KING COUNTY HOUSING DATA ANALYSIS

GROUP 3.3

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Overview

The price of a home is affected by several factors that are important for real estate agents and homeowners to understand.

This presentation will cover the key factors that influence the price of a home, including bathrooms, living area and lot size, floors, condition and grade, age and renovation, waterfront view, and season.

We will explore each of these factors in detail and provide data, examples, and recommendations for how to price and market homes based on these factors.

By the end of this presentation, you will have a better understanding of what drives the price of a home and how to maximize its value in the market.

Business Understanding

A real estate agency from King County, Seattle hired us for a project to analyse how different factors affect prices of homes.

Our aim is to use regression analysis to predict the prices of houses in King County, Seattle.

This will help real estate agents better advise their clients on pricing strategies, investors to identify potentially undervalued properties, and homeowners to better estimate the value of their own properties.

This can ultimately lead to more efficient and profitable real estate transactions in King County.

Objectives

1. Develop a pricing model
2. Refine marketing strategies
3. Analyze seasonal trends
4. Optimize home renovations

Data Understanding

The dataset contains information about the houses in King County, Seattle.

There are 21 variables including the price, number of bedrooms, bathrooms, square footage of the living area among others.

There are 21,597 observations

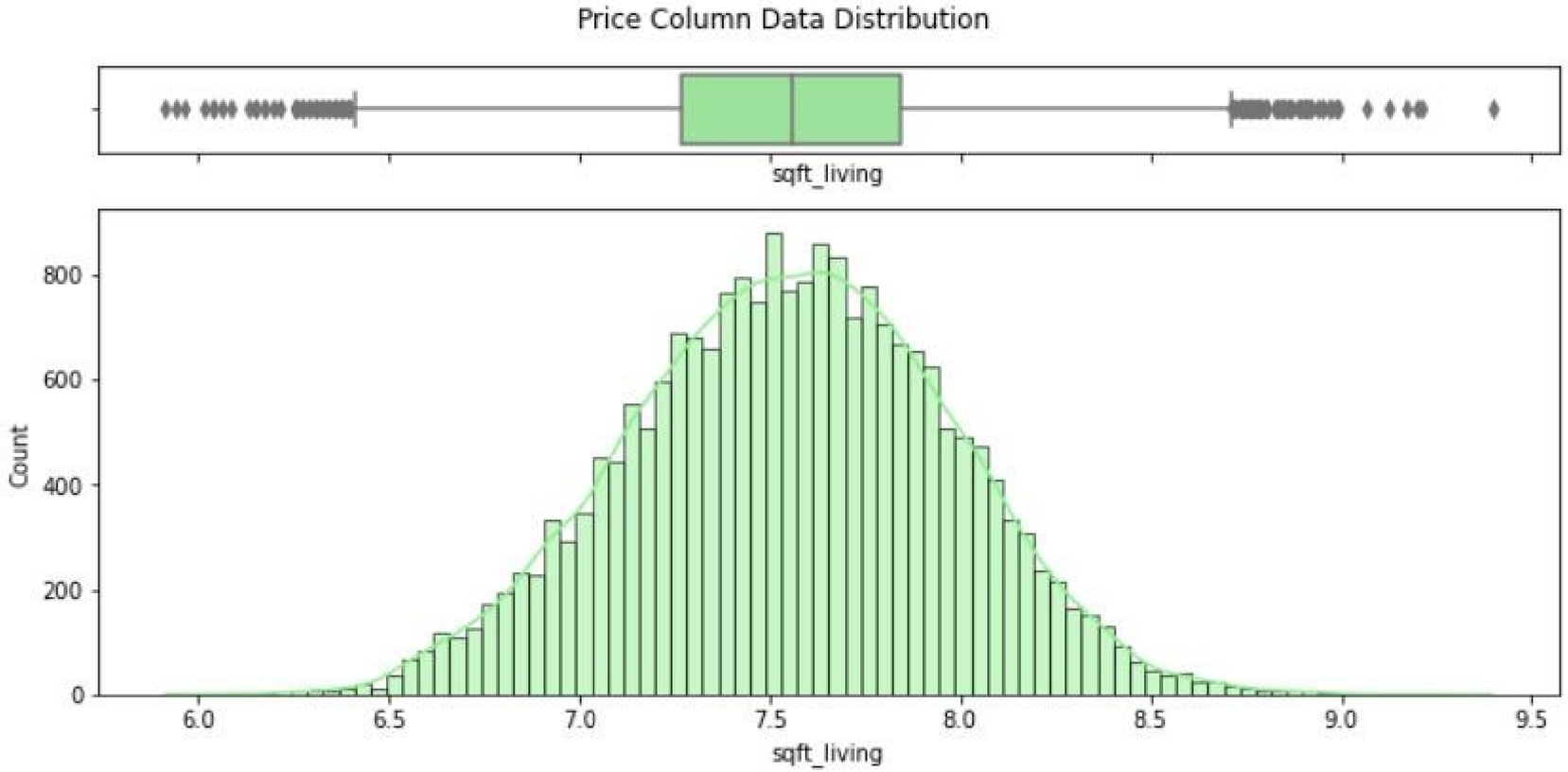
The time period of the data is from 2014 to 2015

