PREMIER UNIVERSITY, CHITTAGONG

Department of Computer Science &Engineering

Assignment

Course Code : CSE 458

Course Title : Machine Learning Laboratory

Assignment No : 03

Name of the Assignment : Decision Tree Classification

Date of Performance : 16-02-22

Date of Submission : 22-02-22

SUBMITTED BY

REMARKS

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Year: 2022
Semester: 8th
Group: C8B

Decision Tree: This dataset has data collected from outlook, temp, humidity, windy and play golf from golf-datasets.

Decision Tree Classifier:

criterion {“gini”, “entropy”}, default=” gini”

The function to measure the quality of a split. Supported criteria are “gini” for the Gini impurity and “entropy” for the information gain.

1. Outlook Vs. Temp:

X = dataset.iloc[:, [0,1]].values

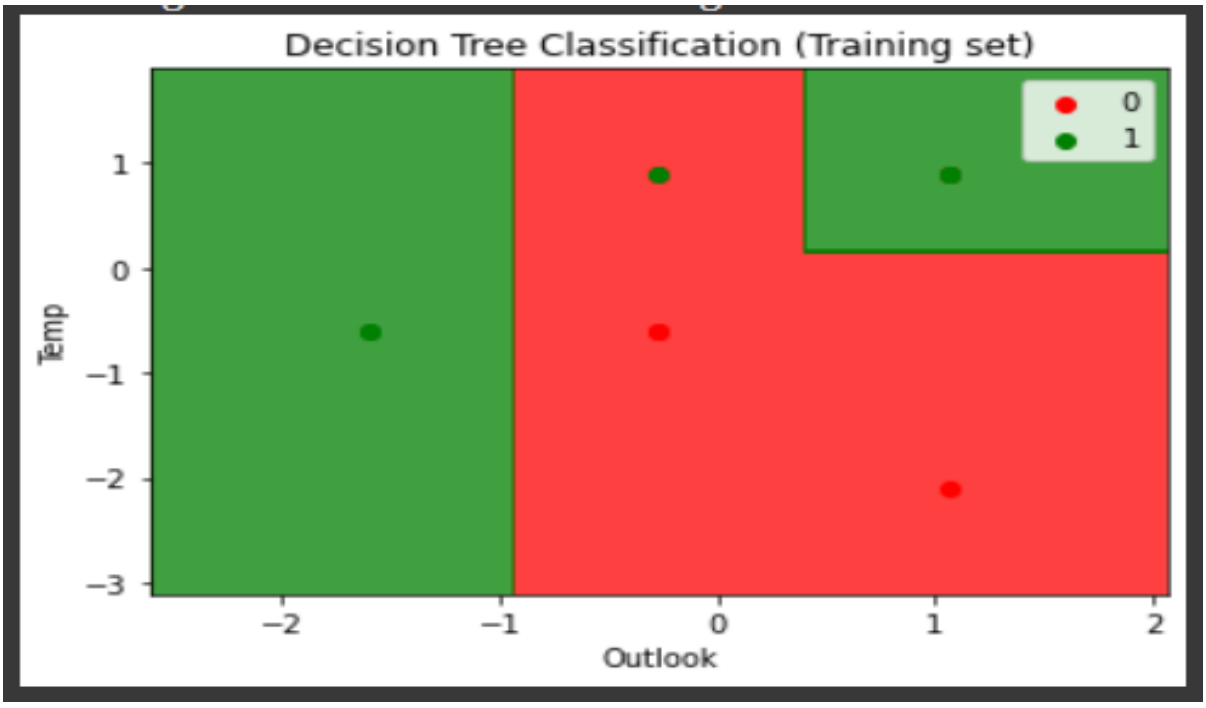
DecisionTreeClassifier(criterion = 'entropy', random_state = 0)

