KING COUNTY HOUSING PRICE PREDICTIONS

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PROJECT OVERVIEW

- This project uses regression modeling to analyze house sales in King County.
- The final model can predict the price of a house based on various features, hence it will be used by a real estate agency to establish a realistic asking price.
- The findings from the model shows the house features that have a great impact on the price of a house based on past sales.
- These findings can be used by the real estate agency to advise homeowners on any improvements that can be made to increase the house price.

BUSINESS PROBLEM

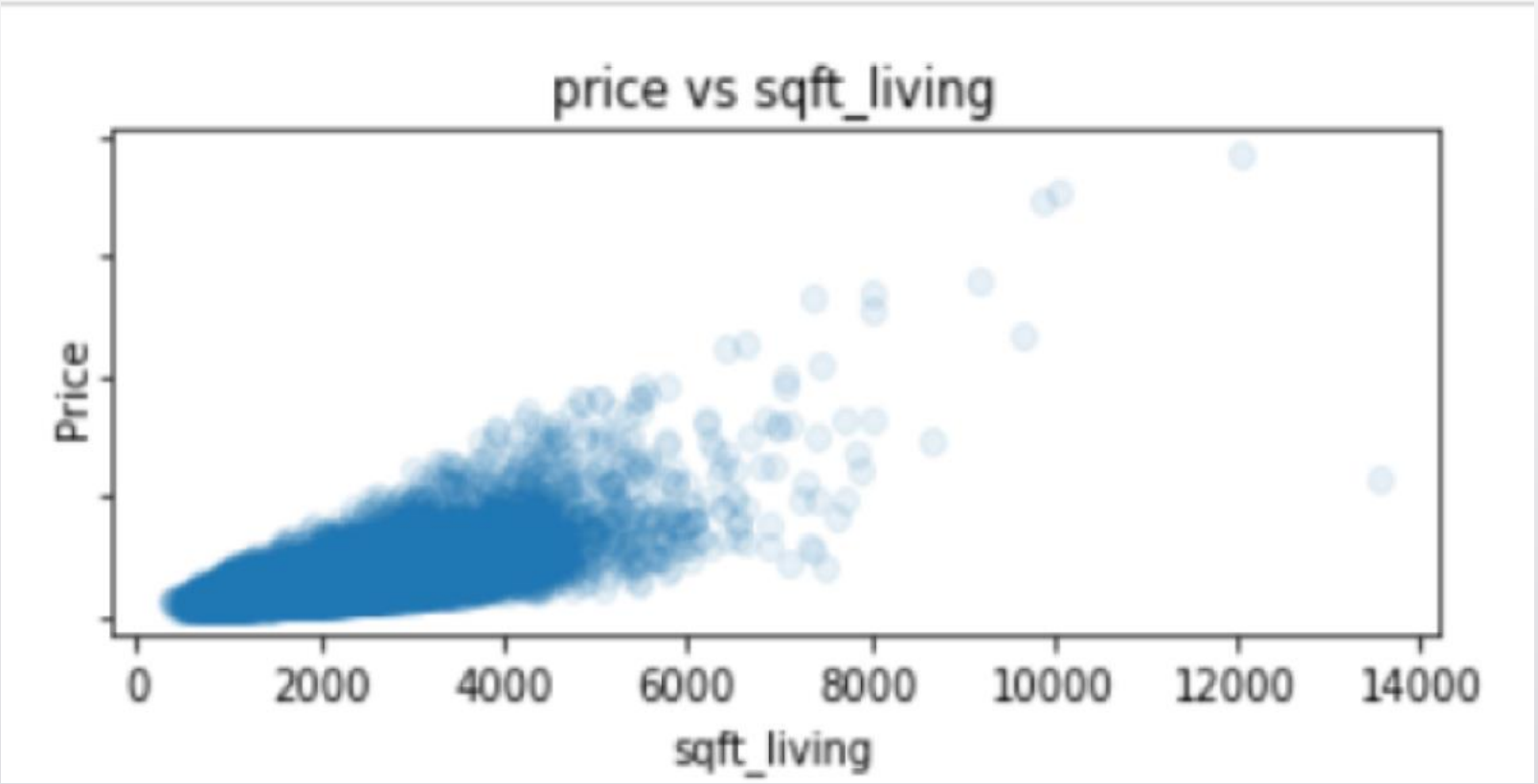
- Real estate agency in King County.
- The agency has 18 house unique features that it considers when estimating the value of a house.
- Due to the many house features available, the real estate agency has a difficulty in establishing a realistic asking price.
- Not sure if doing home renovations has a great impact on the house price value.

