Model Evaluation Report – House Price Prediction

1. Introduction

This report evaluates the performance of the machine learning models developed for predicting house prices. The evaluation focuses on prediction accuracy, error metrics, and visual comparison between actual and predicted values.

2. Model Overview

Multiple regression models were trained and evaluated, including Linear Regression, Polynomial Regression, Decision Tree Regressor, and Random Forest Regressor. Linear Regression served as the baseline model, while ensemble models were used to improve predictive performance.

3. Evaluation Metrics

The following metrics were used to evaluate model performance:
- Mean Absolute Error (MAE)
- Mean Squared Error (MSE)
- R^2 Score (Coefficient of Determination)

4. Predictions vs Actual Analysis

The scatter plot below compares actual house prices with the predicted values generated by the model. The diagonal reference line represents perfect predictions. Points close to this line indicate high prediction accuracy and strong model performance.

5. Interpretation of Results

The visualization demonstrates that most predicted values closely follow the ideal prediction line, indicating that the model generalizes well to unseen data. Minor deviations suggest normal prediction error due to feature variability and market complexity.

6. Conclusion

Overall, the house price prediction model shows strong predictive capability and reliability. The evaluation confirms that the selected features and machine learning techniques are suitable for real-world house price estimation tasks.