Personalised Strategies for Property Value Enhancement for Homeowners

GROUP 1

GROUP MEMBERS

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OVERVIEW

RenoSmart is a renovations company that aims to assist homeowners in King County, Washington, in strategically enhancing the estimated value of their properties through targeted renovations.

Leveraging multiple linear regression modeling, our project focuses on helping RenoSmart give personalized advice to homeowners, empowering them to make informed decisions about renovation investments that maximize property value.

Business Understanding

Stakeholder Identification

1. Homeowners in King County: These individuals own residential properties and are seeking ways to maximize their property value. They are the primary beneficiaries of the project's outcomes, receiving tailored recommendations for renovation strategies.

2. RenoSmart: The construction company offers renovation services and plays a central role in providing personalized advice to homeowners. RenoSmart aims to enhance its reputation and business success by delivering effective renovation recommendations.

Business Objective

1. Offer tailored recommendations to homeowners on how to strategically increase the estimated value of their properties through renovations.

2. Identify renovation strategies that have the highest potential to enhance property value, leading to higher selling prices and greater returns on investment.

3. Provide homeowners with the knowledge and resources needed to make informed decisions about renovation investments, ultimately enhancing their property's value and marketability.

4. Drive customer satisfaction and loyalty by delivering impactful renovation advice, leading to increased recommendations and future engagements with RenoSmart

Business Problem

RenoSmart, a renovation expert, recently expanded to King County but lacks familiarity with local renovation needs. They seek assistance in understanding King County's unique renovation requirements and market dynamics to provide tailored renovation solutions.

Through data-driven analysis and stakeholder engagement, the project aims to bridge this knowledge gap, enabling RenoSmart to offer informed and effective renovation services that meet the specific needs of homeowners in King County.

Business Questions

1. What are the prevailing renovation trends among homeowners in King County and which types of renovations are currently in high demand?

2. How do these renovation trends vary across different neighborhoods and property types in King County, and what factors contribute to their popularity?

3. What are the primary factors influencing homeowners' decisions to pursue specific renovation projects in King County, and how do these factors impact RenoSmart's service offerings?

4. Are there any emerging trends or opportunities in the renovation business in King County that RenoSmart can capitalize on to differentiate itself and attract customers?

Data Understanding

King County House Dataset

The dataset contained information about the houses in King County.

The dataset has 21,597 entries and 20 columns

The dataset includes a combination of data types, including objects (strings), floats, and integers.

Column names Dataset

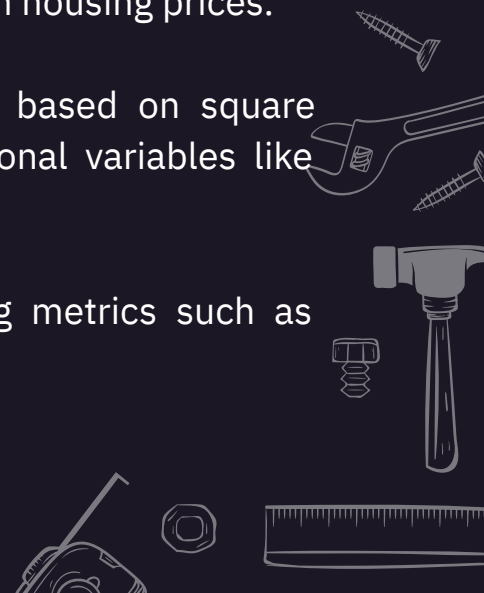
The dataset has 25 entries and 2 columns

The dataset has brief descriptions of each column in the kc_house_data dataset.

The dataset data type is objects (strings).

Data Analysis

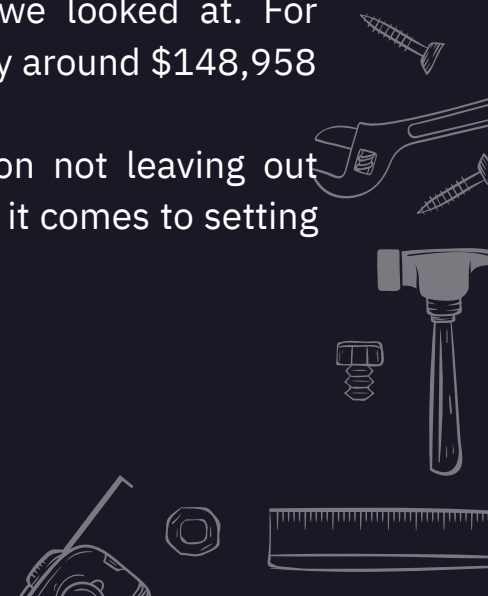
- Initial steps included understanding the data structure, handling missing values, and exploring column descriptions to gain insights into housing features.
- Exploratory data analysis was conducted, employing techniques like box plots to identify outliers and bar plots to visualize the impact of categorical variables on housing prices.
- Modeling began with a simple linear regression to predict prices based on square footage, followed by multiple linear regression incorporating additional variables like bathrooms and bedrooms.
- Models were refined iteratively, evaluating their performance using metrics such as R-squared and Root Mean Squared Error.



Recommendations

After looking at all the different ways of predicting house prices, we think Model 4 is the best choice for our project because :

- Model 4 does a better job of explaining why house prices are the way they are. It captures more of the reasons behind price differences compared to other models.
- When Model 4 makes a prediction about a house's price, it's usually pretty close to the actual price. Meaning it's more accurate than the other models we looked at. For example, when Model 4 predicts a house price, it's typically only off by around $148,958 from the actual price.
- Model 4 also ensured to use all essential features in it’s prediction not leaving out anything crucial. It tells us features about a house really matter when it comes to setting its price.



Thank You

Any Questions