EX.NO:4A BUILD A CLASSIFIER - RUN DECISION TREE

AIM:

To construct decision tree for the dataset and classify it.

PROCEDURE:

1.Open Start -> Programs -> Accessories -> Notepad

2.Type the following training data set with the help of Notepadfor Weather Table.

```
@relation weather

@attribute outlook {sunny, overcast, rainy}
@attribute temperature real
@attribute humidity real @attribute
windy {TRUE, FALSE}@attribute play
{yes, no}

@data sunny,85,85,FALSE,no
sunny,80,90,TRUE,no
overcast,83,86,FALSE,yes
rainy,70,96,FALSE,yes
rainy,68,80,FALSE,yes
rainy,65,70,TRUE,no
overcast,64,65,TRUE,yes
sunny,72,95,FALSE,no
sunny,69,70,FALSE,yes
rainy,75,80,FALSE,yes
sunny,75,70,TRUE,yes
overcast,72,90,TRUE,yes
overcast,81,75,FALSE,yes
rainy,71,91,TRUE,no
```

3.After that the file is saved with .arff file format.

4.Minimize the arff file & then open Start -> Programs -> weka .

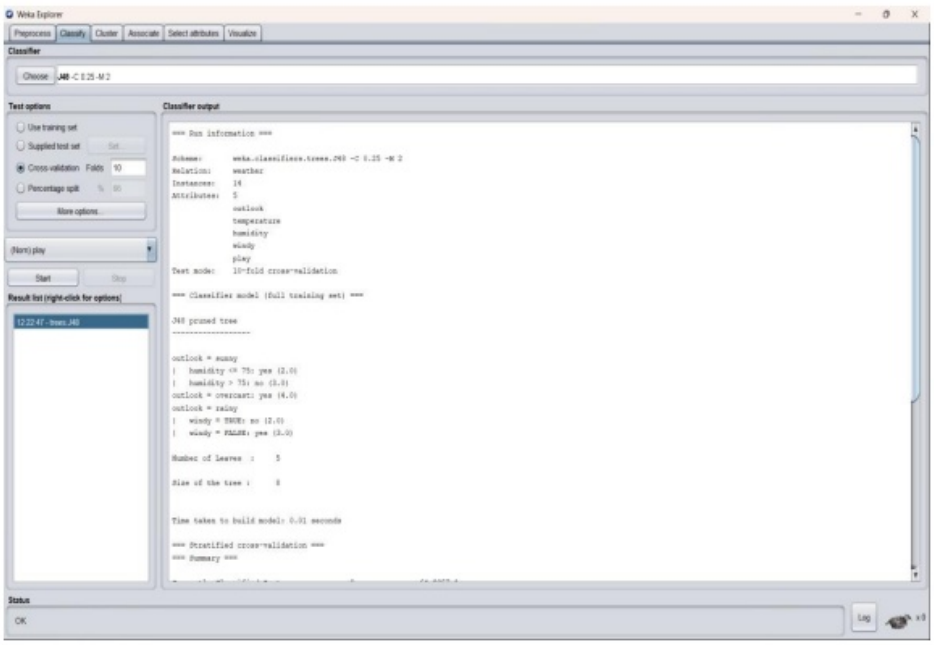
5.Click on weka-3-4, then Weka dialog box is displayed on the screen.

