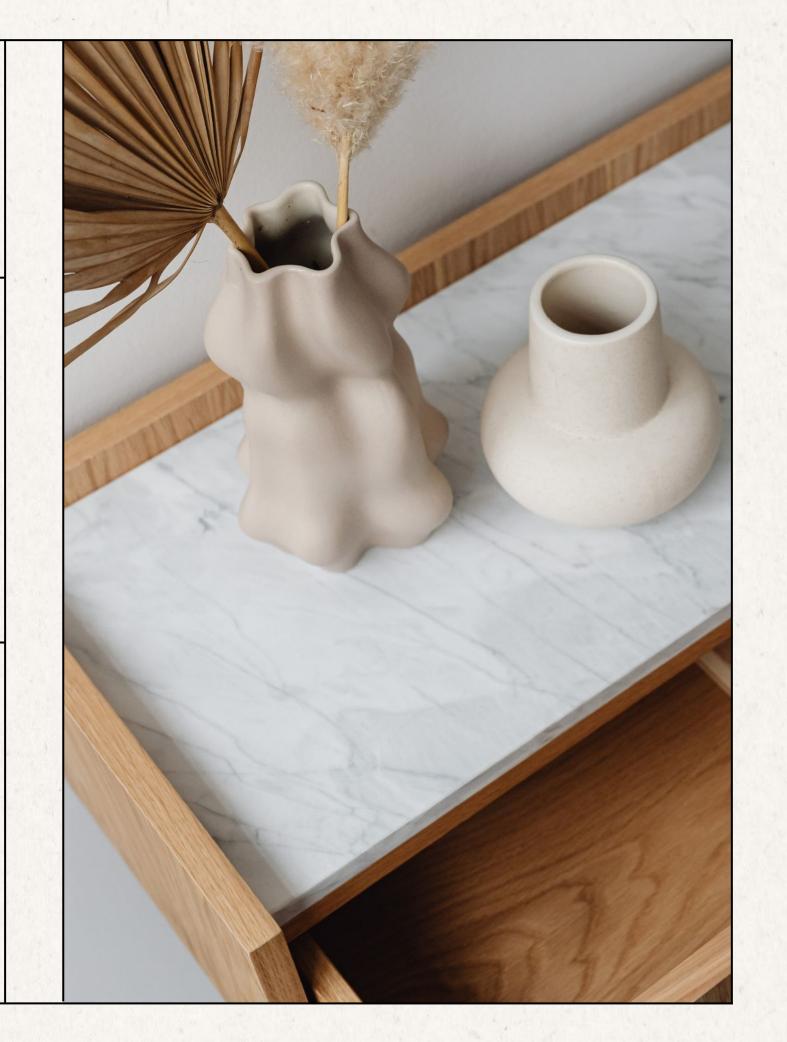
2. Multiple Linear Regression

- A. Categorical feature
- B. Condition & square footage of living area

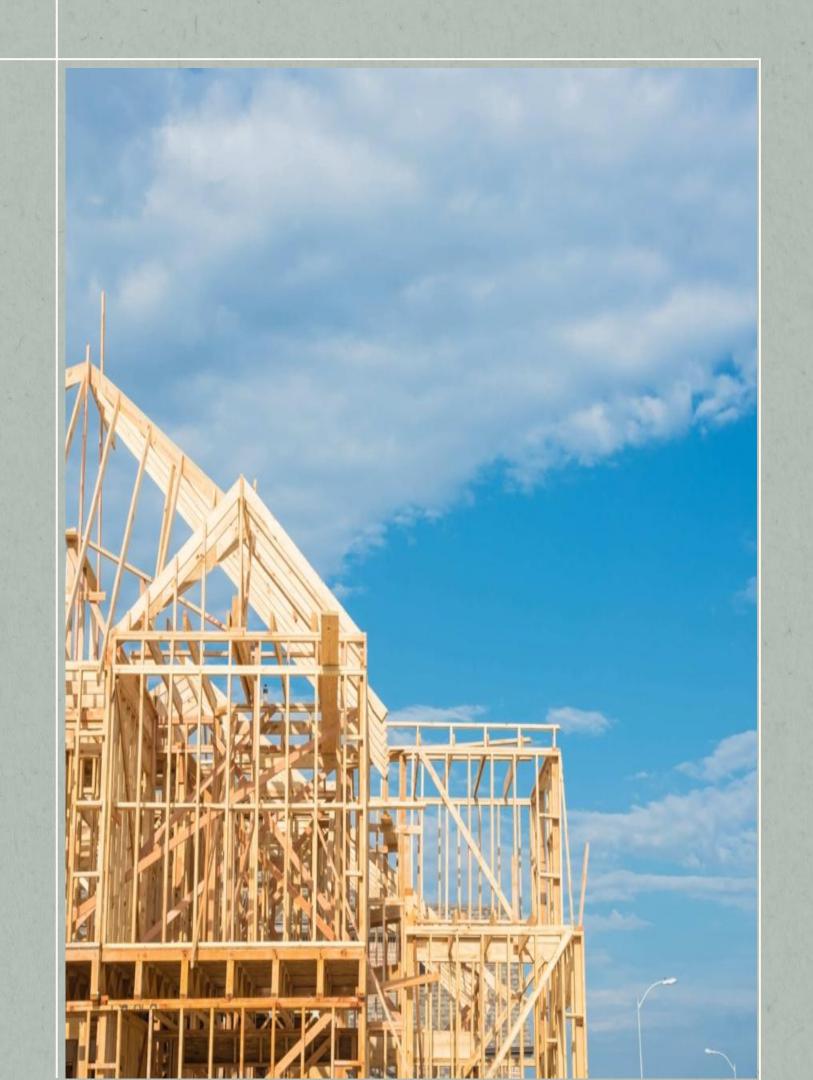
- Numeric features
- B. Part 1: all variables

3. Multiple Linear Regression 4. Multiple Linear Regression

A. Final model



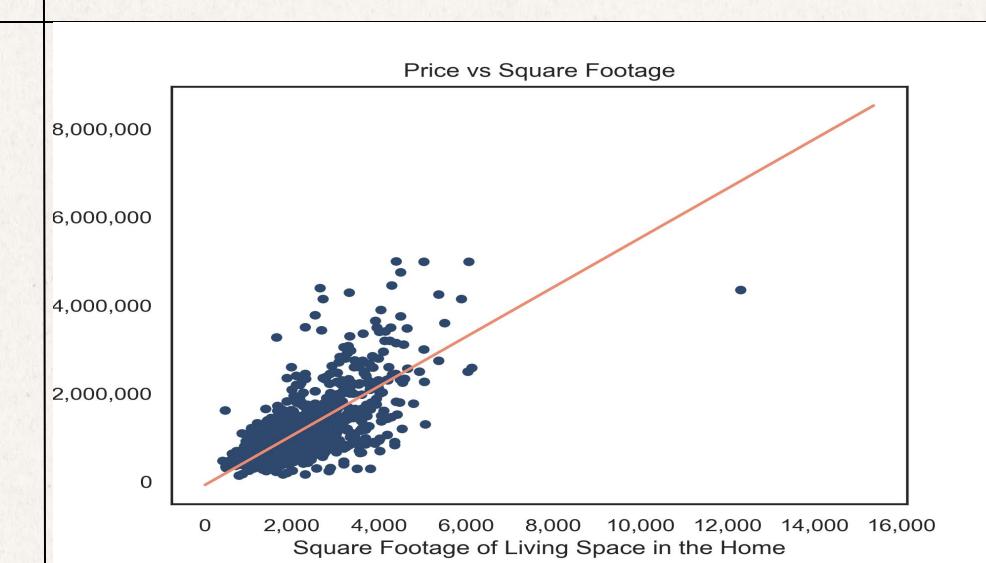
REGRESSION RESULTS



SIMPLE LINEAR REGRESSION

HIGHEST CORRELATION WITH PRICE Square footage of living space

- Model Explanatory Power: 42.8%
 Adjusted R-squared
- 2. Price increase by additional square foot: \$475.92 Coefficient & p-values
- 3. Estimated price for 0 sq. ft house: \$77,330 Constant coefficient or intercept