SOLUTION

- This project aims to build a model that can predict the price of a house based on various features.
- This helps the agency in coming up with a realistic asking price.
- The findings obtained while building the model provides insights on the house features that have a greater impact on house price.
- From these findings, the agency can appropriately advise the homeowner on any improvements that can be made to increase the house price.

RESULTS

Sqft_living has the highest positive correlation with price. The baseline model was thus built using sqft_living as the only predictive feature.

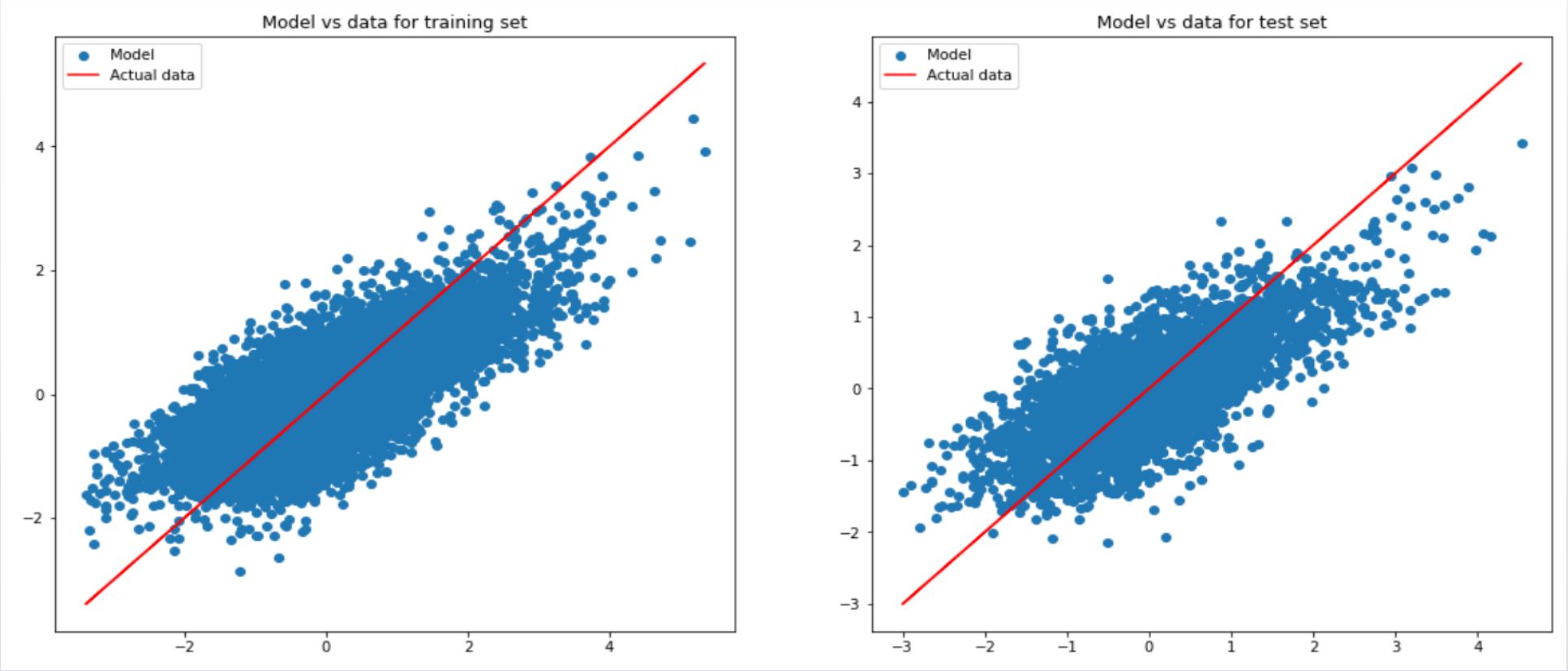


RESULTS

- Various models were built based on various selected models.
- The final model had the highest R-value and the lowest MSE errors when compared to other models.
- Multiple features such as sqft_living, floors, bedrooms, waterfront, house_age, sqft_lot, condition and renovations were used in this model.
- The linear regression assumptions were investigated using this model in order to understand how much the model violates the assumptions.