Exploratory Data Analysis

Univariate Analysis

Exploring the living space column, we see that the datasets are normally distributed , making it possible to see where popular square footage is located.

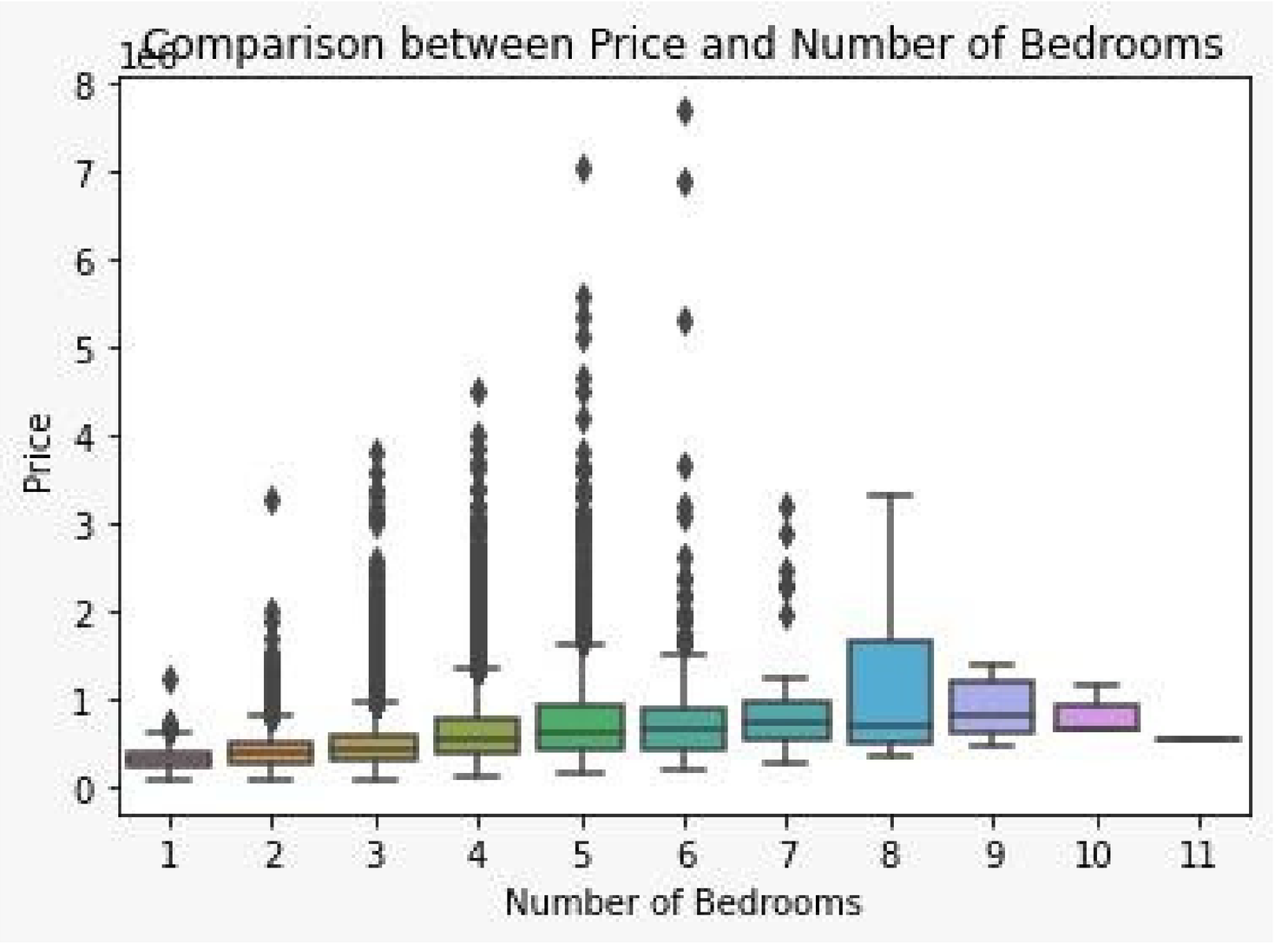
We aim to use such data through our analysis to have the best predictive model.