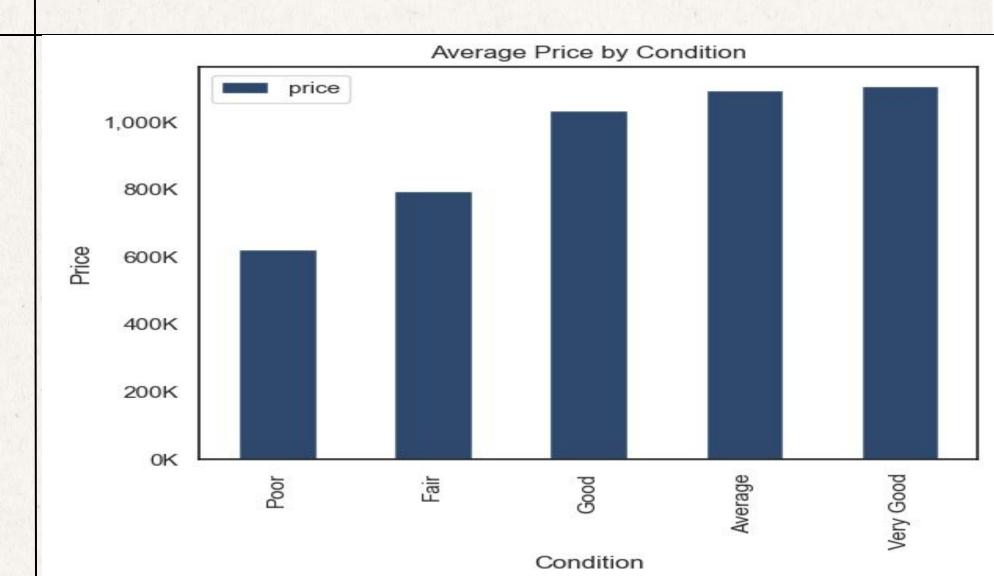
MULTIPLE LINEAR REGRESSION

CATEGORICAL FEATURE

Overall condition of the house

- 1. Condition explains 42.9% of the price's variance Adjusted R-squared
- 2. "Very good" condition generates \$135,700 increase Price increase by additional square foot: \$477.25

 Coefficient & p-values
- 3. Significant relationship with price F-statistic: 4478, Prob (F-statistic): 0



