

## Decision Tree:

הרצה ראשונה-

(criterion="gini", max\_depth=15, min\_samples\_leaf=7)

Accuracy:0.9385964912280702  
Precision:0.9436619718309859  
Recall:0.9571428571428572  
F1 Score:0.950354609929078  
Confusion Matrix:

```
[[40  4]
 [ 3 67]]
```

הרצה שניה-

(criterion="gini", max\_depth=5, min\_samples\_leaf=7)

Accuracy:0.9473684210526315  
Precision:0.9705882352941176  
Recall:0.9428571428571428  
F1 Score:0.9565217391304348  
Confusion Matrix:

```
[2  42]]
```

```
[[66 4 ]
```

הרצה שלישית-

(criterion="gini", max\_depth=None, min\_samples\_leaf=1)

Accuracy:0.9298245614035088  
Precision:0.9696969696969697  
Recall:0.9142857142857143  
F1 Score:0.9411764705882353  
Confusion Matrix:

```
[[42  2]
 [ 6 64]]
```

הרצה רביעית-

(criterion="gini", max\_depth=10, min\_samples\_leaf=2)

Accuracy:0.9298245614035088  
Precision:0.9696969696969697  
Recall:0.9142857142857143  
F1 Score:0.9411764705882353  
Confusion Matrix:

```
[[42  2]
 [ 6 64]]
```

הרצה חמישית-

(criterion="gini", max\_depth=15, min\_samples\_leaf=10)

Accuracy:0.9385964912280702  
Precision:0.9436619718309859  
Recall:0.9571428571428572

F1 Score:0.950354609929078  
Confusion Matrix:

```
[[40  4]
 [ 3 67]]
```

0.9473684210526315 **ההרצה הכי טובה לפי Accuracy היא ההרצה השנייה עם תוצאה של**

### **Random Forest:**

הרצה ראשונה-

(n\_estimators=50, criterion="gini", max\_depth=None, min\_samples\_split=2)

Accuracy:0.9649122807017544  
Precision:0.9583333333333334  
Recall:0.9857142857142858  
F1 Score:0.971830985915493  
Confusion Matrix:

```
[3  41]]
[[69 1 ]
```

הרצה שנייה-

(n\_estimators=100, criterion="gini", max\_depth=10, min\_samples\_split=3)

Accuracy:0.9649122807017544  
Precision:0.9459459459459459  
Recall:1.0  
F1 Score:0.9722222222222222  
Confusion Matrix:

```
[4  40]]
[[70 0 ]
```

הרצה שלישית-

(n\_estimators=70, criterion="entropy", max\_depth=15, min\_samples\_split=2)

Accuracy:0.9736842105263158  
Precision:0.971830985915493  
Recall:0.9857142857142858  
F1 Score:0.9787234042553191  
Confusion Matrix:

```
[2  42]]
[[69 1 ]
```

הרצה רביעית-

(n\_estimators=300, criterion="entropy", max\_depth=12, min\_samples\_split=5)

Accuracy:0.9824561403508771  
Precision:0.9722222222222222

```
Recall:1.0
F1 Score:0.9859154929577465
Confusion Matrix:

[2  42]]

[[70  0 ]
```

הרצה חמישית-

(n\_estimators=450, criterion="gini", max\_depth=5, min\_samples\_split=15)

```
Accuracy:0.956140350877193
Precision:0.9452054794520548
Recall:0.9857142857142858
F1 Score:0.965034965034965
Confusion Matrix:

[4  40]]

[[69  1 ]
```

ההרצה הכי טובה לפי Accuracy היא ההרצה הרביעית עם תוצאה של 0.9824561403508771

#### Ada Boost:

הרצה ראשונה-

(estimator=n\_estimators=50, learning\_rate=1.0)

```
Accuracy:0.9649122807017544
Precision:0.9583333333333334
Recall:0.9857142857142858
F1 Score:0.971830985915493
Confusion Matrix:

[[41  3]
 [ 1 69]]
```

הרצה שניה-

(estimator=n\_estimators=100, learning\_rate=0.75)

```
Accuracy:0.956140350877193
Precision:0.9452054794520548
Recall:0.9857142857142858
F1 Score:0.965034965034965
Confusion Matrix:

[[40  4]
 [ 1 69]]
```

הרצה שלישית-

(estimator=n\_estimators=200, learning\_rate=0.5)

Accuracy:0.9649122807017544  
Precision:0.9714285714285714  
Recall:0.9714285714285714  
F1 Score:0.9714285714285714  
Confusion Matrix:

[2 42]]

[[68 2 ]

הרצה רביעית-

(estimator=n\_estimators=300, learning\_rate=0.15)

Accuracy:0.9736842105263158  
Precision:0.958904109589041  
Recall:1.0  
F1 Score:0.9790209790209791  
Confusion Matrix:

[3 41]]

[[70 0 ]

הרצה חמישית-

(estimator=n\_estimators=150, learning\_rate=0.35)

Accuracy:0.9736842105263158  
Precision:0.971830985915493  
Recall:0.9857142857142858  
F1 Score:0.9787234042553191  
Confusion Matrix:

[2 42]]

[[69 1 ]

הרצה הכי טובה לפי Accuracy היא ההרצה החמישית עם תוצאה של 0.9736842105263158