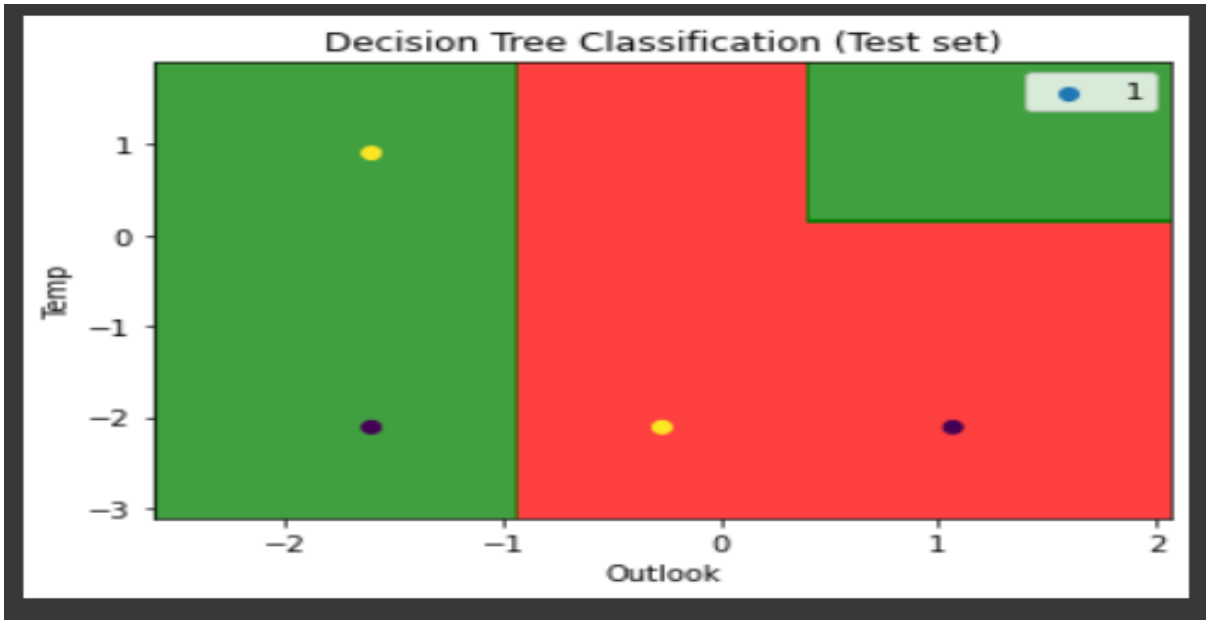
Confusion Matrix:

[[0 0]

[2 2]]

After Execution:





2. Temp Vs. Humidity:

X = dataset.iloc[:, [1,2]].values

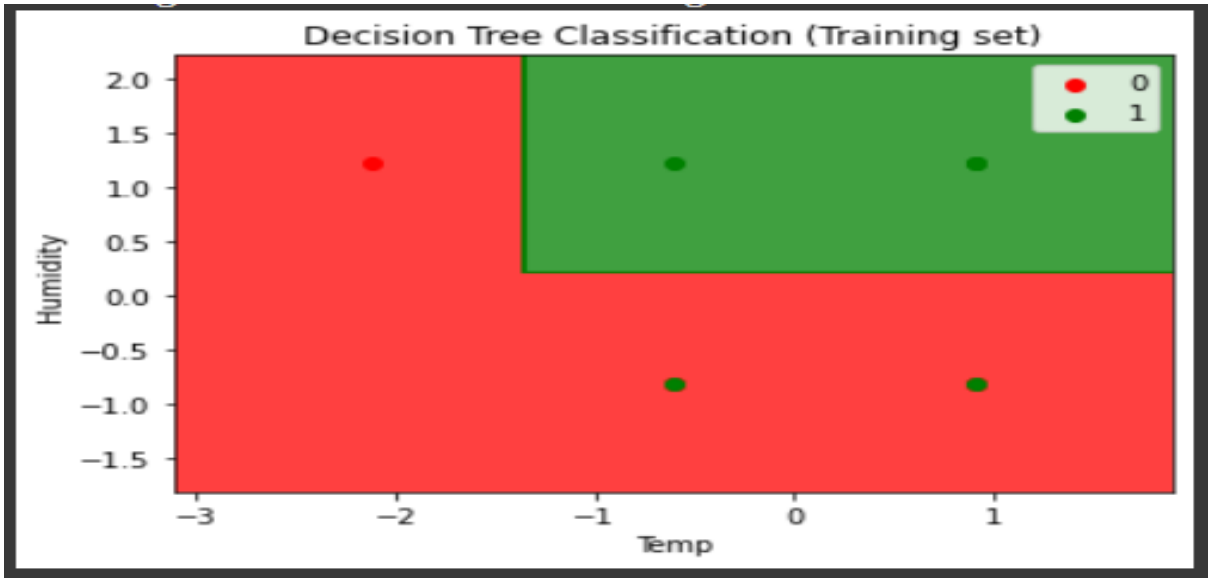
DecisionTreeClassifier(criterion = 'entropy', random_state = 0)