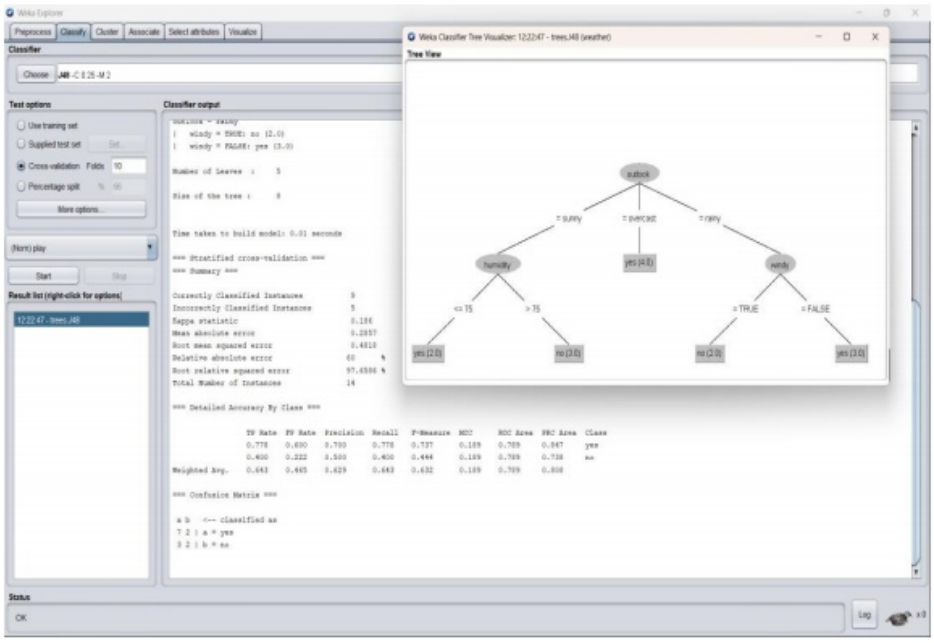
6.In that dialog box there are four modes, click on explorer.

7.Explorer shows many options. In that click on ‘open file’ and select the arff file.

8.Click on edit button which shows weather table on weka.

OUTPUT:


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Classifier
Choose
J48 -C 0.25 -M 2
Test options
Use training set
Supplied test set
Set...
Cross-validation
Folds
10
Percentage split
%
66
More options...
(Nom) play
Start
Stop
Result list (right-click for options)
12:22:47 - trees.J48
Classifier output
=== Run information ===
Scheme: weka.classifiers.trees.J48 -C 0.25 -M 2
Relation: weather
Instances: 14
Attributes: 5
outlook
temperature
humidity
windy
play
Test mode: 10-fold cross-validation
=== Classifier model (full training set) ===
J48 pruned tree
outlook = sunny
| humidity <= 75: yes (2.0)
| humidity > 75: no (3.0)
outlook = overcast: yes (4.0)
outlook = rainy
| windy = TRUE: no (2.0)
| windy = FALSE: yes (3.0)
Number of Leaves : 5
Size of the tree : 8
Time taken to build model: 0.01 seconds
=== Stratified cross-validation ===
=== Summary ===
Status
OK
Log
x 0


Weka Explorer
Weka Classifier Tree Visualizer: 12:22:47 - trees.J48 (weather)
Tree View
outlook
= sunny
= overcast
= rainy
humidity
yes (4.0)
windy
<= 75
> 75
= TRUE
= FALSE
yes (2.0)
no (3.0)
no (2.0)
yes (3.0)
Number of Leaves : 5
Size of the tree : 8
Time taken to build model: 0.01 seconds
=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances 9
Incorrectly Classified Instances 5
Kappa statistic 0.186
Mean absolute error 0.2857
Root mean squared error 0.4818
Relative absolute error 60 %
Root relative squared error 97.6586 %
Total Number of Instances 14
=== Detailed Accuracy By Class ===
TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class
0.778 0.600 0.700 0.778 0.737 0.189 0.789 0.847 yes
0.400 0.222 0.500 0.400 0.444 0.189 0.789 0.738 no
Weighted Avg. 0.643 0.465 0.629 0.643 0.632 0.189 0.789 0.808
=== Confusion Matrix ===
a b <-- classified as
7 2 | a = yes
3 2 | b = no
Status
OK
Log
x 0

RESULT:

Thus the decision tree for the data has constructed and classified successfully.

EX.NO:4B BUILD A NAÏVE BAYESIAN CLASSIFIER

AIM:

To illustrate the use of Naïve Bayesian Classifier.