Bivariate Analysis

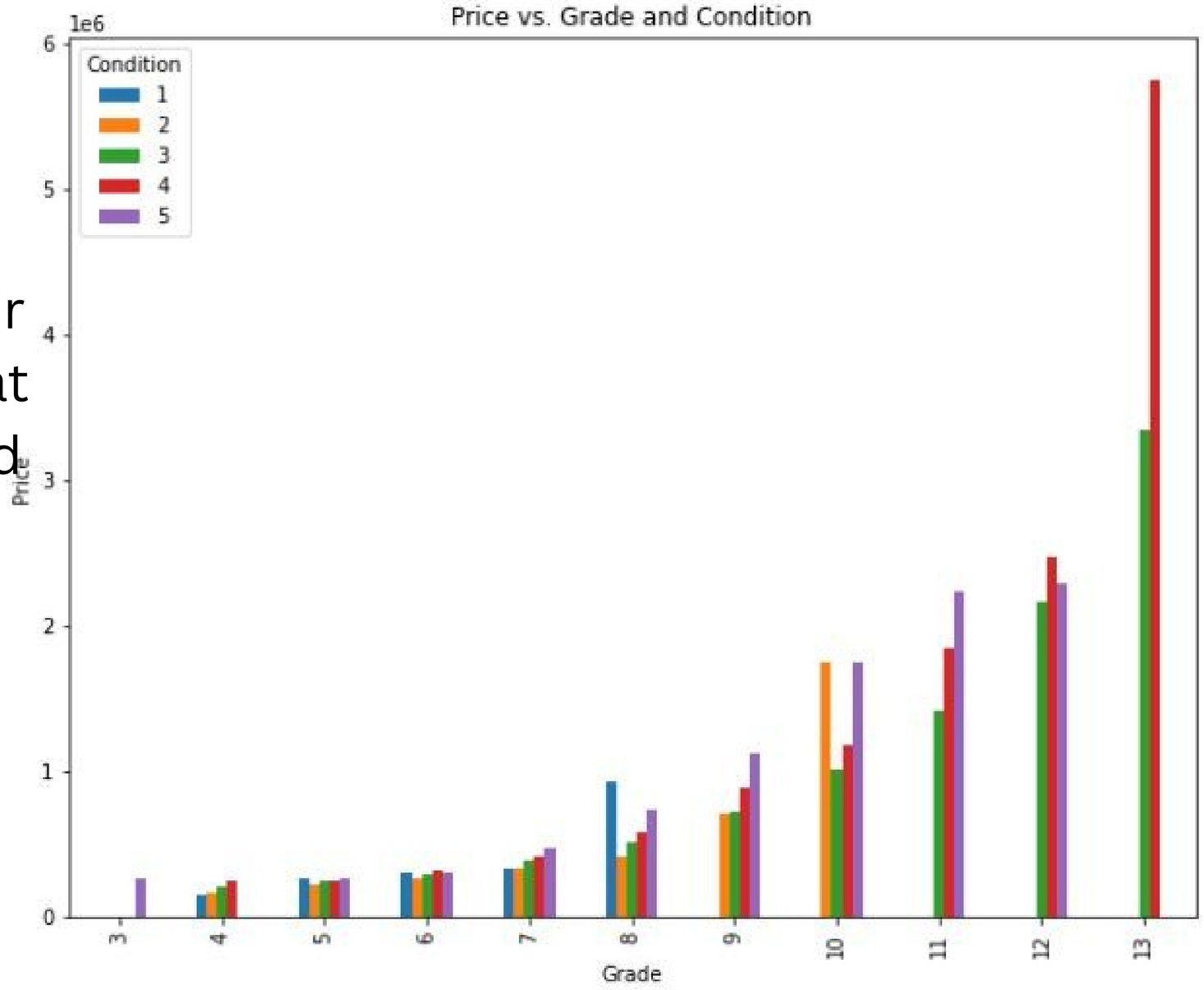
The number of bedrooms has a positive effect on price.