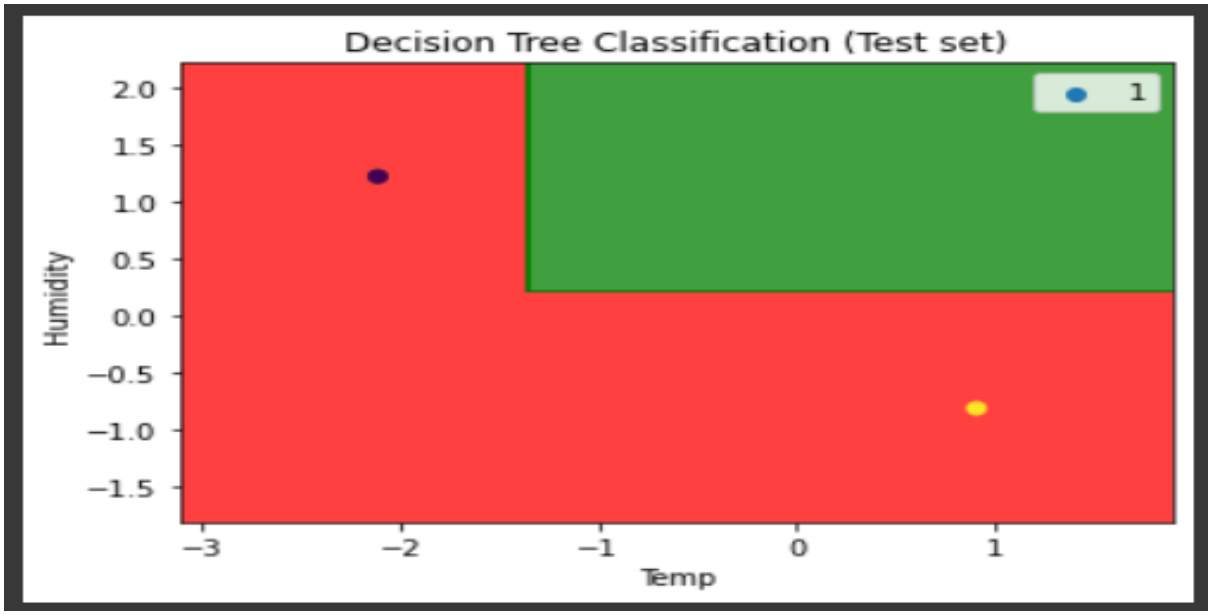
Confusion Matrix:

[[0 0]

[4 0]]

After Execution:





3. Humidity Vs. Windy:

X = dataset.iloc[:, [2,3]].values

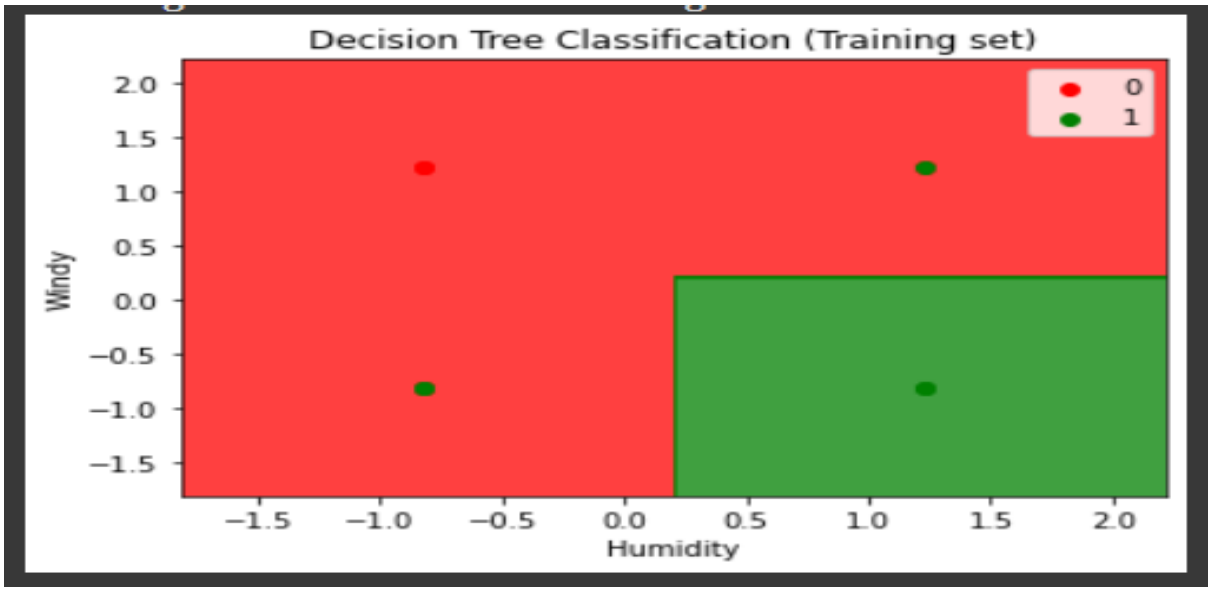
DecisionTreeClassifier(criterion = 'entropy', random_state = 0)

