HOUSE SALES IN KING COUNTY, WASHINGTON, USA

GROUP 20

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OVERVIEW

THE PRIMARY GOAL OF THIS PROJECT IS TO PERFORM A COMPREHENSIVE ANALYSIS OF HOUSE SALES DATA IN KING COUNTY, NORTHWEST, USA, USING MULTIPLE LINEAR REGRESSION MODELING TECHNIQUES. THIS ANALYSIS AIMS TO PROVIDE VALUABLE INSIGHTS INTO THE FACTORS THAT INFLUENCE HOUSE PRICES IN THE REGION AND MAKE DATA-DRIVEN RECOMMENDATIONS FOR HOMEOWNERS, REAL ESTATE AGENCIES, AND OTHER STAKEHOLDERS.

BUSINESS CASE

The project aims to provide valuable insights to homeowners, real estate agencies and other stakeholders by analyzing aspects of the houses datasets to guide their decision-making process. These insights can help them develop a strategic plan to invest in profitable homes and help people in the housing market.

A real estate firm needs a reliable model to predict house prices based on its features. With an accurate estimate, the firm can quickly identify underpriced houses to invest in and generate the maximum amount of profit upon resale.

Homeowners need a guide to empower them with insights that can help them make decisions regarding home renovations that may positively impact the estimated value of their properties.

DATA SCIENCE PROCESS

THE DATA

We used data sourced from King County Housing Dataset CSV. The data represents houses with information on price, bedrooms, bathrooms, square foot living, square foot lot, floors, view, and year built. Total data used was from 21597 homes split 80/20 for training and testing. Variables include price, bedrooms, bathrooms, square foot living, square foot lot, floors, view, and year built.

