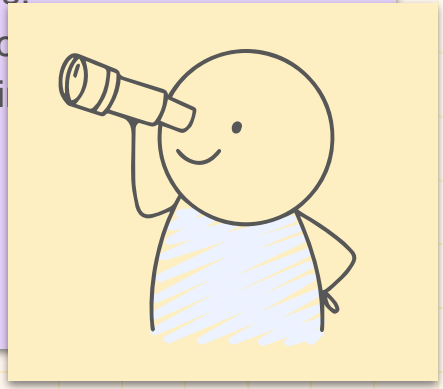
MODELING HOUSE PRICES USING DIFFERENT HOUSE FEATURES IN KING COUNTY

Presentation by Group 6

BUSINESS UNDERSTANDING

This project aims to tackle the difficulty of precisely assessing property values in King County by investigating the various factors that influence house prices. We will analyze a dataset, emphasizing critical variables such as square footage, number of bedrooms, bathrooms, and additional property features like lot size. Through thorough data analysis, our objective is to uncover the specific effects of these factors on property valuations and pinpoint the primary drivers of house prices. Moreover, we will delve into the relationships between these factors to offer comprehensive insights to assist both buyers and sellers in maki informed decisions.



PROBLEM STATEMENT

This project addresses the challenge faced by both home sellers and buyers in accurately pricing and assessing the value of properties. By analyzing a dataset of King County house sales, we will focus on key features including square footage, number of bedrooms, bathrooms, and more. Through this analysis, our goal is to provide valuable insights to aid sellers, whether homeowners or developers, in implementing data-driven strategies to optimize their properties for maximum sale price. Additionally, we aim to empower buyers with a deeper understanding of the factors influencing home value, enabling them to make informed decisions throughout the buying process.

OBJECTIVES

Main Objective

- To build and evaluate models using various combinations of the available house features in King County.

Specific Objectives

- To evaluate how the number of floors impact the price of a house in King County.
- To determine how the number of bedrooms impact the price of a house in King County.
- To examine the impact the number of bathrooms has on the price of a house in King County.
- To assess the impact of renovations on the price of a house in King County.
- To determine how the square footage of living space of a house impacts house price in King County.
- To evaluate which combinations of the available features in the dataset are the most impactful features for predicting sale price.

DATA UNDERSTANDING

- The data set we will use was collected between may 2014 and may 2015
- It has about 20 columns
- We will focus on these columns: price, sqft_living, bathrooms, bedrooms, year of renovation, and floors.
- Dataset has over 21,000 records.

