Model Performance Report: Gradient Boosting

MODEL DETAILS:
- Algorithm: Gradient Boosting
- Training Samples: 8155
- Test Samples: 2039
- Features: 12

PERFORMANCE METRICS:
- Root Mean Square Error (RMSE): 1.0695
- R^2 Score: 0.9789
- Mean Absolute Error (MAE): 0.6781
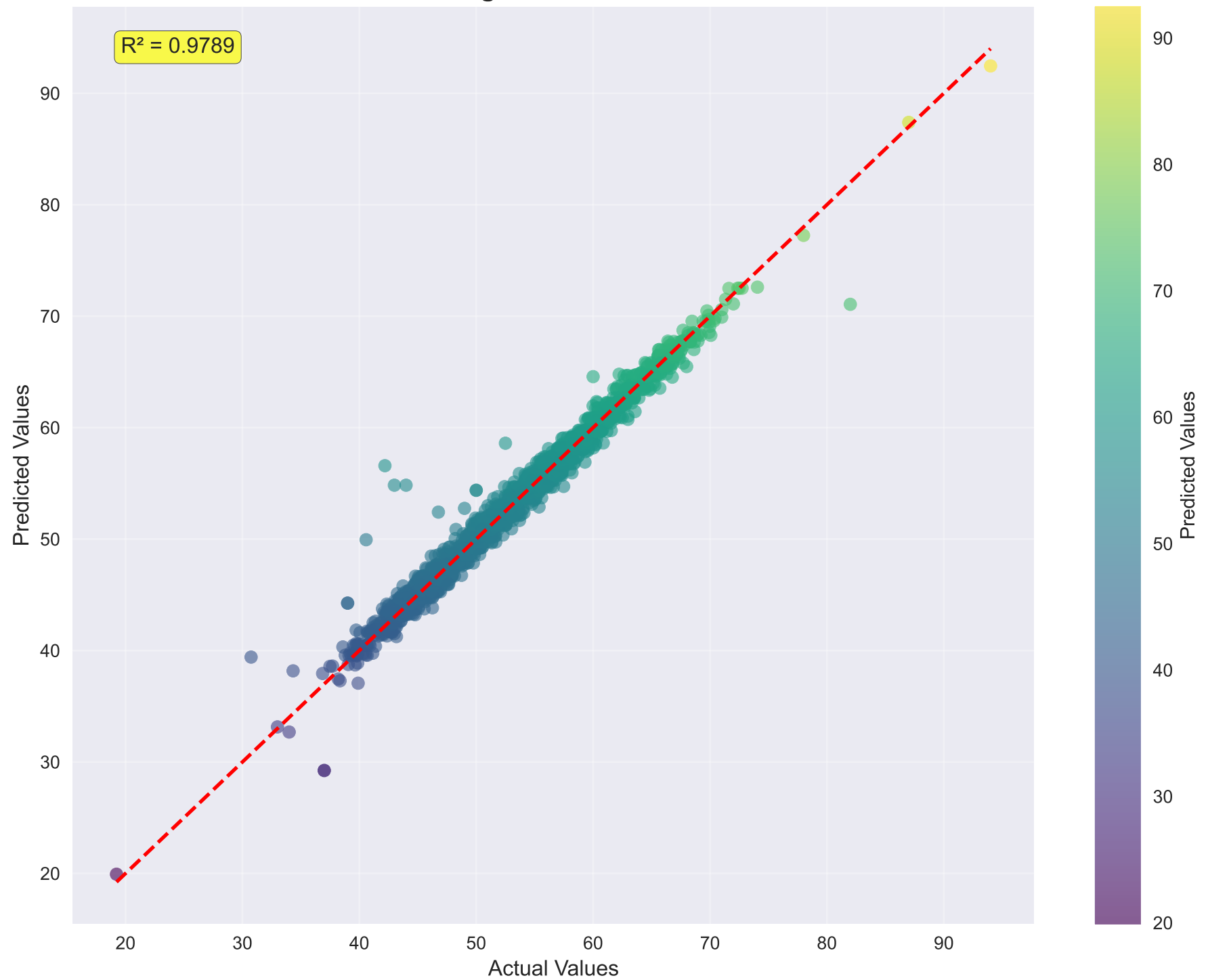- Mean Square Error (MSE): 1.1437

