

Model	Baseline (No Feature Engineering)	New Feature(s) Added	Features Created	Notes/Observations
Linear Regression	MAE: 20,980.46 RMSE: 31,419.19 R ² : 0.7895 Adjusted R ² : 0.7895 Mean Squared Error: 987,165,466.41 Mean Signed Difference: -1,396.58 MAPE: 0.1277	MAE: 0.0372 RMSE: 0.0597 R ² : 0.8790 Adjusted R ² : 0.8790 Mean Squared Error: 0.0036 Mean Signed Difference: 0.0028 MAPE: 0.0071	HouseAge, YearsSinceRemodel, TotalBathRooms, LivingAreaRatio, log transformations on skewed features	Linear Regression improved significantly after feature engineering but still lags behind Random Forest and Gradient Boosting in R ² and RMSE.

Gradient Boosting	MAE: 15,828.04 RMSE: 23,056.82 R ² : 0.8866 Adjusted R ² : 0.8866 Mean Squared Error: 531,617,106.47 Mean Signed Difference: 1,914.32 MAPE: 0.0906	MAE: 0.0361 RMSE: 0.0540 R ² : 0.9011 Adjusted R ² : 0.9011 Mean Squared Error: 0.0029 Mean Signed Difference: 0.0009 MAPE: 0.0069	HouseAge, YearsSinceRemodel, TotalBathRooms, LivingAreaRatio, log transformations on skewed features	Gradient Boosting showed the best performance after feature engineering, with the highest R ² and lowest RMSE among all models.
--------------------------	--	--	--	--

Model	Baseline (No Feature Engineering)	New Feature(s) Added	Features Created	Notes/Observations
Random Forest	MAE: 15,836.94 RMSE: 24,025.92 R ² : 0.8769 Adjusted R ² : 0.8769 Mean Squared Error: 577,244,885.66 Mean Signed Difference: 246.94 MAPE: 0.0929	MAE: 0.0393 RMSE: 0.0590 R ² : 0.8820 Adjusted R ² : 0.8820 Mean Squared Error: 0.0035 Mean Signed Difference: -0.0025 MAPE: 0.0075	HouseAge, YearsSinceRemodel, TotalBathRooms, LivingAreaRatio, log transformations on skewed features	Random Forest also improved significantly but performed slightly worse than Gradient Boosting in most metrics after feature engineering.

