

Experiments-09

• Objective:- Implementation of decision tree classifier using weka explorer.

• Theory:- Decision tree learning is one of the most widely, used & practical methods for inductive inference over supervised data.

• Steps:-

- ① Open weka explorer & open the file & then select the itemset
- ② New select classify tab in tool & click on start button and then we can see the result of problem.
- ③ Check main result of problem manually & result in weka by right clicking on the result and visualizing tree

• Result:- The solⁿ what we get manually & weka both are same.

• Viva question:-

- Q1. What is decision tree classifier algo is called eager learning?
- Decision tree classifier is called an eager learner because it builds the entire model during training before making prediction.

EXPERIMENT 9

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) class

Start Stop

Result list (right-click for options)

082115 - beesJ48

Classifier output

=== Run information ===

Scheme: weka.classifiers.trees.J48 -C 0.25 -M 2

Relation: iris

Instances: 150

Attributes: 5

sepalwidth

sepalwidth

petalwidth

petalwidth

class

Test mode: 10-fold cross-validation

=== Classifier model (full training set) ===

J48 pruned tree

petalwidth <= 0.6: Iris-setosa (50.0)

petalwidth > 0.6

| petalwidth <= 1.7

| | petalwidth <= 4.9: Iris-versicolor (49.0/1.0)

| | petalwidth > 4.9

| | | petalwidth <= 1.5: Iris-virginica (3.0)

| | | petalwidth > 1.5: Iris-versicolor (3.0/1.0)

| petalwidth > 1.7: Iris-virginica (46.0/1.0)

Number of Leaves : 5

Size of the tree : 9

Time taken to build model: 0.01 seconds

=== Stratified cross-validation ===

=== Summary ===

Correctly Classified Instances	144	96	%
Incorrectly Classified Instances	6	4	%
Kappa statistic	0.94		
Mean absolute error	0.035		
Root mean squared error	0.1586		
Relative absolute error	7.8705 %		
Root relative squared error	33.6353 %		
Total Number of Instances	150		

=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	FRC Area	Class
	0.980	0.000	1.000	0.980	0.990	0.985	0.990	0.987	Iris-setosa
	0.960	0.030	0.940	0.960	0.960	0.910	0.952	0.880	Iris-versicolor
	0.960	0.030	0.941	0.960	0.950	0.925	0.961	0.905	Iris-virginica
Weighted Avg.	0.960	0.020	0.960	0.960	0.960	0.940	0.968	0.924	

=== Confusion Matrix ===

a b c <-- Classified as

49 1 0 | a = Iris-setosa

0 47 3 | b = Iris-versicolor

0 2 48 | c = Iris-virginica

Status OK

Log x0

Student Name : Roll No.:
Experiment No.: Date :

Q2

How is root node selected for creating decision tree?

→

The root node in a decision tree is selected based on feature within the highest information gain to maximize data separation.

Q3

List any 5 applications of decision tree classifier.

→ ①

Medical diagnosis

②

Credit detection

③

Fraud detection

④

Customer segmentation

⑤

Spam filtering