However, as the number of bedrooms increases, the price reduces indicating that having many bedrooms is not desirable in the housing market.



Multi-variate analysis

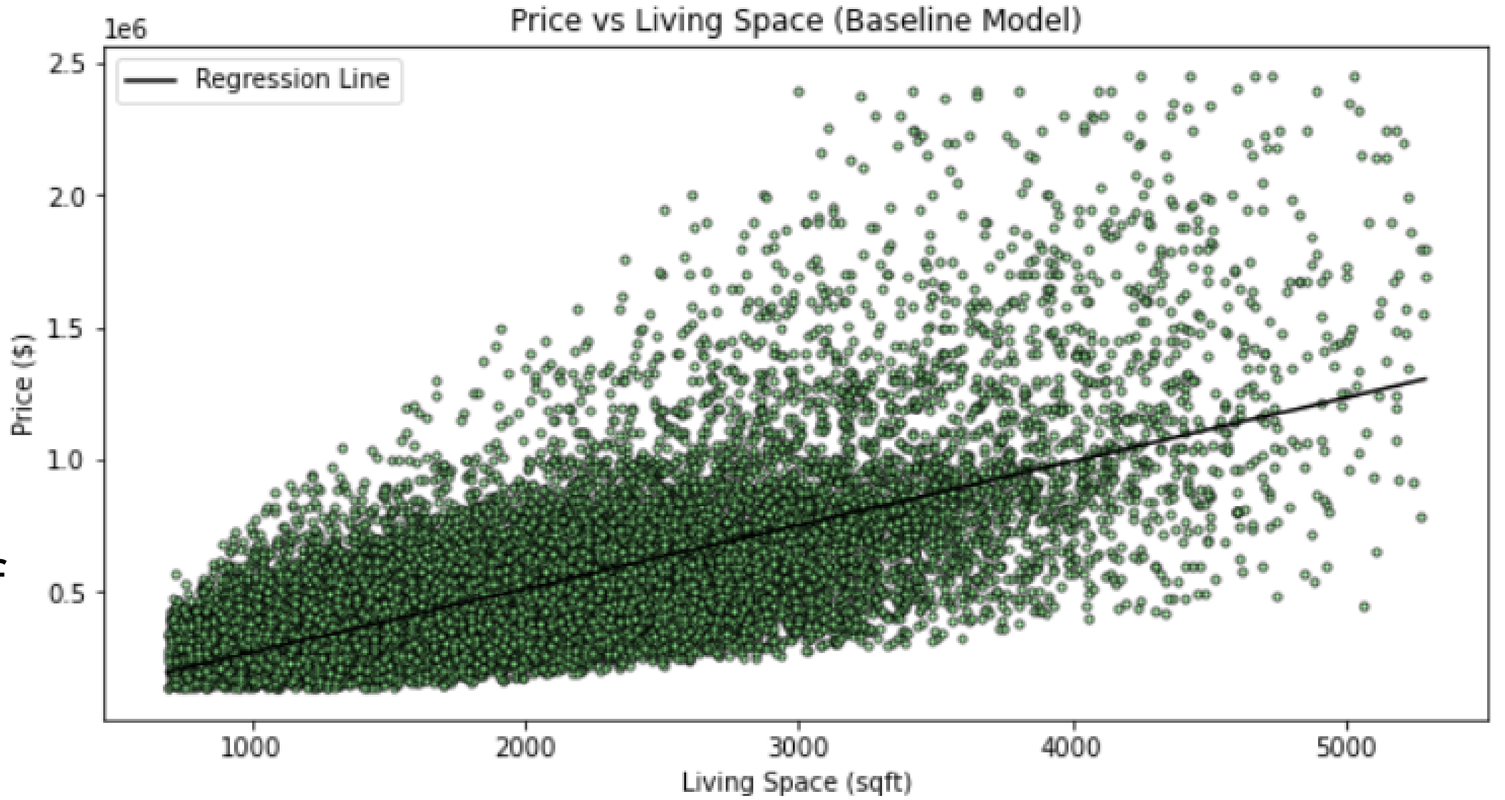
Comparing home prices to their grade and condition, we see that they are both positively related to the price.