MULTIPLE LINEAR REGRESSION

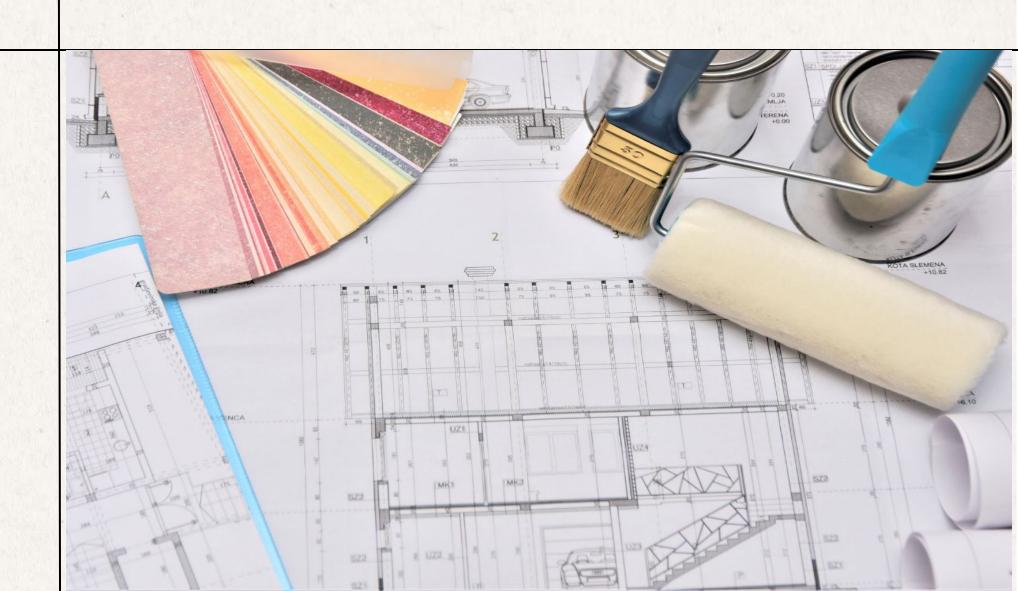
PART 1: NUMERIC FEATURES

- Square footage living area
- Square footage patio
- Square footage above
- Square footage basement
- Square footage garage

- Square footage lot
- Year built
- Floors
- Bedrooms
- Bathrooms

- 1. 46.4% of variance in price explained by numeric features

 Adjusted R-squared
- 2. Features associated with an decrease in price: bedrooms, square footage of garage, year built
- 3. No significant impact on price: square footage of lot Coef: 0.0019 and p-value (0.97) greater than 5% Coefficient & p-values



MULTIPLE LINEAR REGRESSION

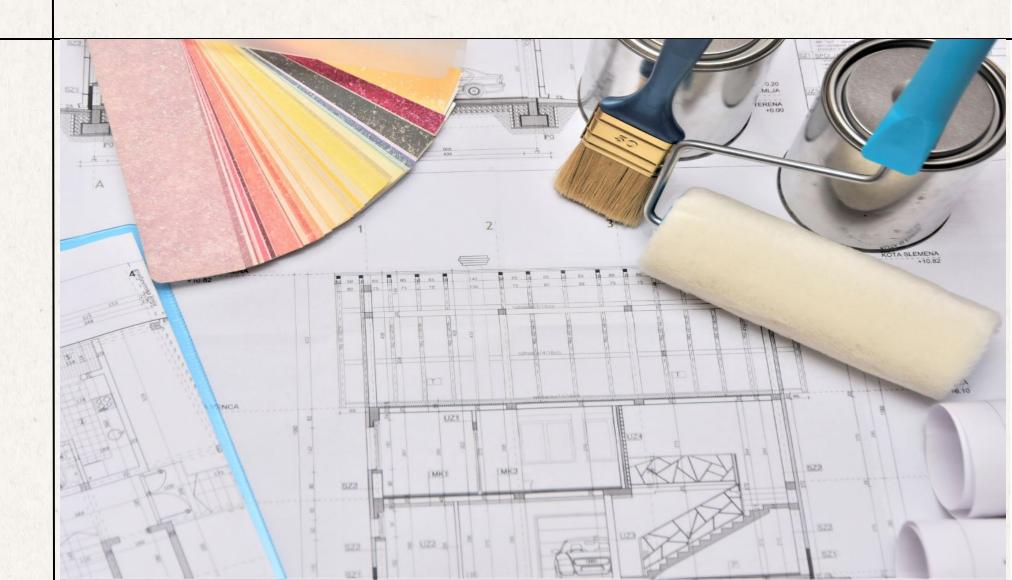
PART 2: NUMERIC FEATURES

- Square footage living area
- Square footage patio
- Square footage above
- Square footage basement
- Square footage garage