INTERPRETATION:
- R^2 Score of 0.9789 means the model explains 97.89% of the variance
- RMSE of 1.0695 indicates average prediction error
- Lower RMSE and MAE values indicate better model performance
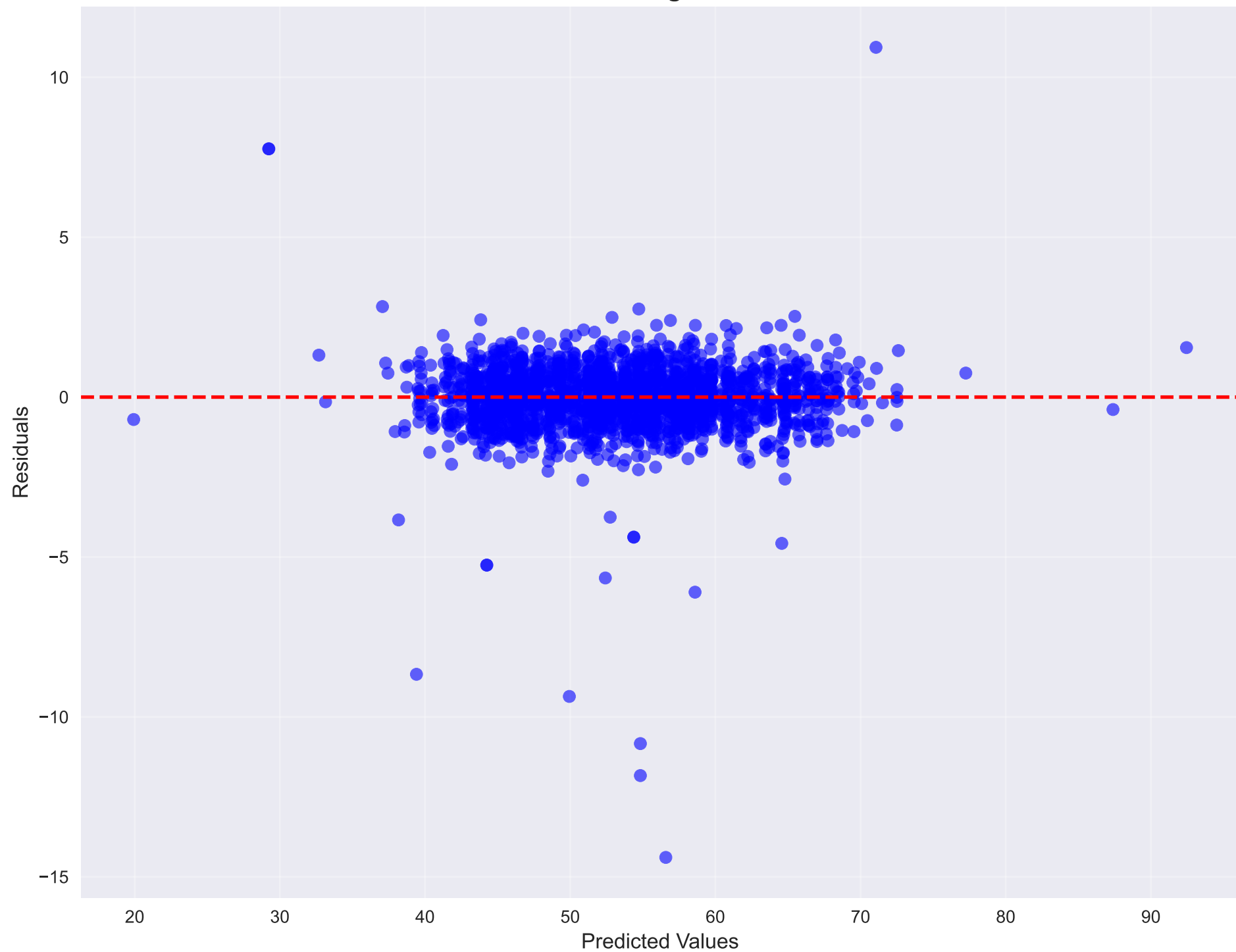- R^2 closer to 1.0 indicates better model fit

