Decision Tree Practice 1

Parameters:

DecisionTreeClassifier(max_depth=10, min_samples_leaf=2, min_samples_split=4, random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for Decision Tree:

Accuracy: 0.88

Precision: 0.95

Recall: 0.86

F1 Score: 0.90

Confusion Matrix:

[[61   6]

 [17 104]]

Decision Tree Practice 2

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for Decision Tree:

Accuracy: 0.92

Precision: 0.95

Recall: 0.93

F1 Score: 0.94

Confusion Matrix:

[[61   6]

 [9 112]]

Decision Tree Practice 3

DecisionTreeClassifier(max_depth=5, min_samples_leaf=5, min_samples_split=10, random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for Decision Tree:

Accuracy: 0.96

Precision: 0.98

Recall: 0.95

F1 Score: 0.97

Confusion Matrix:

[[65 2]

 [6 115]]

Decision Tree Practice 4

DecisionTreeClassifier(criterion='entropy', max_depth=8, min_samples_leaf=3,

min_samples_split=6, random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for Decision Tree:

Accuracy: 0.95

Precision: 0.94

Recall: 0.98

F1 Score: 0.96

Confusion Matrix:

[[60   7]

 [2 119]]

Decision Tree Practice 5

DecisionTreeClassifier(max_depth=3, min_samples_leaf=2, min_samples_split=5,

 random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for Decision Tree:

Accuracy: 0.96

Precision: 0.98

Recall: 0.95

F1 Score: 0.97

Confusion Matrix:

[[65   2]

 [6 115]]

Random Forest Practice 1

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for Random Forest:

Accuracy: 0.96

Precision: 0.96

Recall: 0.98

F1 Score: 0.97

Confusion Matrix:

[[62   5]

 [3 118]]

Random Forest Practice 2

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(criterion='entropy', max_depth=5, min_samples_leaf=3,

min_samples_split=5, n_estimators=50, random_state=42)

AdaBoostClassifier(random_state=42)

Results for Random Forest:

Accuracy: 0.97

Precision: 0.97

Recall: 0.98

F1 Score: 0.98

Confusion Matrix:

[[63   4]

 [2 119]]

Random Forest Practice 3

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(max_depth=15, min_samples_leaf=4, min_samples_split=10,

n_estimators=200, random_state=42)

AdaBoostClassifier(random_state=42)

Results for Random Forest:

Accuracy: 0.96

Precision: 0.97

Recall: 0.98

F1 Score: 0.97

Confusion Matrix:

[[63   4]

 [3 118]]

Random Forest Practice 4

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(criterion='entropy', max_depth=8, min_samples_leaf=2,

min_samples_split=6, n_estimators=20, random_state=42)

AdaBoostClassifier(random_state=42)

Results for Random Forest:

Accuracy: 0.98

Precision: 0.98

Recall: 0.99

F1 Score: 0.98

Confusion Matrix:

[[64   3]

 [1 120]]

Random Forest Practice 5

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(min_samples_split=3, n_estimators=300, random_state=42)

AdaBoostClassifier(random_state=42)

Results for Random Forest:

Accuracy: 0.95

Precision: 0.95

Recall: 0.98

F1 Score: 0.96

Confusion Matrix:

[[61   6]

 [3 118]]

AdaBoost Practice 1

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(learning_rate=0.7, n_estimators=275, random_state=42)

Results for AdaBoost:

Accuracy: 0.98

Precision: 0.99

Recall: 0.98

F1 Score: 0.99

Confusion Matrix:

[[66   1]

 [2 119]]

AdaBoost Practice 2

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for AdaBoost:

Accuracy: 0.95

Precision: 0.99

Recall: 0.93

F1 Score: 0.96

Confusion Matrix:

[[66   1]

 [8 113]]

AdaBoost Practice 3

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(random_state=42)

Results for AdaBoost:

Accuracy: 0.97

Precision: 0.98

Recall: 0.98

F1 Score: 0.98

Confusion Matrix:

[[65   2]

 [3 118]]

AdaBoost Practice 4

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(learning_rate=1.5, n_estimators=30, random_state=42)

Results for AdaBoost:

Accuracy: 0.97

Precision: 0.98

Recall: 0.98

F1 Score: 0.98

Confusion Matrix:

[[64   3]

 [3 118]]

AdaBoost Practice 5

DecisionTreeClassifier(random_state=42)

RandomForestClassifier(random_state=42)

AdaBoostClassifier(learning_rate=0.5, n_estimators=100, random_state=42)

Results for AdaBoost:

Accuracy: 0.95

Precision: 0.98

Recall: 0.94

F1 Score: 0.96

Confusion Matrix:

[[65   2]

 [7 114]]