Lab Exercises 22

Date: 18 Nov 2025

Implementation of AdaBoost Classification Algorithm

from sklearn.ensemble import AdaBoostClassifier

22. Implement AdaBoost Classification Algorithm on the Heart Disease Dataset to predict Heart Disease.

Performance Evaluation: Answer the following six evaluation questions based on your model results:

1. **What is the accuracy of the AdaBoost model on the test set?**
2. **Construct the confusion matrix. How many samples were correctly and incorrectly classified?**
3. **Compute and interpret the Precision, Recall, and F1-Score for both classes.**
4. **Plot the ROC Curve and report the AUC score. How well does the model discriminate between classes?**
5. **Which features received the highest importance from AdaBoost? What does this indicate?**
6. **Evaluate how model performance changes when increasing the number of estimators (e.g., 10, 50, 100). Which setting gives the best performance?**