DATASET INFORMATION:
- Target Variable: Last Column
- Problem Type: Regression
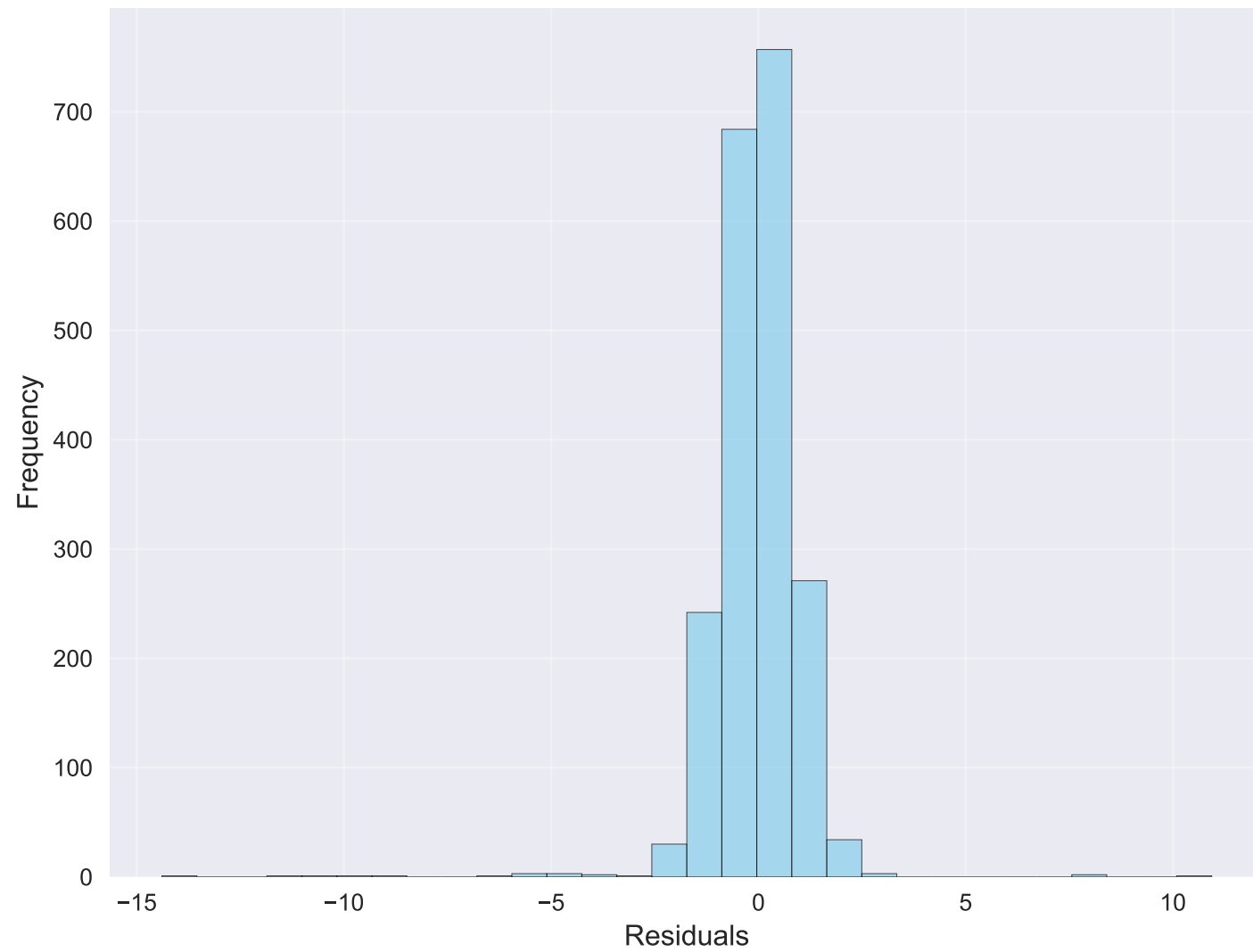- Cross-validation: 3-fold GridSearchCV used for hyperparameter tuning

