This result indicates that the model is overfitting the training data. Here's what it means:

High Training Score (87%):

The model has learned the training data very well.

It may have memorized the patterns instead of generalizing.

Negative Test Score (-78%):

A negative test score (likely R² score in regression) means the model performs worse than a simple mean prediction.

The model is failing badly on unseen data.

Indicates poor generalization.

Possible Reasons for Overfitting

Tree is too deep (too many splits, memorizing training data).

No pruning applied (resulting in an overly complex model).

Too many features (causing unnecessary splits).

Small training dataset (causing the model to memorize rather than learn patterns).

Solutions to Fix Overfitting

✅ Limit max depth of the tree (e.g., max\_depth=5).

✅ Use pruning techniques (e.g., post-pruning).

✅ Increase training data size (if possible).

✅ Use ensemble methods (e.g., Random Forest, Gradient Boosting for better generalization).

✅ Apply feature selection (reduce unnecessary features).