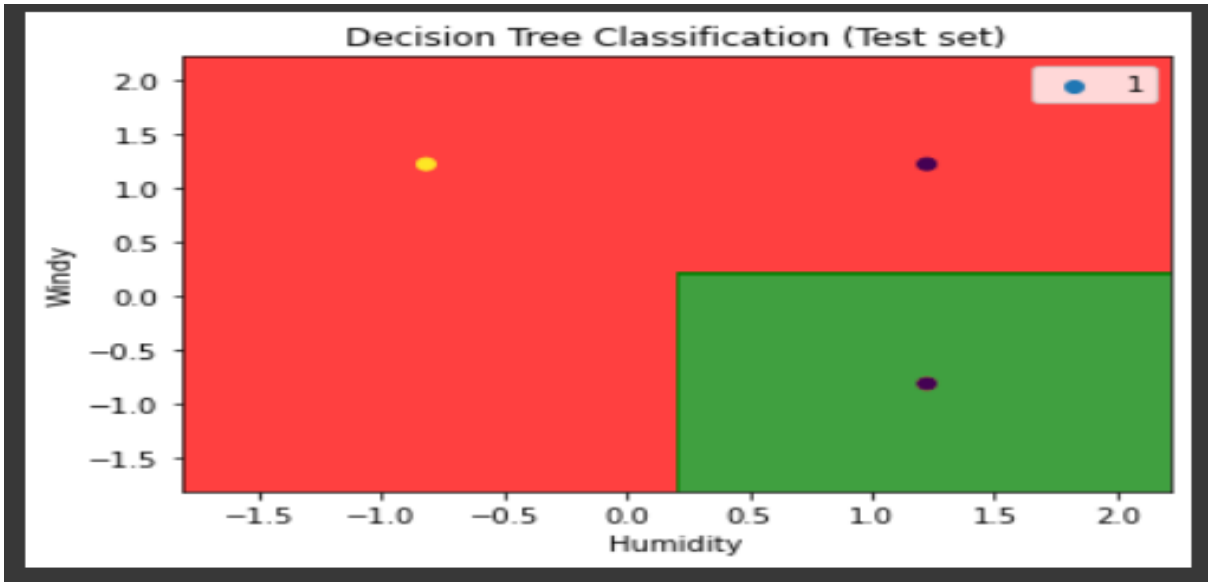
Confusion Matrix:

[[0 0]

[2 2]]

After Execution:





4. Outlook Vs. Humidity:

X = dataset.iloc[:, [0,2]].values

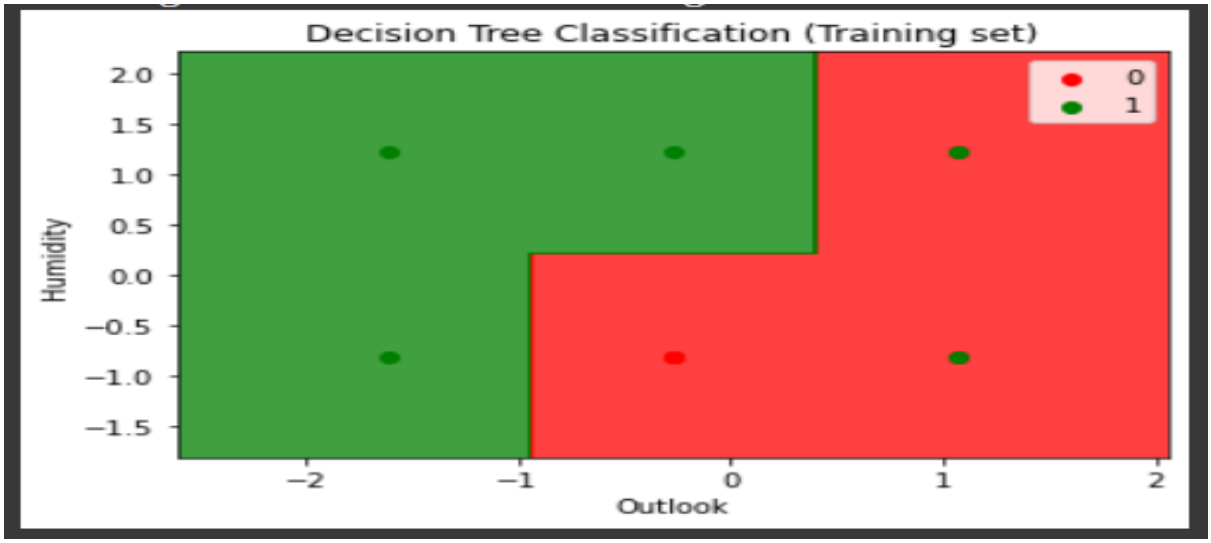
DecisionTreeClassifier(criterion = 'entropy', random_state = 0)

