

**Analyzing
Factors Affecting
Home Ownership
Prices in King
County**

JULY 8, 2023

Overview

By leveraging data analysis techniques, my project aims to revolutionize the homeownership experience for our stakeholders. Through strategic insights and recommendations, I strive to empower homeowners and real estate investors with the knowledge and tools necessary to make informed decisions, maximize returns on investments, and unlock the full potential of their real estate assets. My ultimate goal is to establish Microsoft as a leader in the real estate industry by delivering innovative solutions and setting new standards in homeownership and property investment.

Business Problem

The aim of this project is to analyze the relationship between homeownership prices and various factors that can influence those prices in King County. By leveraging the King County House Sales dataset, we seek to provide valuable insights to homeowners and real estate investors. The primary goal is to conduct predictive analysis and identify key factors that impact home prices. This analysis will help stakeholders make informed decisions regarding potential upgrades and improvements to maximize the value of their properties.

Stakeholder and Key Business Questions

1. How can we optimize the homeownership experience for our stakeholders by identifying key factors that contribute to property value appreciation and market demand?
2. What are the most attractive neighborhoods or locations for real estate investment, based on market trends, amenities, and potential for future growth?
3. How can we enhance the efficiency and effectiveness of the property purchasing process for homeowners, providing them with a seamless and streamlined experience?

Data & Methods

- ❑ The dataset I worked with, known as the Kings County House Sales Dataset, comprises information on over 20,000 houses. This dataset includes both the sale price and a set of 20 potential features associated with each house.
 - ❑ I constructed a linear regression model with the aim of predicting house sale prices by leveraging the features possessed by each house.
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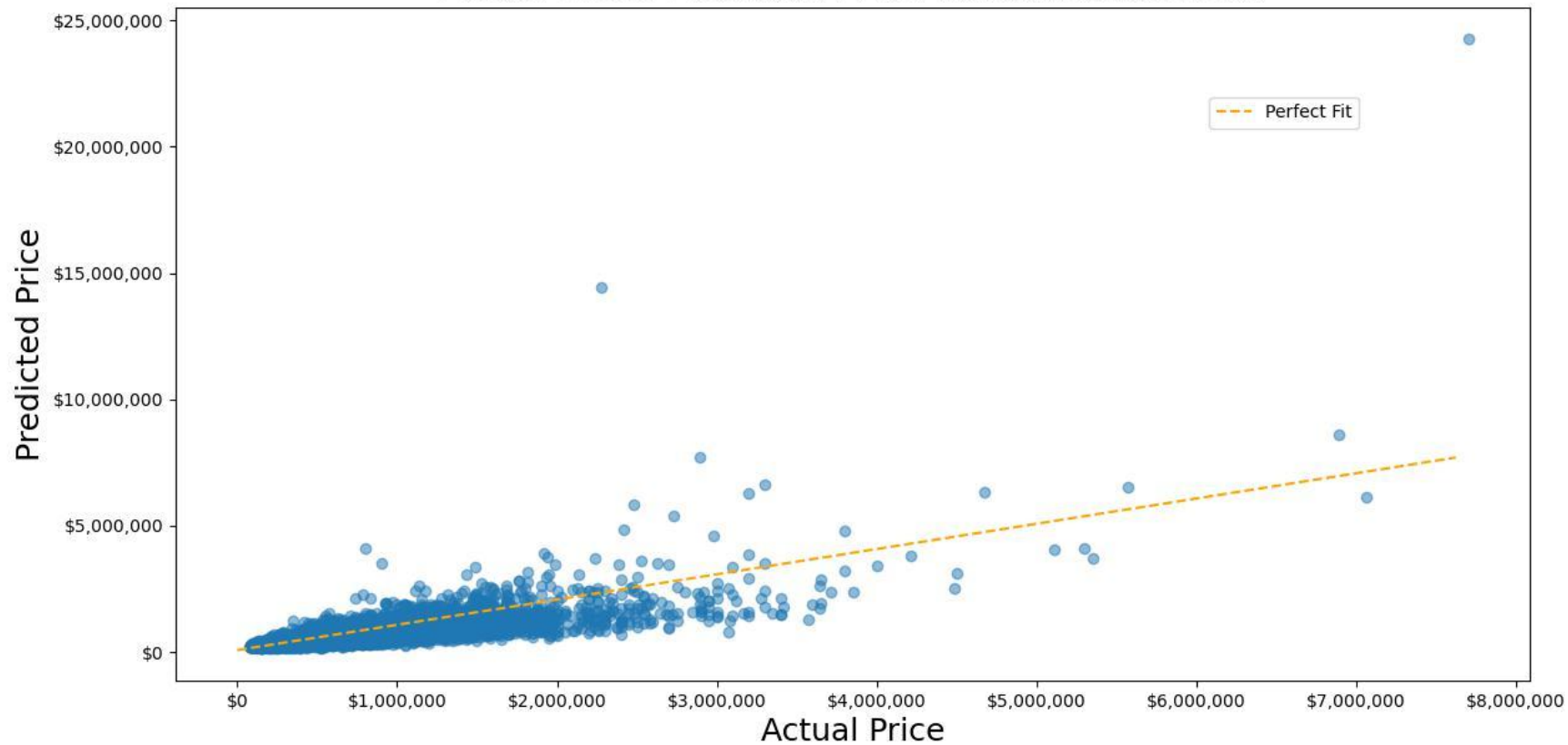
Modeling

- ❑ I developed a linear regression model to predict house values based on the features. The dependent variable in the linear model was price of the house and the independent variables were bedrooms, bathrooms, sqft_living, sqft_lot, floors, condition, age in year, is_renovated and grade.
- ❑ Several features were dropped in the statistical analysis ie date, view, sqft_basement, sqft_above, waterfront, zip code, lat, long, sqft_living15, sqft_lot15, id. The locations where single-family homes are to be developed have already been purchased, so the features pertaining to the location were not used in this analysis.
- ❑ Identity features were deemed irrelevant to the analysis (date, id) and to avoid multicollinearity similar columns were dropped.

Results

In my analysis, I found that the R-squared value of my model was 63.5%, suggesting that approximately 63.5% of the variation in house prices can be explained by the model. When it came to predicting the price of a house, I observed an error of \$260,920. These findings indicate that while the model provides a reasonably good fit, there is still room for improvement in accurately predicting house prices.

Model Three Predicted Price Versus Actual Price



Based on my analysis, I identified that the build quality, number of bathrooms, and number of floors in a house are the most significant factors in terms of increasing the sale price. These variables showed strong statistical significance and had a substantial impact on determining the final sale price of a house. It is essential to consider these factors when evaluating and predicting the potential value of a property.

Findings

- ❑ A unit increase in the grade i.e materials that go into the building of the house will yield an increase of 25.79%
- ❑ A unit increase in square foot living will increase the price of a house by 0.02%
- ❑ A unit increase in the number of bathrooms will increase the price of a house by 9.64%
- ❑ A unit increase in the number of floors will increase the price of a house by 8.34%
- ❑ A unit increase in age_in_yr will increase the price of a house by 0.59%
- ❑ A unit increase in the number of bedrooms will decrease the price of a house by 3.38%