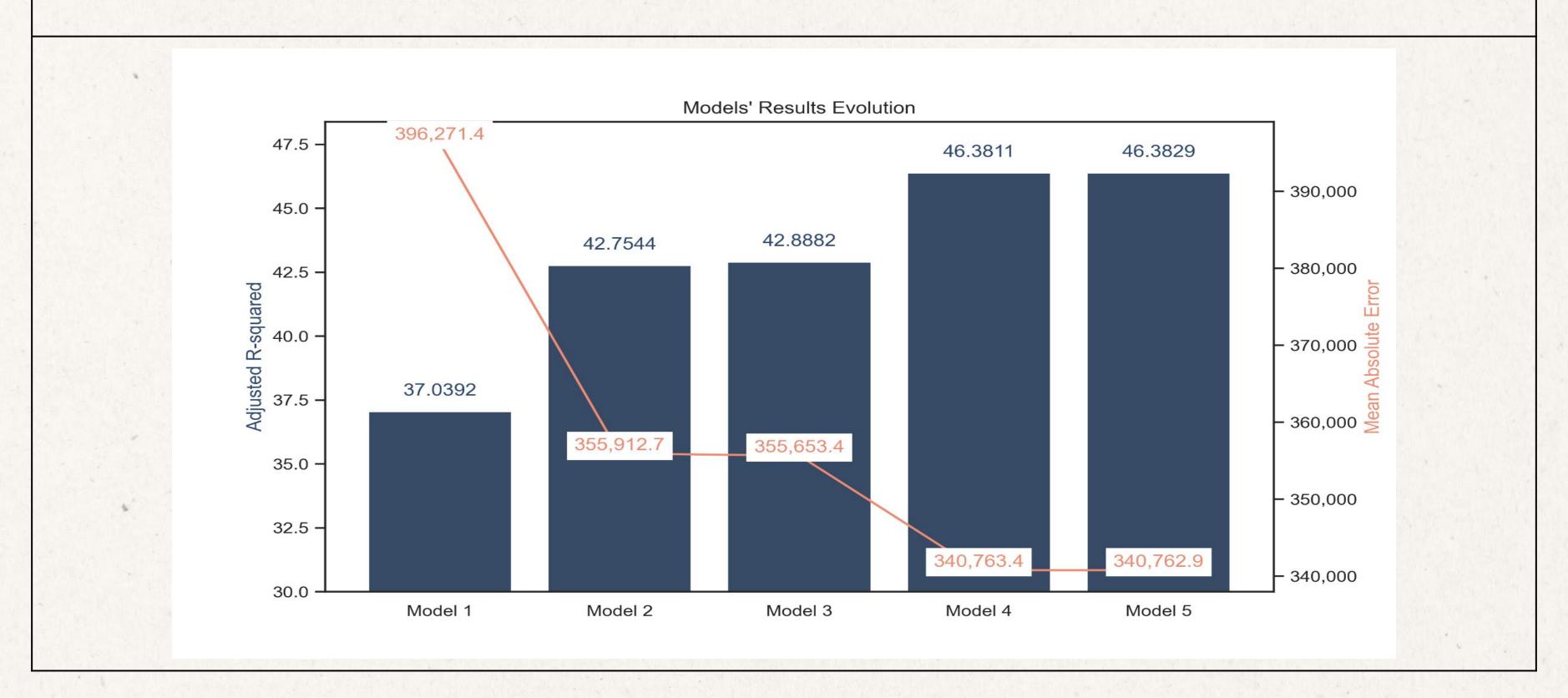
- Square footage lot
- Year built
- Floors
- Bedrooms
- Bathrooms