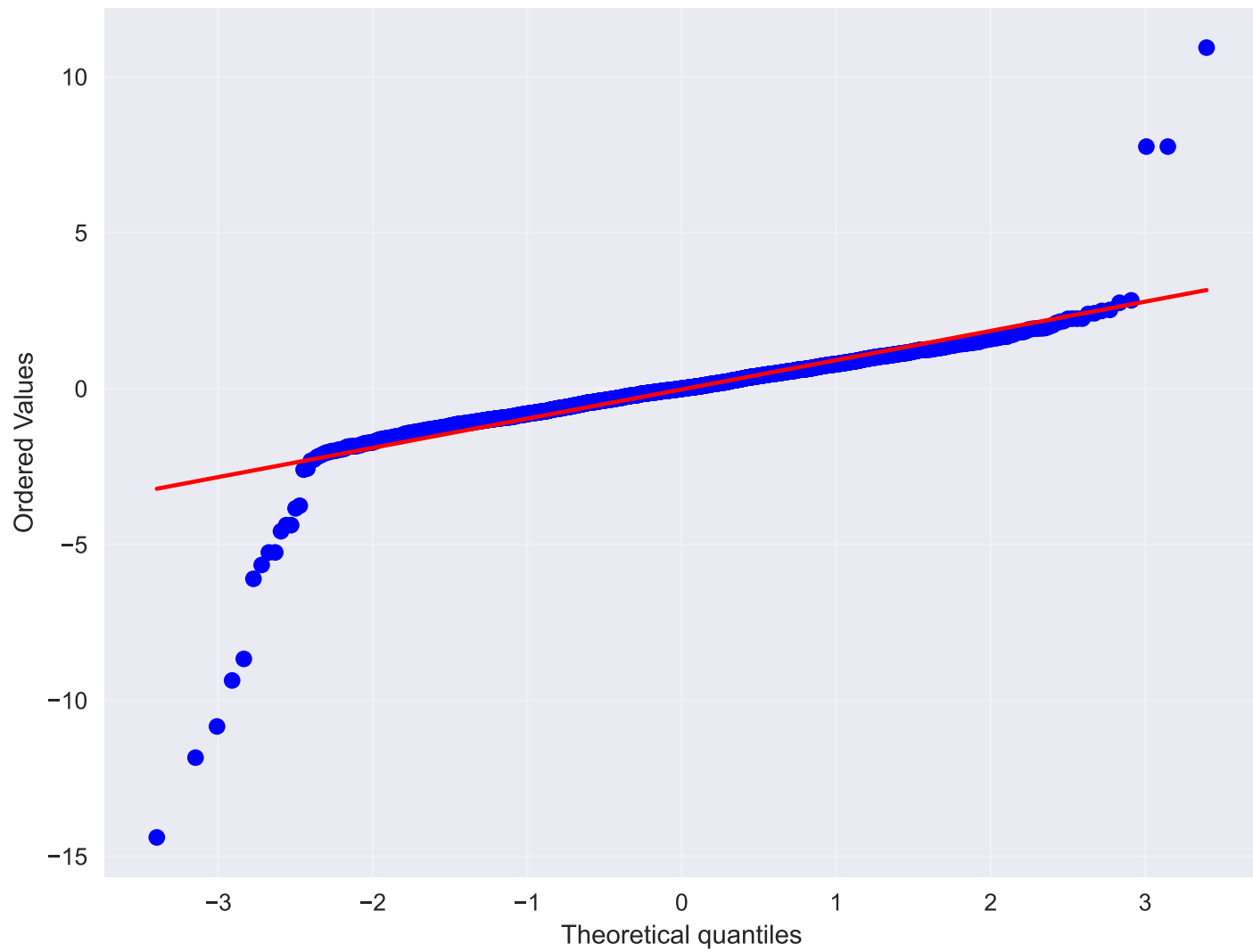Gradient Boosting: Actual vs Predicted Values