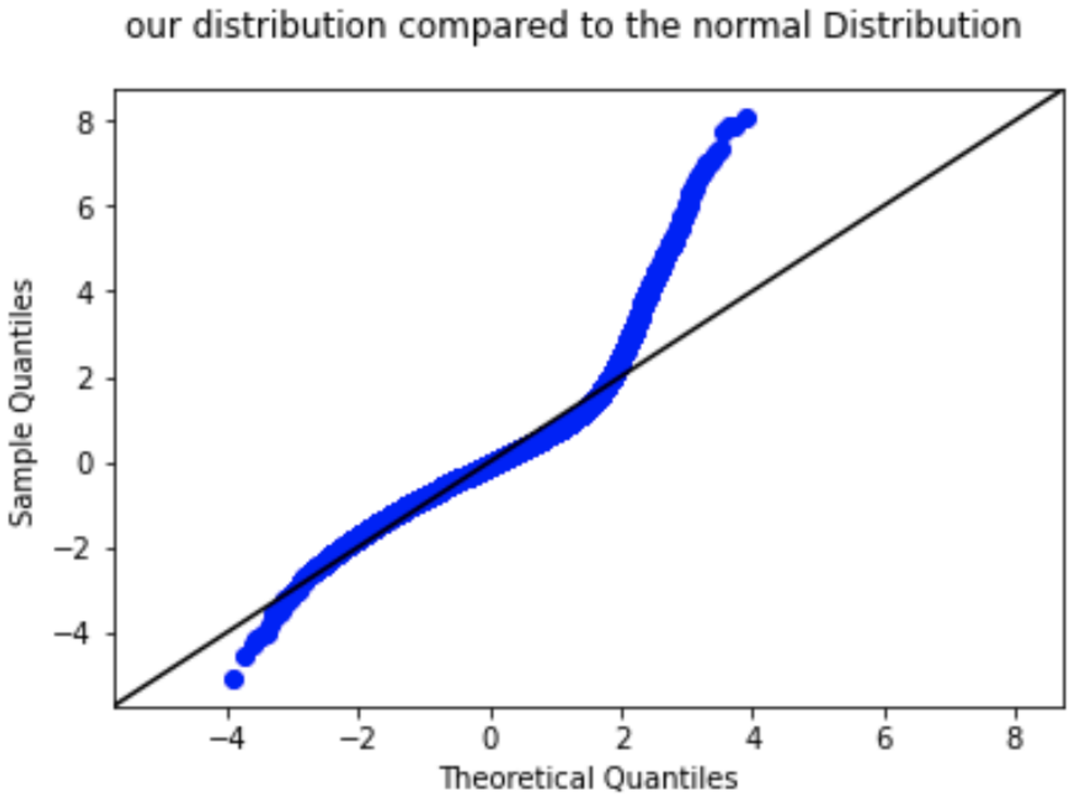
Baseline Simple Regression Model

From this model, there appears to be a strong relationship between living space and price.

Approximately 44.3% of the variance in housing prices can be explained by the square footage of the living area.