- 1. 46.4% of variance in price explained by numeric features

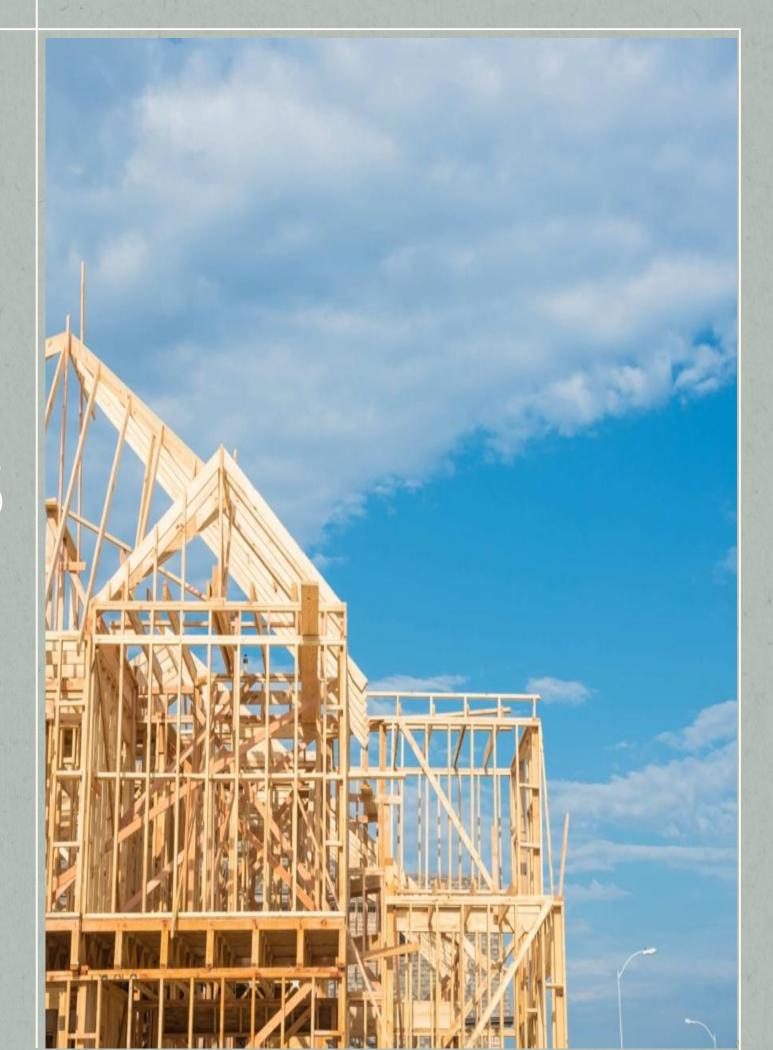
 Adjusted R-squared
- 2. Significant impact on price: F-statistic increased (2,866)
- 3. Features associated with highest increase in price:
 - a. bathrooms: \$116,200
 - b. square footage living area: $\$303.3 \rightarrow \$30,330$ for 100
 - c. floors: \$33,900
- 4. Lowest association with price increase:
 - a. square footage of garage and basement



MODELS' RESULTS

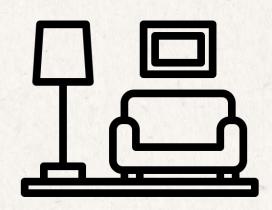


RECOMMENDATIONS

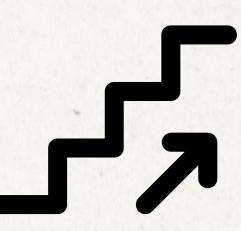


RECOMMENDATIONS









Very Good Condition

Associated with an increase of \$135,700 in price

Living Area Square Footage

Associated with an increase of \$303.26 in price per square foot.

Bathroom

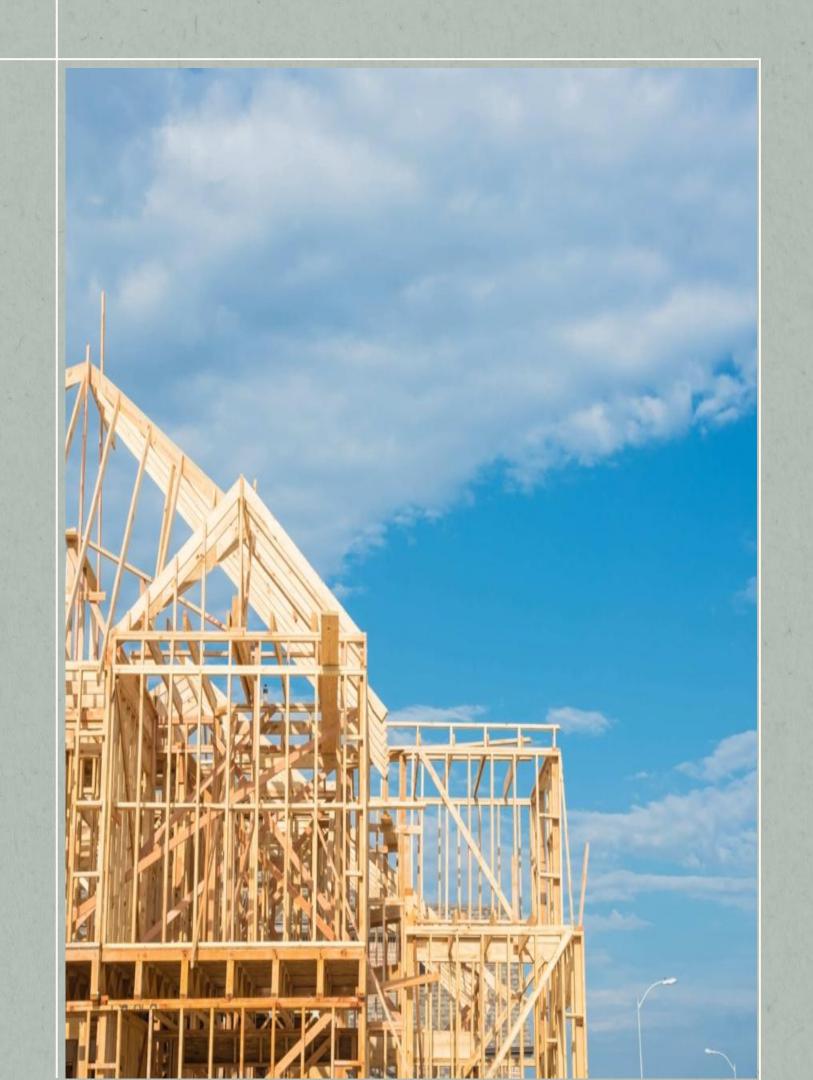
Add one bathroom if your house permits it.