PROCEDURE:

1.Open Start -> Programs -> Accessories -> Notepad

2.Type the following training data set with the help of Notepadfor Weather Table.

```
@relation weather

@attribute outlook {sunny, overcast, rainy}
@attribute temperature real
@attribute humidity real @attribute
windy {TRUE, FALSE}@attribute play
{yes, no}

@data sunny,85,85,FALSE,no
sunny,80,90,TRUE,no
overcast,83,86,FALSE,yes
rainy,70,96,FALSE,yes
rainy,68,80,FALSE,yes
rainy,65,70,TRUE,no
overcast,64,65,TRUE,yes
sunny,72,95,FALSE,no
sunny,69,70,FALSE,yes
rainy,75,80,FALSE,yes
sunny,75,70,TRUE,yes
overcast,72,90,TRUE,yes
overcast,81,75,FALSE,yes
rainy,71,91,TRUE,no
```

3.After that the file is saved with .arff file format.

4.Minimize the arff file & then open Start -> Programs -> weka .

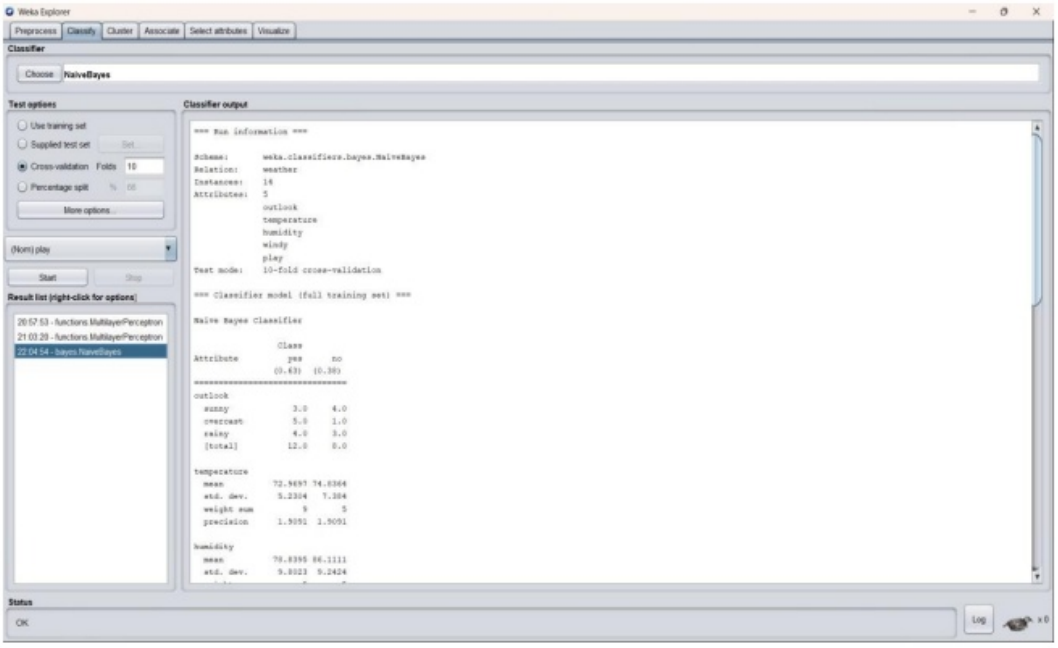
5.Click on weka-3-4, then Weka dialog box is displayed on the screen.

