**מטלה 1**

**חלק ב:**

**Decision Tree:**

1. DecisionTreeClassifier()

Accuracy Score: 0.92

Precision Score:0.9696969696969697

Recall Score:0.9142857142857143

F1 Score:0.9411764705882353

Confusion Matrix:

[[14 1]

[ 3 32]]

1. DecisionTreeClassifier(criterion='entropy')

Accuracy Score: 0.94

Precision Score:0.9444444444444444

Recall Score:0.9714285714285714

F1 Score:0.9577464788732394

Confusion Matrix:

[[13 2]

[ 1 34]]

1. DecisionTreeClassifier(random\_state=0)

Accuracy Score: 0.92

Precision Score:0.9428571428571428

Recall Score:0.9428571428571428

F1 Score:0.9428571428571428

Confusion Matrix:

[[13 2]

[ 2 33]]

1. DecisionTreeClassifier(max\_depth=5)

Accuracy Score: 0.92

Precision Score:0.9428571428571428

Recall Score:0.9428571428571428

F1 Score:0.9428571428571428

Confusion Matrix:

[[13 2]

[ 2 33]]

1. DecisionTreeClassifier(criterion='entropy', max\_depth=5)

Accuracy Score: 0.94

Precision Score:0.9444444444444444

Recall Score:0.9714285714285714

F1 Score:0.9577464788732394

Confusion Matrix:

[[13 2]

[ 1 34]]

1. DecisionTreeClassifier(criterion='entropy', max\_depth=5, random\_state=0)

Accuracy Score: 0.92

Precision Score:0.9428571428571428

Recall Score:0.9428571428571428

F1 Score:0.9428571428571428

Confusion Matrix:

[[13 2]

[ 2 33]]

1. DecisionTreeClassifier(criterion='entropy', splitter='random')

Accuracy Score: 0.96

Precision Score:1.0

Recall Score:0.9428571428571428

F1 Score:0.9705882352941176

Confusion Matrix:

[[15 0]

[ 2 33]]

1. DecisionTreeClassifier(max\_depth=5, splitter='random')

Accuracy Score: 0.98

Precision Score:1.0

Recall Score:0.9714285714285714

F1 Score:0.9855072463768116

Confusion Matrix:

[[15 0]

[ 1 34]]

**Random Forest:**

1. RandomForestClassifier()

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(criterion='entropy')

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(random\_state=0)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(max\_depth=5)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(criterion='entropy', max\_depth=5)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(criterion='entropy', max\_depth=5, random\_state=0)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(bootstrap=False)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(criterion='entropy',bootstrap=False)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. RandomForestClassifier(criterion='entropy',warm\_start=True)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

**AdaBoost:**

1. AdaBoostClassifier()

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. AdaBoostClassifier(n\_estimators=100)

Accuracy Score: 0.98

Precision Score:0.9722222222222222

Recall Score:1.0

F1 Score:0.9859154929577465

Confusion Matrix:

[[14 1]

[ 0 35]]

1. AdaBoostClassifier(random\_state=0)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]

1. AdaBoostClassifier(learning\_rate=5.0)

Accuracy Score: 0.92

Precision Score:0.918918918918919

Recall Score:0.9714285714285714

F1 Score:0.9444444444444444

Confusion Matrix:

[[12 3]

[ 1 34]]

1. AdaBoostClassifier(n\_estimators=100, learning\_rate=5.0)

Accuracy Score: 0.84

Precision Score:0.8292682926829268

Recall Score:0.9714285714285714

F1 Score:0.8947368421052632

Confusion Matrix:

[[ 8 7]

[ 1 34]]

1. AdaBoostClassifier(n\_estimators=75, random\_state=0)

Accuracy Score: 0.98

Precision Score:0.9722222222222222

Recall Score:1.0

F1 Score:0.9859154929577465

Confusion Matrix:

[[14 1]

[ 0 35]]

1. AdaBoostClassifier(n\_estimators=50, random\_state=0)

Accuracy Score: 0.96

Precision Score:0.9714285714285714

Recall Score:0.9714285714285714

F1 Score:0.9714285714285714

Confusion Matrix:

[[14 1]

[ 1 34]]