Associated with \$116,200 in price increase

Floor

Add one floor. Consider a mezzanine. Estimated increase in price: \$33,900

LIMITS & NEXT STEPS



LIMITS & NEXT STEPS

LIMITS

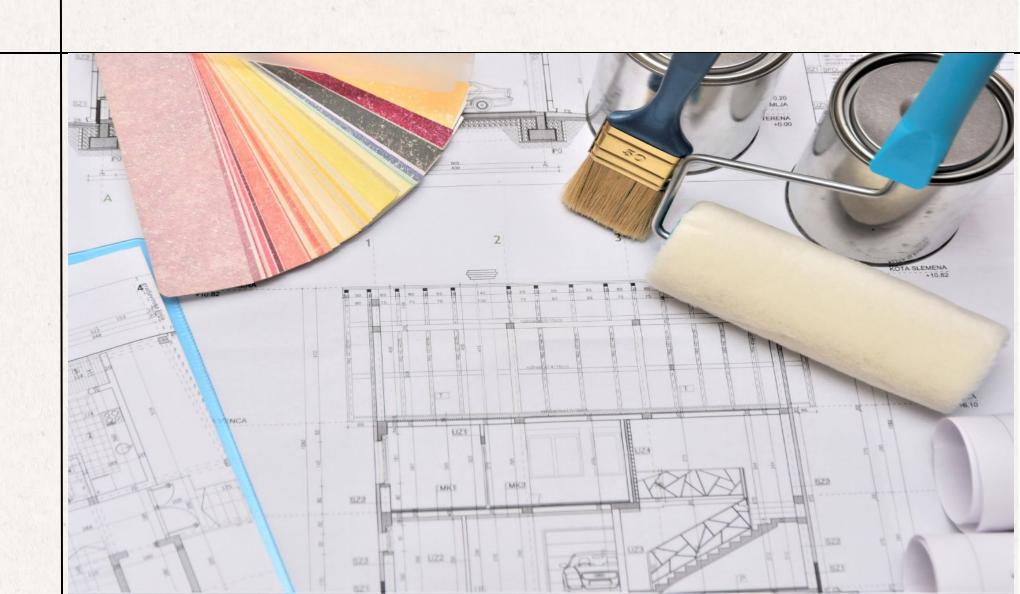
Linear Regression Assumptions Threatened

- Not a normal distribution
- Multicollinearity among independent variables

NEXT STEPS

Linear Regression Assumptions Threatened

- Normalizing distribution
- Scaling data to improve predictions and lower MAE





CONTACT INFORMATION

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THANKYOU