Iterated Multiple Regression

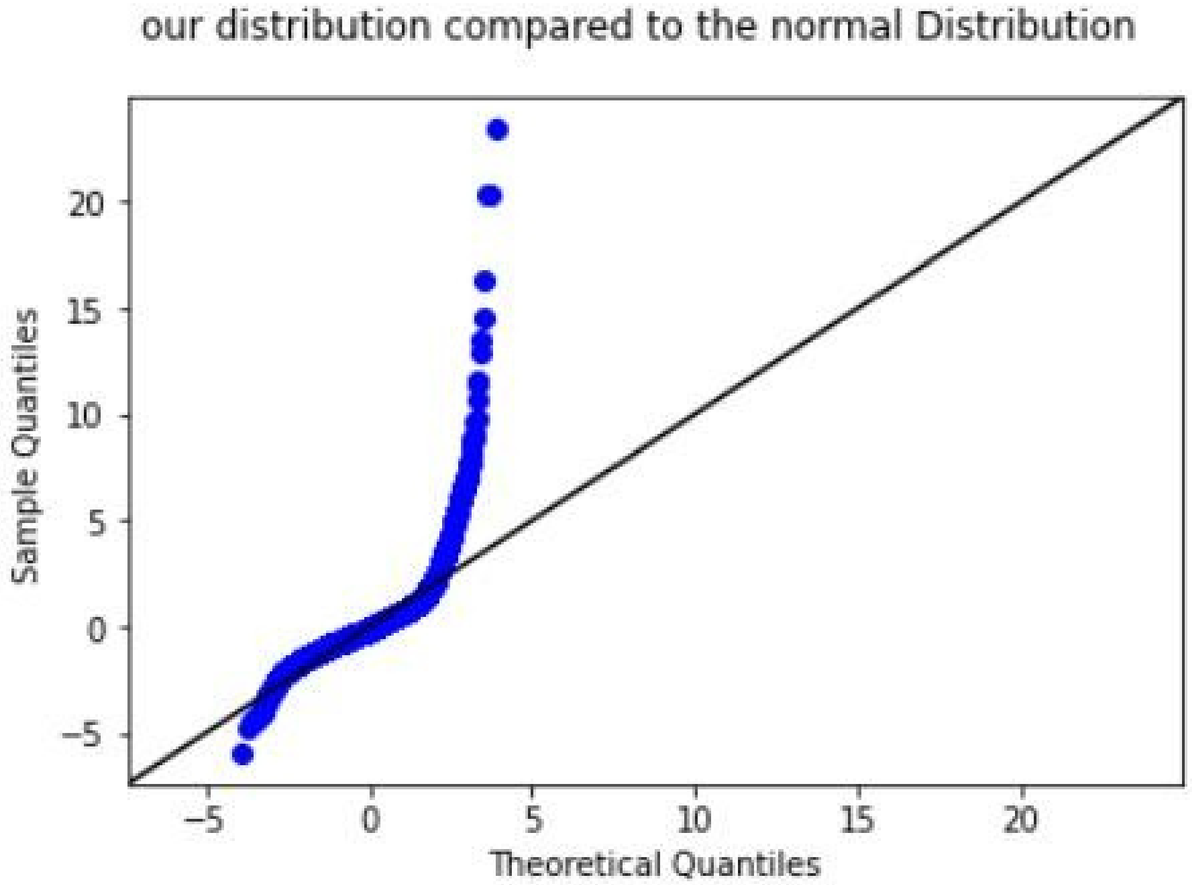


The model explains about 63.4% of the variance in the target variable (price). This is a significant improvement over the previous model which had 44.3%.