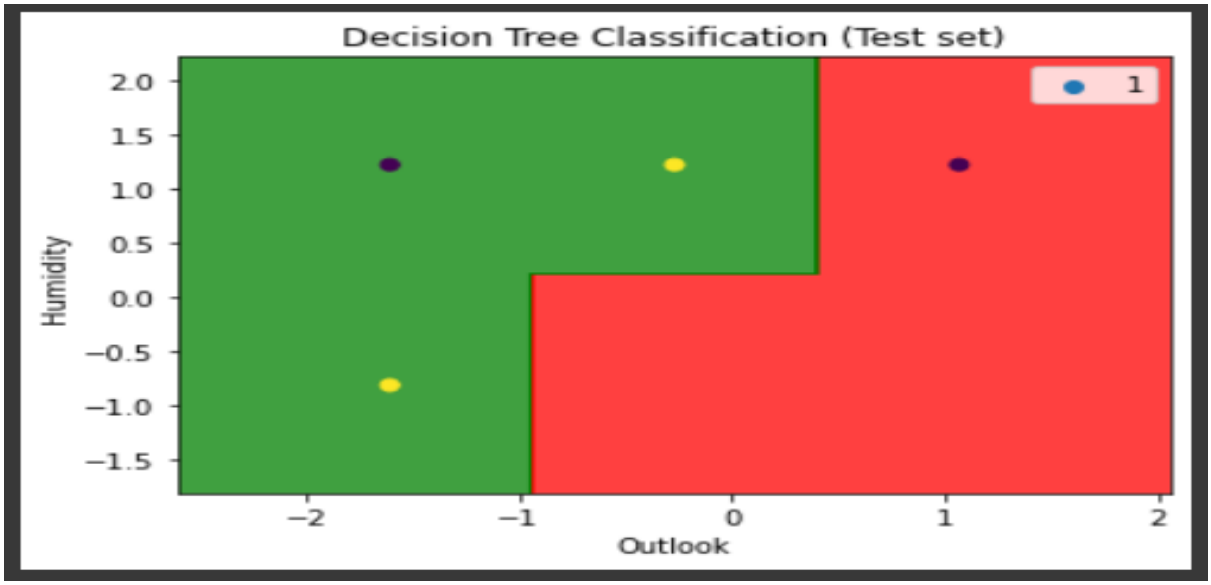
Confusion Matrix:

[[0 0]

[1 3]]

After Execution:





5. Outlook Vs. Windy:

X = dataset.iloc[:, [0,3]].values

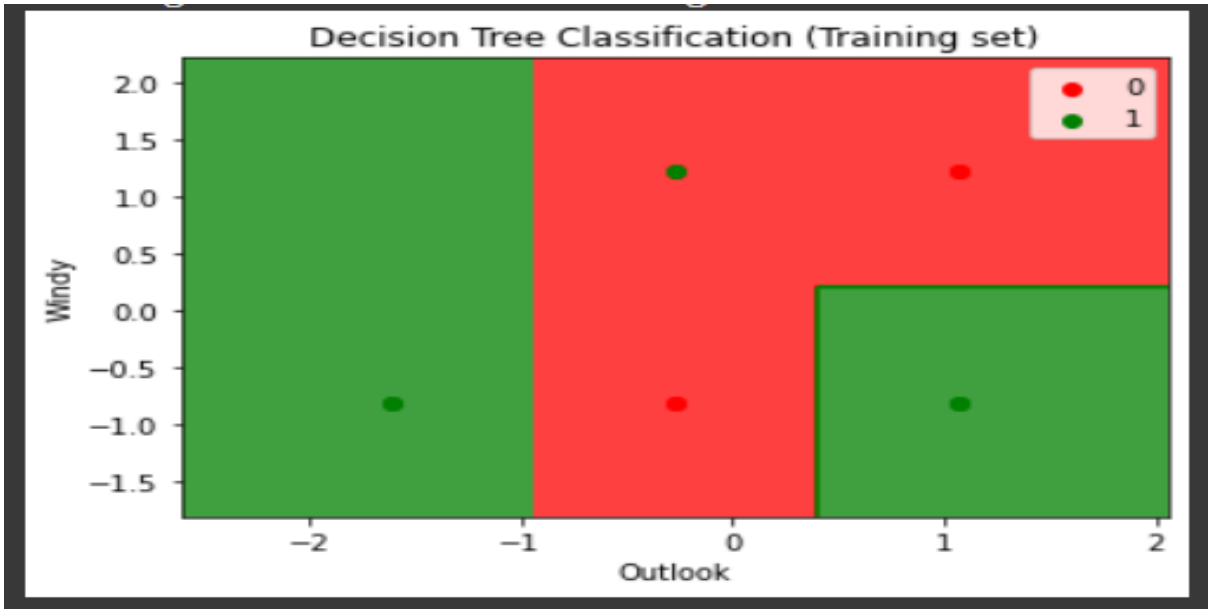
DecisionTreeClassifier(criterion = 'entropy', random_state = 0)

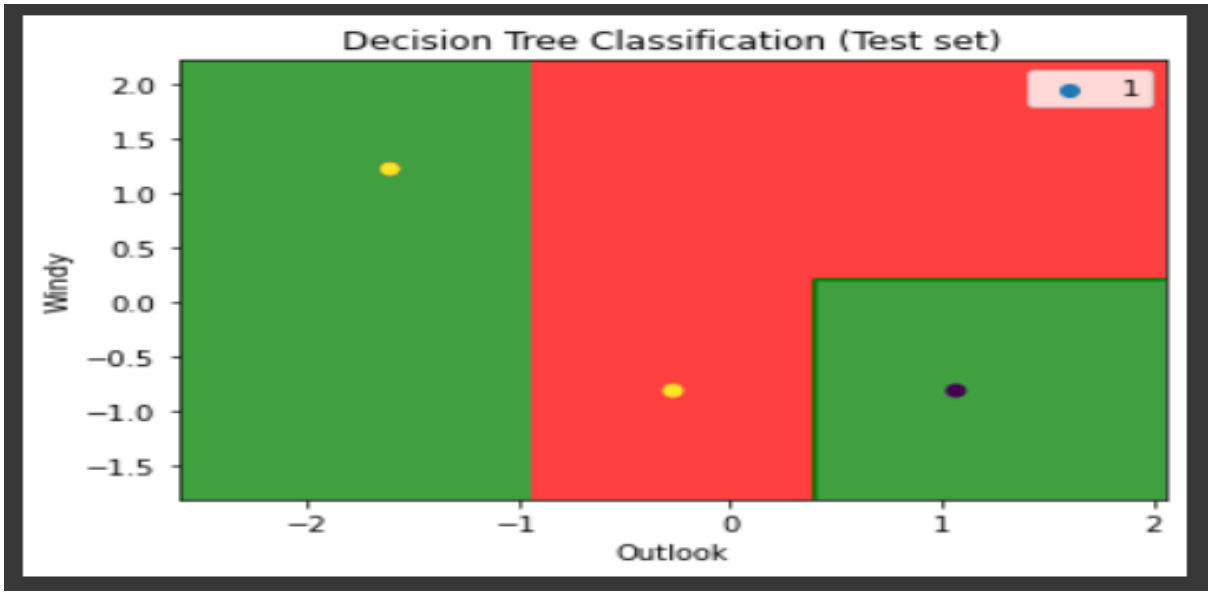
Confusion Matrix:

[[0 0]

[1 3]]

After Execution:





6. Temp Vs. Windy:

X = dataset.iloc[:, [1,3]].values

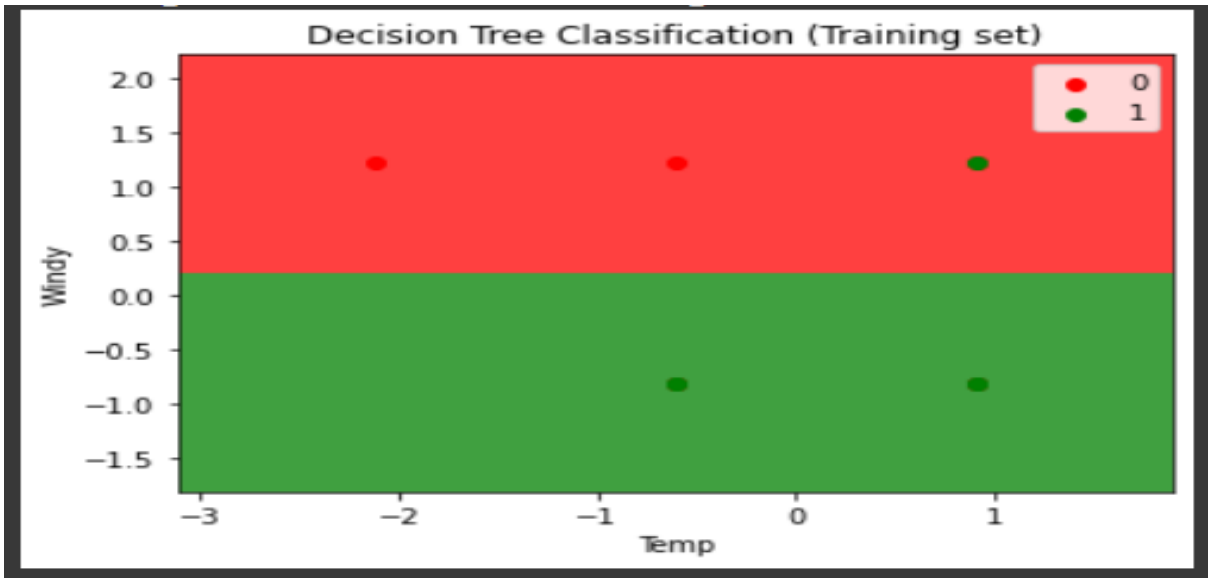
DecisionTreeClassifier(criterion = 'gini', random_state = 0)

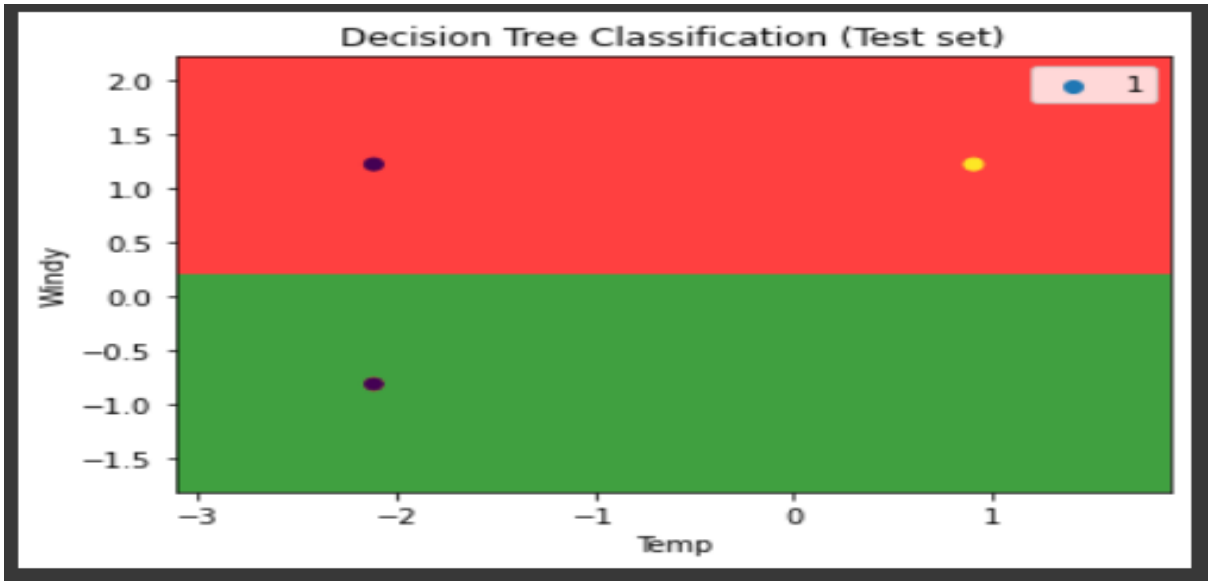
Confusion Matrix:

[[0 0]