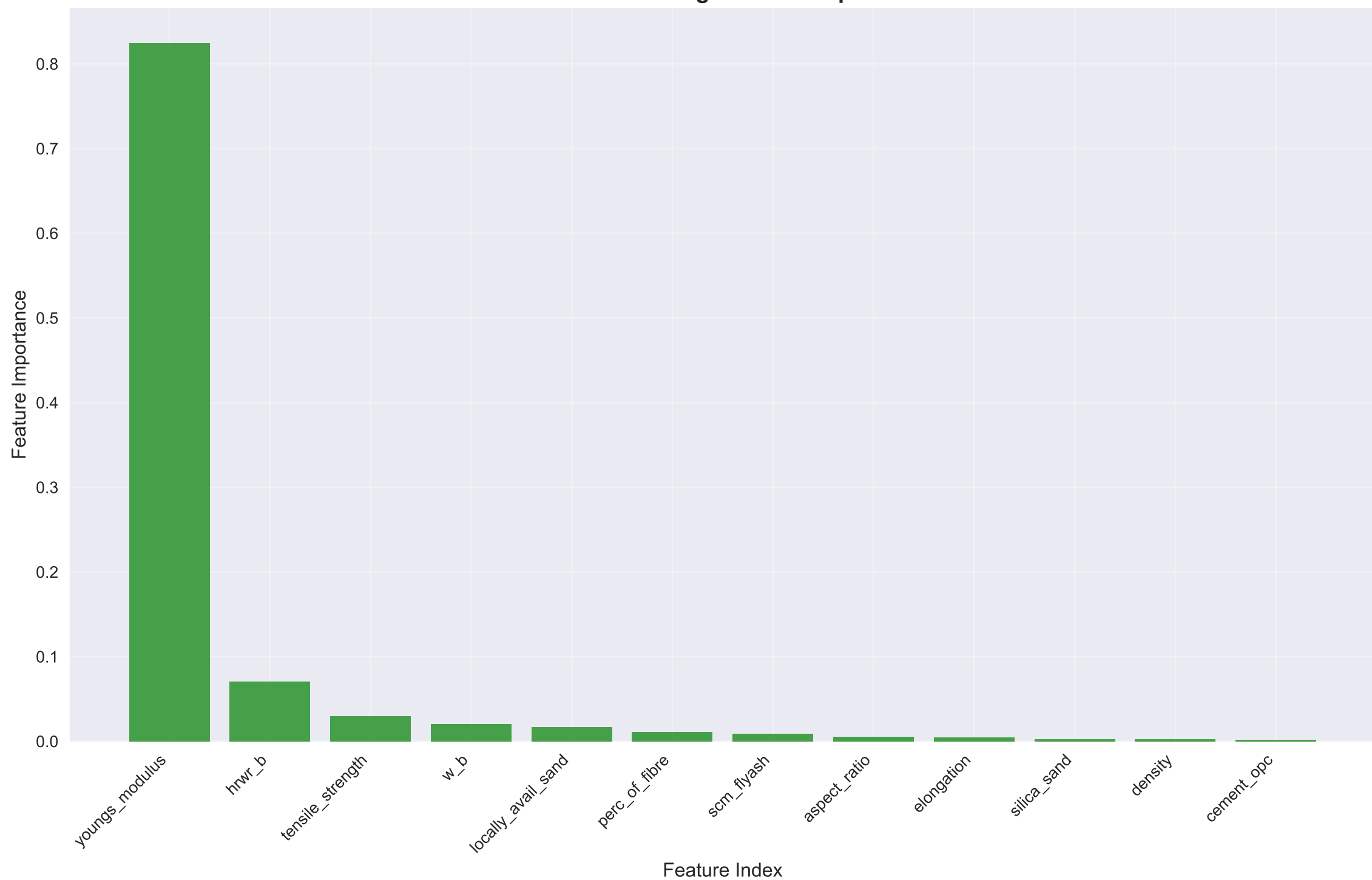R² = 0.9789

Gradient Boosting: Residual Plot

Distribution of Residuals

Q-Q Plot of Residuals

Gradient Boosting: Feature Importance

Gradient Boosting: Performance Metrics Summary