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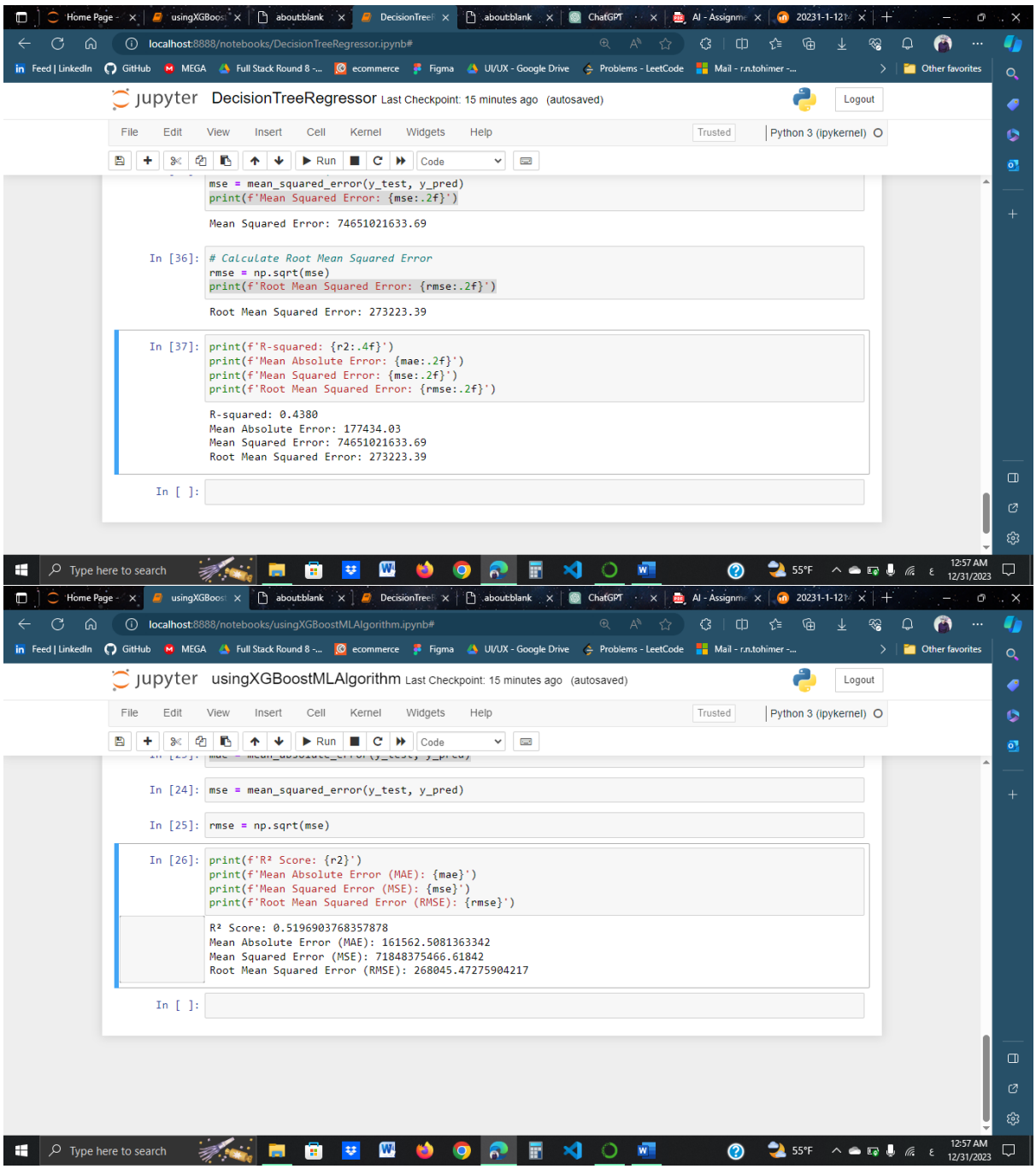

Decision Tree Regressor Results:

- R-squared (R^2) Score: 0.4380
- Mean Absolute Error (MAE): 177434.03
- Mean Squared Error (MSE): 74651021633.69
- Root Mean Squared Error (RMSE): 273223.39

XGBoost Results:

- R-squared (R^2) Score: 0.5197
- Mean Absolute Error (MAE): 161562.51
- Mean Squared Error (MSE): 71848375466.62
- Root Mean Squared Error (RMSE): 268045.47

Comparison and Discussion:

1. **R-squared (R^2) Score:**
   - XGBoost has a higher R-squared score (0.5197) compared to the Decision Tree Regressor (0.4380). A higher R-squared indicates a better fit to the data.
2. **Mean Absolute Error (MAE):**
   - XGBoost has a lower MAE (161562.51) compared to the Decision Tree Regressor (177434.03). A lower MAE suggests that XGBoost is making predictions that are, on average, closer to the actual values.
3. **Mean Squared Error (MSE) and Root Mean Squared Error (RMSE):**
   - XGBoost has a lower MSE (71848375466.62) and RMSE (268045.47) compared to the Decision Tree Regressor (MSE: 74651021633.69, RMSE: 273223.39). Again, lower values indicate better performance.

Conclusion:

- XGBoost outperforms the Decision Tree Regressor in terms of R-squared, MAE, MSE, and RMSE.
- XGBoost's ability to ensemble weak learners and its sophisticated regularization techniques contribute to its superior performance over a single Decision Tree Regressor.
- The Decision Tree Regressor has higher errors (MAE, MSE, and RMSE) and a lower R-squared, indicating that it might not capture the underlying patterns in the data as effectively as XGBoost.

In summary, based on these metrics, XGBoost appears to be a more effective model for predicting house prices in this dataset compared to a single Decision Tree Regressor.