DATA PREPARATION & CLEANING

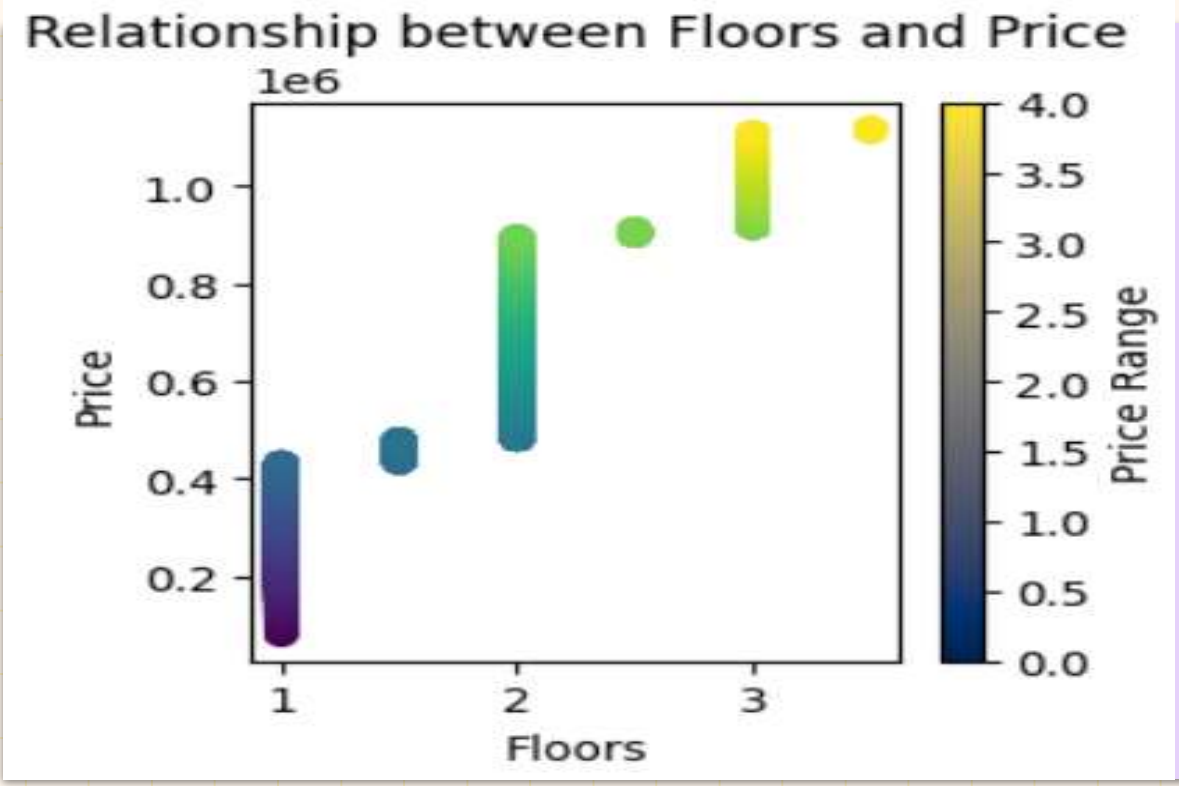
01 Replaced columns

02 Checked for missing values

03 Dropped some rows

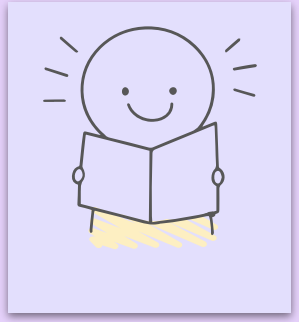
04 Removed outliers

DATA ANALYSIS

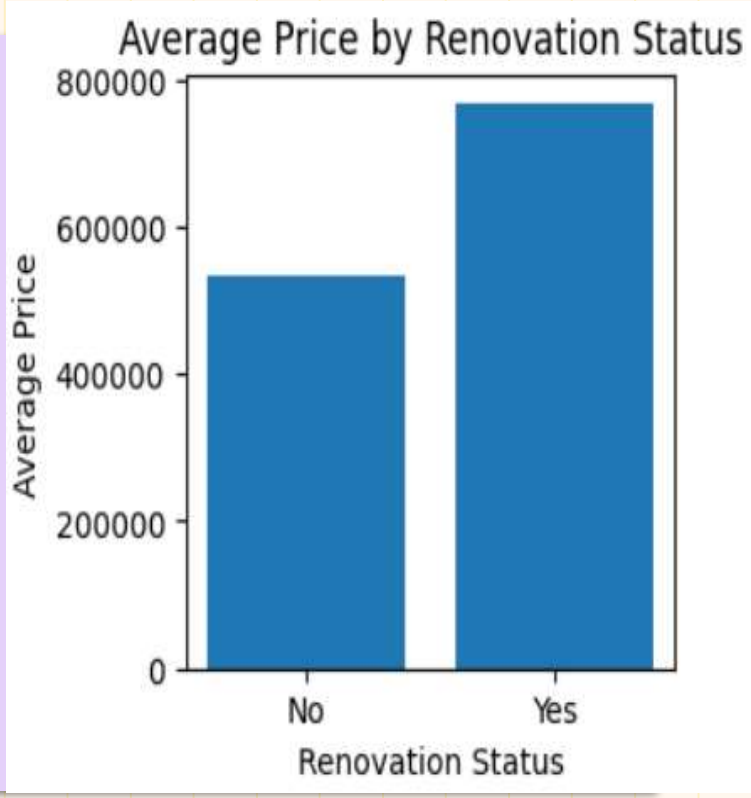


The higher the Number of floors, the higher the price

Higher Number of bedrooms, higher the price point



Renovated houses have higher price as compared to non-renovated houses



Bigger square foot , higher price

MODELING

1. Baseline Model

Analyzed how the size of living space affected the price.
Square foot living only predicted price with a 33.9% accuracy

2. Price vs Bedrooms

Analyzed how the number of bedrooms affected the price.
Number of bedrooms could only account for 7.3 % accuracy

Price vs number of floors

Checked if number of floors could have any effect on house prices.
It had a minimum effect on the price
Number of floors could only account for 6.2 % accuracy
Performed poorly compared to previous model.

Multiple Regression model

Price vs no of bedrooms, sqftliving, floors

Combined all the feature to see if we could get a better model.
Model price vs the other features (sqft living, bedrooms, floors)

Observation:
We had a better model overall that predicted price with a 35.3% accuracy
Also for every one unit change in sqft_living ,then the price of the house increases
Also for every one unit change in the number of bedrooms, then the price of the house decreases

CONCLUSION

The conclusion we made is that, the number of bedrooms and number of floors seemed to have a higher impact on the price of a house as opposed to the living space
This means that the less the number of bedrooms the higher the price of a house and the more the number of floors the higher the price of the house.

RECOMMENDATIONS

Bedrooms

Home owners focus on lower bedroom count so that in return it will lead to an increase in price of the house.

Floors

Add house floors since, this increases the house price value.

Sqft_Living

Increase the living space as it generally increases the house price.

NEXT STEPS

Analyze other additional features to predict their value on the house price

Investigate whether there are specific bedroom configurations that have a greater impact on house prices, e.g., master suites.

Validate the findings and recommendations using different datasets to ensure that the recommendations and findings are solid and broadly applicable.