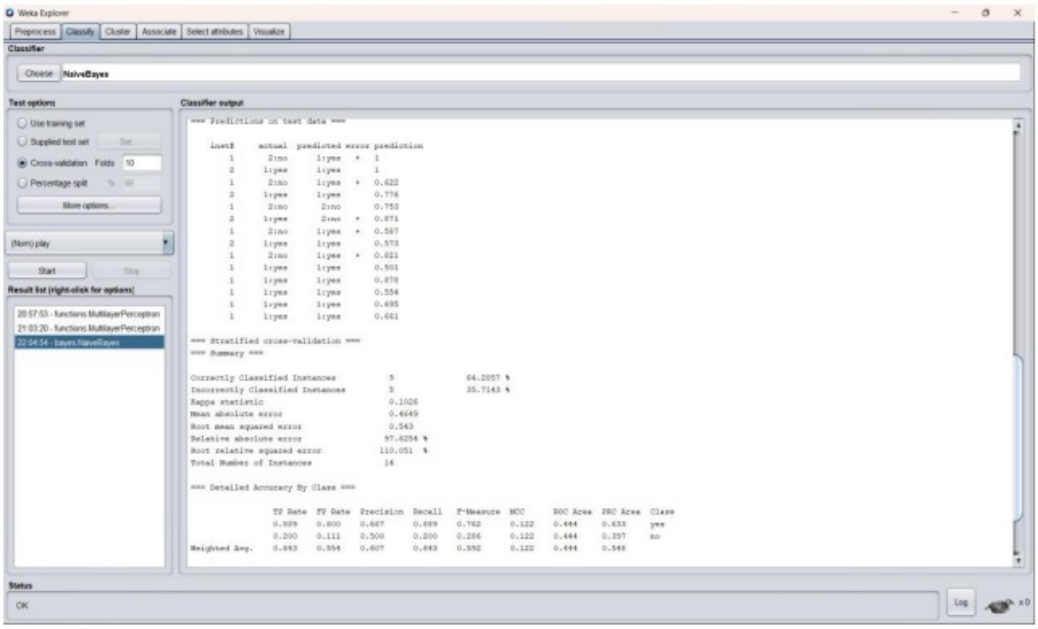
6.In that dialog box there are four modes, click on explorer.

7.Explorer shows many options. In that click on ‘open file’ and select the arff file.

8.Click on edit button which shows weather table on weka.

OUTPUT:


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Classifier
Choose
NaiveBayes
Test options
Use training set
Supplied test set
Cross-validation
Folds
10
Percentage split
More options...
Classifier output
(Nom) play
Start
Stop
Result list (right-click for options)
20:57:53 - functions.MultilayerPerceptron
21:03:20 - functions.MultilayerPerceptron
22:04:54 - bayes.NaiveBayes
Status
OK
Log
x 0


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Classifier
Choose
NaiveBayes
Test options
Use training set
Supplied test set
Cross-validation
Folds
10
Percentage split
More options...
Classifier output
(Nom) play
Start
Stop
Result list (right-click for options)
20:57:53 - functions.MultilayerPerceptron
21:03:20 - functions.MultilayerPerceptron
22:04:54 - bayes.NaiveBayes
Status
OK
Log
x 0

RESULT:

Thus the data using Naïve Bayesian has been executed successfully.

EX.NO:4C **BUILD AN NN CLASSIFIER**

AIM:

To construct NN classifier for weather data.

PROCEDURE:

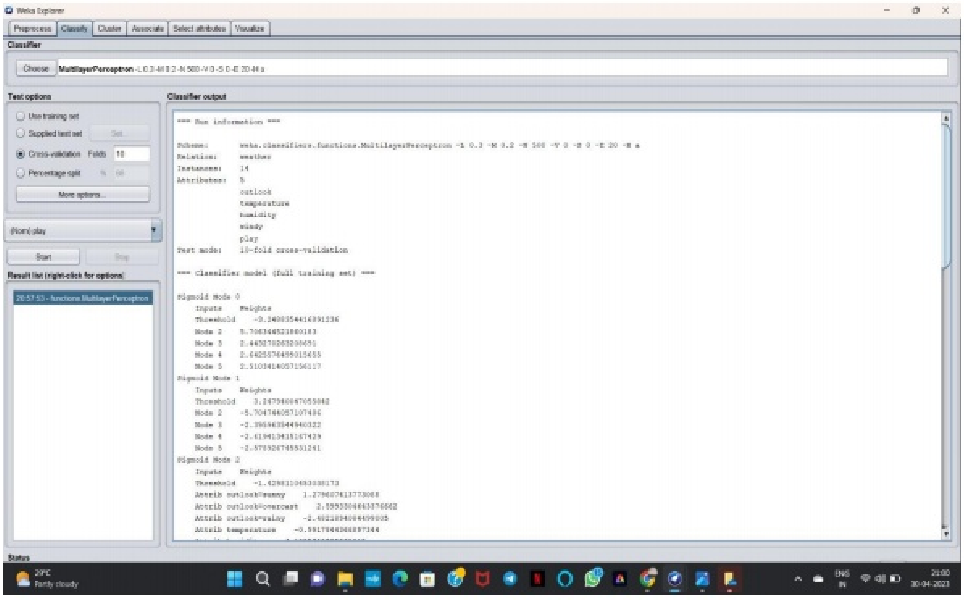
1.Open Start -> Programs -> Accessories -> Notepad