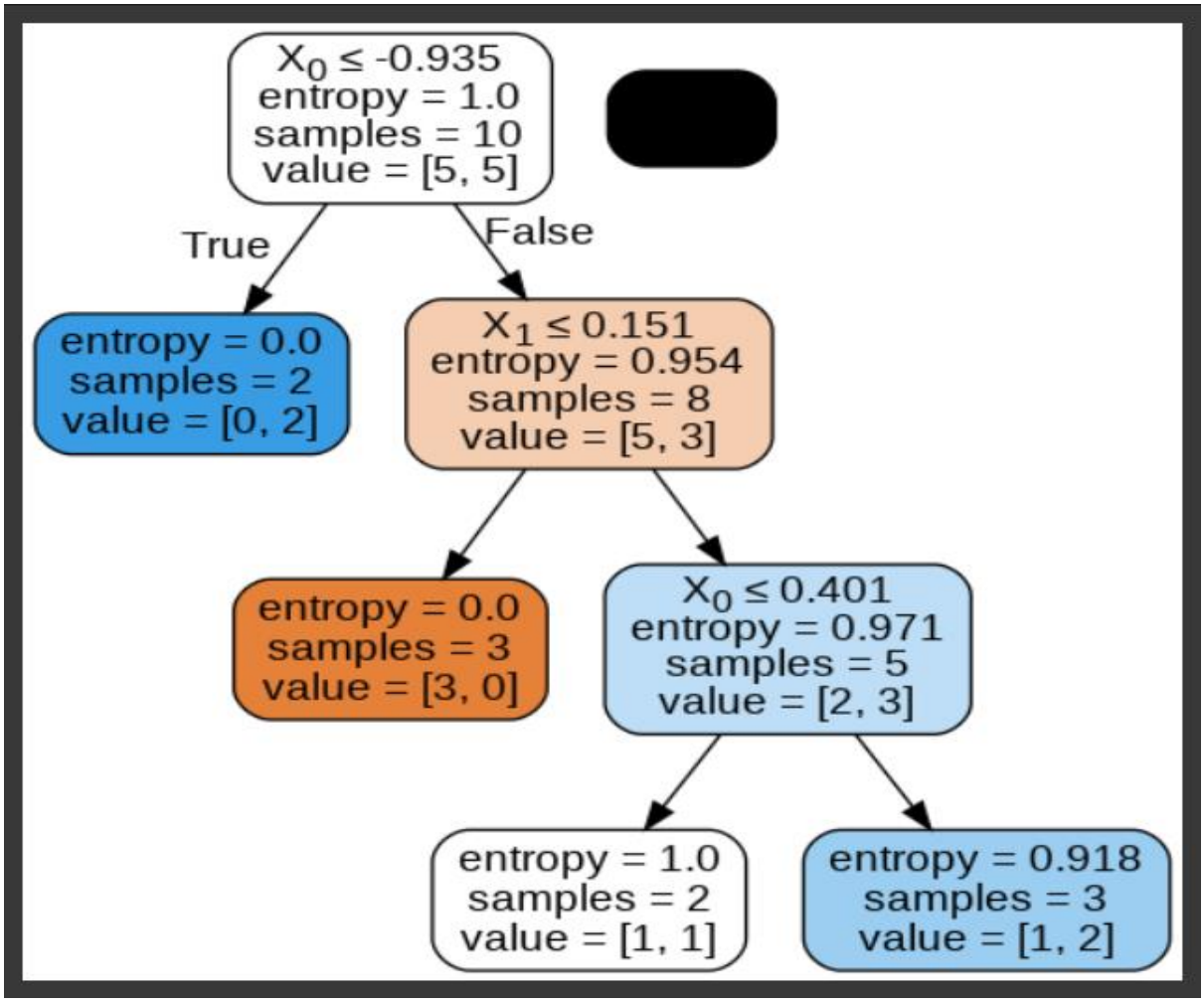
[2 2]]

After Execution:




Decision Tree Classification (Test set)
1
Windy
Temp
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−3
−2
−1
0
1

Tree:


X0 ≤ -0.935
entropy = 1.0
samples = 10
value = [5, 5]
True
False
entropy = 0.0
samples = 2
value = [0, 2]
X1 ≤ 0.151
entropy = 0.954
samples = 8
value = [5, 3]
entropy = 0.0
samples = 3
value = [3, 0]
X0 ≤ 0.401
entropy = 0.971
samples = 5
value = [2, 3]
entropy = 1.0
samples = 2
value = [1, 1]
entropy = 0.918
samples = 3
value = [1, 2]