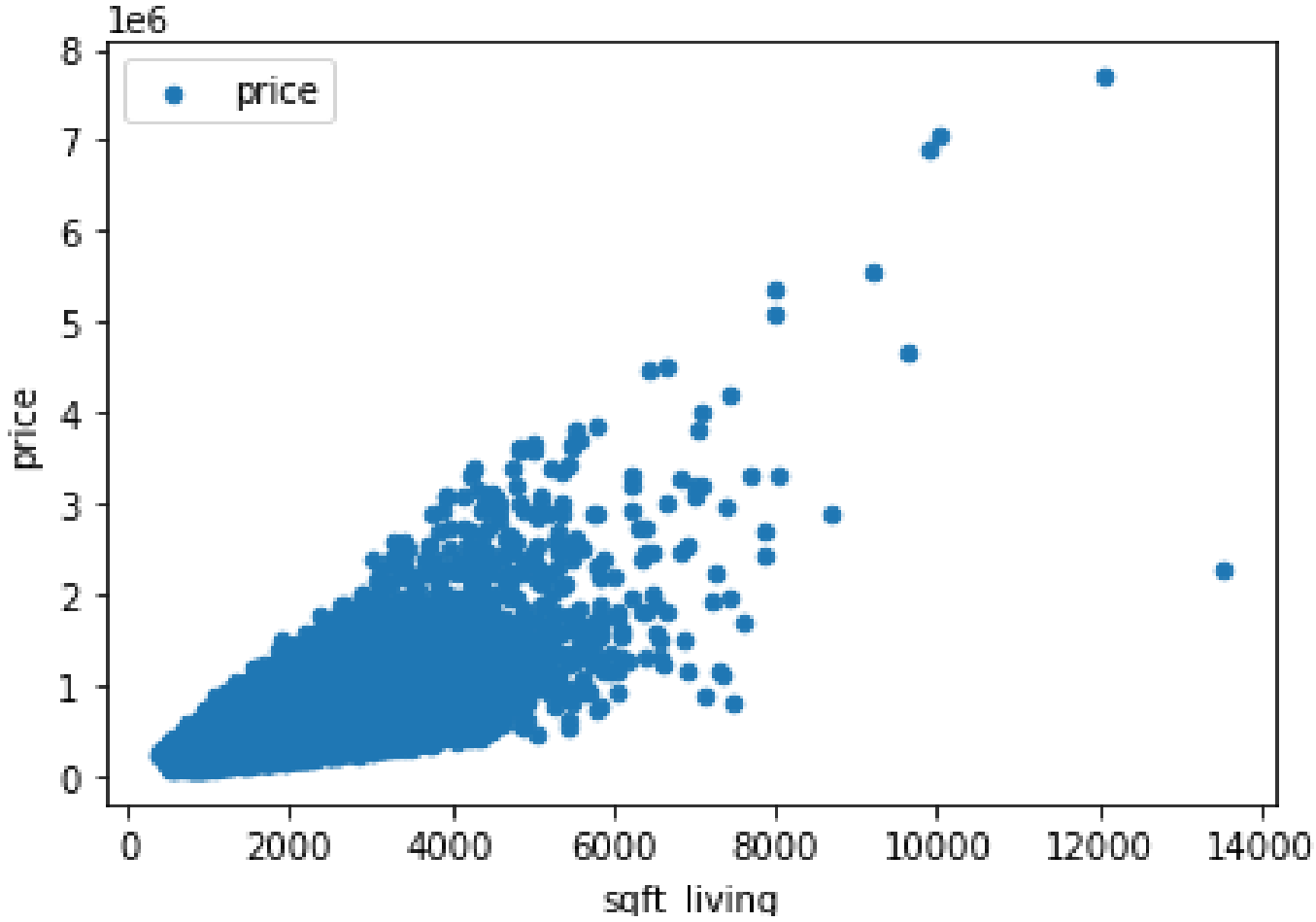
DATA PREPARATION

1. Data loading and cleaning: Obtain data from source and removed inconsistencies in the data to prepare it for analysis and modeling. We cleaned the data to formats that machine understands.
2. Data Exploration: Find significant patterns and trends using statistical methods.
3. Modeling: Construct models to predict and forecast.
4. Interpretation: Put the results into good use.

EXPLORATORY DATA ANALYSIS

FEATURES

CERTAIN VARIABLES INITIALLY APPEAR TO HAVE LINEAR RELATIONSHIP WITH DEPENDENT VARIABLE(SQUARE FOOT LIVING, BATHROOMS, BEDROOMS, FLOORS)



MODEL RESULTS

THE FINAL REGRESSION MODEL ACHIEVED AN R-SQUARED VALUE OF APPROXIMATELY 59.5%, INDICATING THAT 59.5% OF THE VARIANCE IN HOUSE PRICES IS EXPLAINED BY THE SELECTED PREDICTOR VARIABLES. KEY FACTORS INFLUENCING HOUSE PRICES INCLUDE: SQUARE FOOTAGE OF LIVING SPACE, THE NUMBER OF BATHROOMS, BEDROOMS, FLOORS, LOT SIZE, YEAR BUILT AND VIEW QUALITY.

CONCLUSIONS

The final regression model achieved an R-squared value of approximately 59.5%, indicating that 59.5% of the variance in house prices is explained by the selected predictor variables. The performance was not that good given that most of the variables were dropped or not used at all. It is worthy noting that the recommendations are data-driven and based on the statistical analysis. However, individual factors and market conditions can vary, so it's essential to assess your property's specific situation before making any significant decisions.

RECOMMENDATIONS

1. **Leverage Living Space**: Consider renovation or expansion projects that can add more living space to your property. Each additional square foot of living area can potentially increase the estimated price by approximately $311.33.
2. **Bathroom Upgrades**: Each additional bathroom can increase the estimated price by approximately **$61,053.88. Consider modernizing and expanding your bathrooms to attract potential buyers.
3. **Bedroom Considerations**: While bedrooms are essential, be mindful of overinvesting in them. Each additional bedroom may decrease the estimated price by approximately $57,028. Ensure that the number of bedrooms aligns with the needs of potential buyers.
4. **Flooring and Layout**: Houses with more floors tend to command higher prices. Consider optimizing your home's layout to make the most of the available space. Each additional floor can increase the estimated price by about $58,199.
5. **Lot Size Management**: Pay attention to your property's lot size. Smaller lots may deter some buyers, and each square foot reduction in lot size can potentially decrease the estimated price by approximately $0.32. Evaluate your landscaping and lot usage to make the most of your property.
6. **Year Built**: Keep up with yearly maintenance and consider renovations to modernize your home. Older homes tend to have lower estimated prices, with each year of age potentially decreasing the estimated price by around $3,020.
7. **View Quality Matters**: If your property has a view, consider it a valuable asset. Homes with "excellent" views can command significantly higher prices, with each category upgrade potentially adding substantial value. Invest in maintaining or enhancing the quality of the view if possible.
8. **Market Trends**: Keep an eye on local real estate market trends. Factors like location, neighborhood, and market demand can also influence house prices. Stay informed about the King County housing market to make informed decisions.
9. **Consult a Real Estate Expert**: To get a precise estimate of your home's value and tailor your strategy to your specific situation, consider consulting a local real estate expert or appraiser. They can provide personalized recommendations based on your property's unique characteristics.

THANK YOU

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