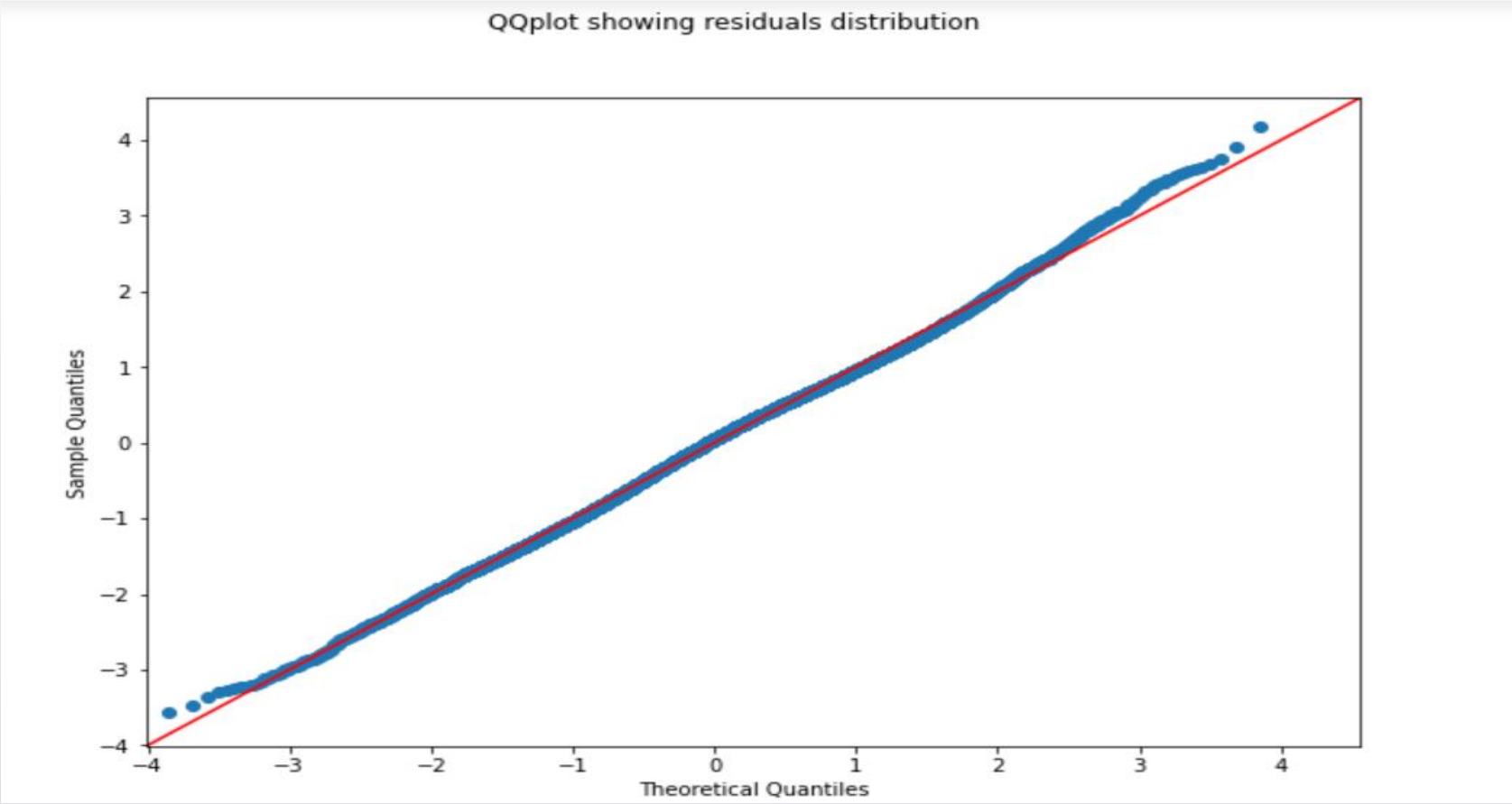
RESULTS

Based on the training set and the test set, there is a linear relationship between the target variable and the predictors.



