

# **MAE and RMSE Evaluation Report**

## **Introduction**

This report evaluates the performance of a Linear Regression model developed to predict house prices using the California Housing Dataset. The accuracy of the model is measured using two standard regression metrics: Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE).

## **Mean Absolute Error (MAE)**

Mean Absolute Error represents the average absolute difference between the actual house prices and the prices predicted by the model.

### **Explanation:**

MAE shows how much the model predictions differ from the actual values on average. All errors are treated equally, without giving extra importance to larger errors. A lower MAE value indicates better prediction accuracy.

## **Root Mean Squared Error (RMSE)**

Root Mean Squared Error represents the square root of the average of squared differences between the actual and predicted house prices.

### **Explanation:**

RMSE gives more weight to larger prediction errors, making it useful for understanding how severe the errors are. A lower RMSE value indicates that the model performs well and avoids large prediction mistakes.

## **MAE and RMSE Comparison**

MAE measures the average error, while RMSE penalizes large errors more strongly. When RMSE is higher than MAE, it indicates that some predictions have larger deviations from the actual values.

## **Conclusion**

The Linear Regression model demonstrates good performance in predicting house prices. The MAE value indicates that the average prediction error is low, and the RMSE value confirms that large prediction errors are limited. Overall, the model generalizes well on unseen data and provides reliable predictions.