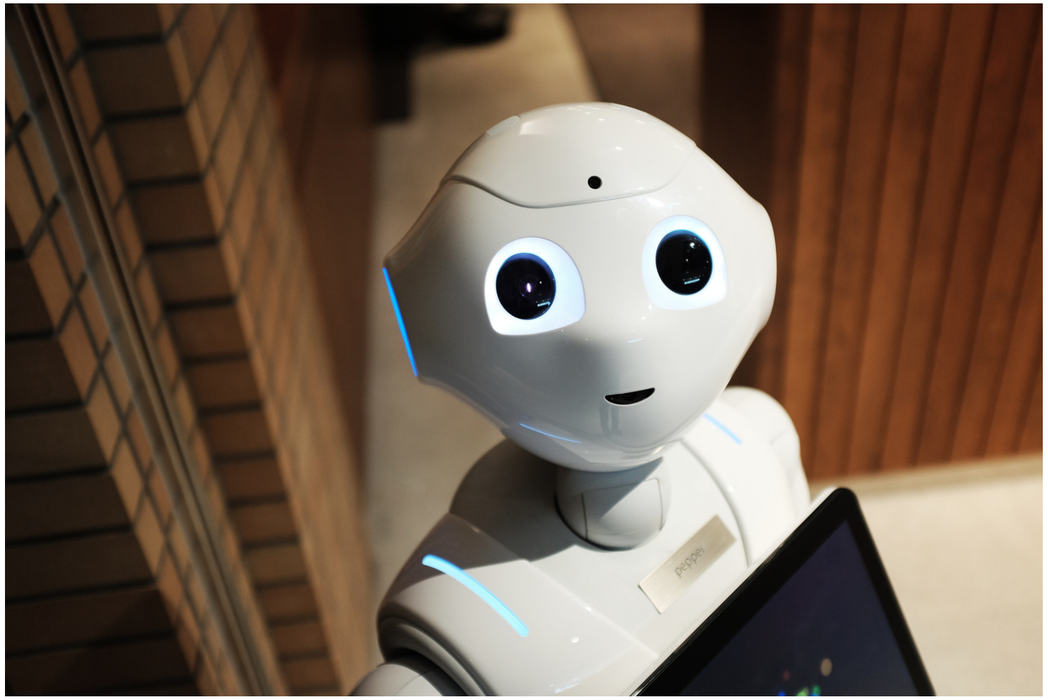
We note that there are variables have a stronger influence compared to others.

Iterated Log Transformed Model

The log-transformed model explains 57.1% of the variance, indicating that the model is worse than the previous model.



Regression Results



We chose the iterated multiple regression model as it had explained highest variance in home prices at 63.4%.

The log transformed model was 57.1% while the simple regression model was 44.3%

Recommendations

1. **Bathrooms:** More bathrooms equals higher price.
2. **Living Area and Lot Size:** Emphasize living area, be mindful of lot size.
3. **Floors:** Multi-story homes are priced higher.
4. **Condition and Grade:** Higher ratings equal higher price.
5. **Age and Renovated:** Consider age and renovation when pricing and marketing.
6. **Waterfront View:** Waterfront properties are priced significantly higher.
7. **Season:** Spring sells for higher prices than fall.

Next Steps

Develop and compare multiple regression models to predict house prices with high accuracy.

Provide data or statistics to back up your claim. This could include research studies, market data, or industry reports.

Use examples or case studies to demonstrate how each factor affects the price of a home

THANK YOU