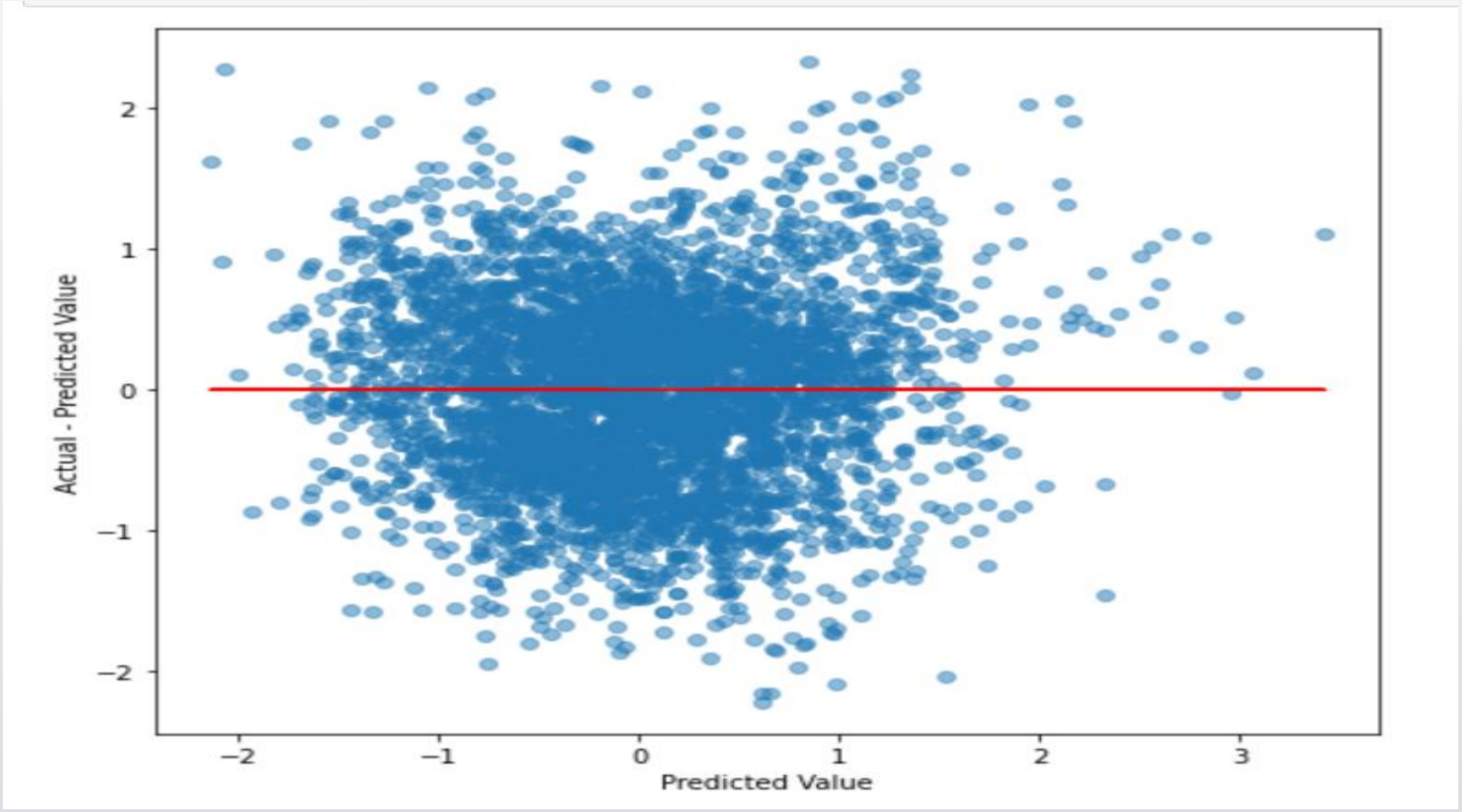
RESULTS

The model residuals have a normal distribution.



RESULTS

The homoscedascity assumption is not violated.



CONCLUSIONS AND RECOMMENDATIONS

- The final model will mainly be used for predictive purposes.
- It can also be used for inferential purposes since none of the assumptions of linear regression has been violated. Most of the house features were found to have a significant effect on the price of houses.
- When various features were selected using various methods, the performance of the model was lower than that of the model with all the predictive features.
- The house features used for prediction, with a significant effect on the price value include floors, sqft_living, bedrooms, waterfront, sqft_lot, condition, renovations and house_age.
- The real estate agency should advise the homeowners to renovate their homes before selling in order to improve the sale price of the house.

FUTURE WORK

- Other types of modeling other than linear regression should be applied to determine the model that has the highest performance.
- In the real estate industry, the price of houses may be affected by other factors such as consumer sentiment, credit availability, inflation and other economic factors.
- Data should be collected on these external factors and the model adjusted based on the effects of these factors.