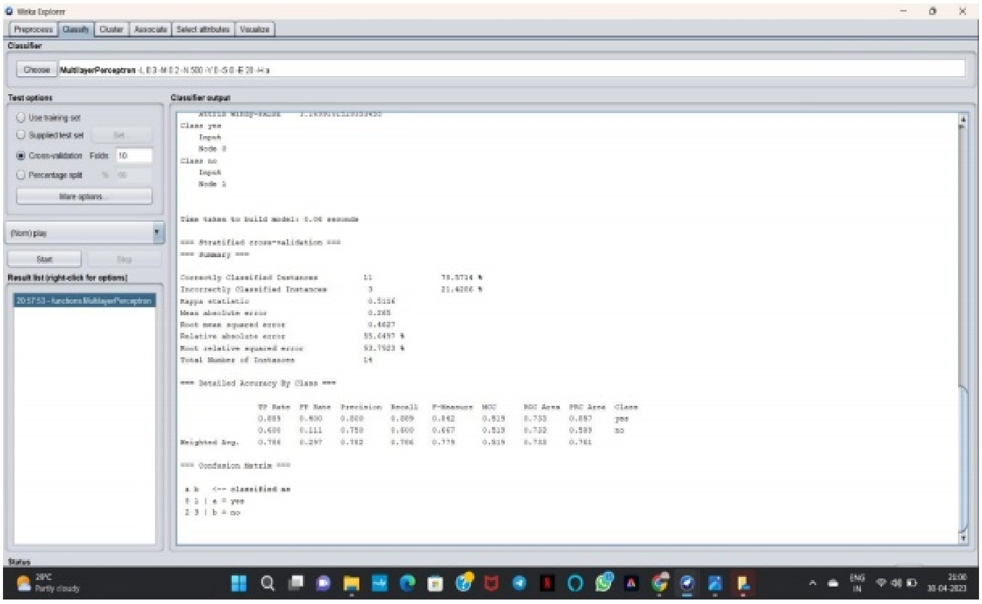
2.Type the following training data set with the help of Notepadfor Weather Table.

```
@relation weather

@attribute outlook {sunny, overcast, rainy}
@attribute temperature real
@attribute humidity real @attribute
windy {TRUE, FALSE}@attribute play
{yes, no}

@data sunny,85,85,FALSE,no
sunny,80,90,TRUE,no
overcast,83,86,FALSE,yes
rainy,70,96,FALSE,yes
rainy,68,80,FALSE,yes
rainy,65,70,TRUE,no
overcast,64,65,TRUE,yes
sunny,72,95,FALSE,no
sunny,69,70,FALSE,yes
rainy,75,80,FALSE,yes
sunny,75,70,TRUE,yes
overcast,72,90,TRUE,yes
overcast,81,75,FALSE,yes
rainy,71,91,TRUE,no
```

3.After that the file is saved with .arff file format.
4.Minimize the arff file & then open Start -> Programs -> weka .
5.Click on weka-3-4, then Weka dialog box is displayed on the screen.
6.In that dialog box there are four modes, click on explorer.
7.Explorer shows many options. In that click on ‘open file’ and select the arff file.
8.Click on edit button which shows weather table on weka.

OUTPUT:


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Classifier
Choose
MultilayerPerceptron
Test options
Use training set
Supplied test set
Cross-validation
Folds
10
Percentage split
More options...
(Nom) play
Start
Stop
Result list (right-click for options)
Classifier output
Relation: weather
Instances: 14
Attributes: 5
outlook
temperature
humidity
windy
play
Test mode: 10-fold cross-validation
Status


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Classifier
Choose
MultilayerPerceptron
Test options
Use training set
Supplied test set
Cross-validation
Folds
10
Percentage split
More options...
(Nom) play
Start
Stop
Result list (right-click for options)
Classifier output
Status

RESULT:

Thus the classification of data using NN classifier has been executed successfully.