



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment-2.1

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Section/Group: 20BCS-DM-704 (A)

Semester: 6th

Date of Performance: 07th Apr 2023

Subject Name: Data Mining

Subject Code: 20CSP- 351

Aim – To perform the classification by decision tree induction using WEKA tools.

Objective-

- ♦ Represent the reading of file using R studio
- ♦ Displaying the pattern on RWeka, partykit and caTools Tool.
- ♦ Demonstration of Decision Tree.

Script and Output-

```
library(RWeka)
library(partykit)
library(caTools)
```

```
iris_data=iris
str(iris_data)
summary(iris_data)
spl=sample.split(iris_data,SplitRatio = 0.7)
```

```
dataTrain=subset(iris_data,spl==TRUE)
dataTest=subset(iris_data,spl==FALSE)
m1<-J48 (Species~,dataTrain)
```

```
dataTestPred<- predict(m1,newdata=dataTest)
table_matrix<- table(dataTest$Species,dataTestPred)
print(table_matrix)
```



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```
accuracy_test <- sum(diag(table_matrix))/sum(table_matrix)
cat("Test Accuracy is",accuracy_test)
pdf("Iris_decision_plot.pdf",paper = "a4")

plot(m1,type="simple")
```

```
dev.off()
```

Output-

The screenshot displays the RStudio interface with the following components:

- Source Editor:** Contains an R script with the following code:

```
1 library(Rwaka)
2 library(partykit)
3 library(caTools)
4
5 iris_data=iris
6 str(iris_data)
7 summary(iris_data)
8 spl=sample.split(iris_data,SplitRatio = 0.7)
9
10 dataTrain=subset(iris_data,spl==TRUE)
11 dataTest=subset(iris_data,spl==FALSE)
12 m1<-J48 (Species~.,dataTrain)
13
```
- Console:** Shows the output of the script execution, including a warning message about the 'caTools' package and the summary of the iris data.

```
19:38 (Top Level)
R 4.2.2 ~ /
The following object is masked from 'package:Rwaka':
  LogitBoost

Warning message:
package 'caTools' was built under R version 4.2.3
> iris_data=iris
> str(iris_data)
'data.frame': 150 obs. of 5 variables:
 $ Sepal.Length: num 5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
 $ Sepal.Width : num 3.5 3.3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
 $ Petal.Length: num 1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
 $ Petal.Width : num 0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
 $ Species : Factor w/ 3 levels "setosa","versicolor",...: 1 1 1 1 1 1 1 1 1 1 ...
> summary(iris_data)
 Sepal.Length Sepal.Width Petal.Length Petal.Width
Min. :4.300 Min. :2.000 Min. :1.000 Min. :0.100
1st Qu.:5.100 1st Qu.:2.800 1st Qu.:1.600 1st Qu.:0.300
Median :5.800 Median :3.000 Median :4.350 Median :1.300
Mean :5.843 Mean :3.057 Mean :3.758 Mean :1.199
3rd Qu.:6.400 3rd Qu.:3.300 3rd Qu.:5.100 3rd Qu.:1.800
Max. :7.900 Max. :4.400 Max. :6.900 Max. :2.500
 Species
setosa :50
versicolor:50
virginica :50
```
- Environment:** Lists the objects in the global environment, including Data, Data1, dataTest, dataTrain, Groceries, iris_data, m1, Mushroom, N, rules, and values.
- Values:** Displays the values of the objects, including accuracy_test (0.933333333333333), avg_sleep_hour (num [1:5] 20 21 23 24 25), city (chr [1:5] "Delhi" "Garhwal" "Jaipur" "Guhawati" "Chandiga...), country (chr [1:4] "india" "india" "india" "india"), dataTestPred (Factor w/ 3 levels "setosa","versicolor",...: 1 1 1 1 1 ...), height (num [1:5] 180 175 177 172 169), name (chr [1:5] "Nabha" "Nikhil" "Yash" "Dj" "Arsh"), rating (int [1:5] 1 2 3 4 5), spl (logi [1:5] FALSE TRUE TRUE TRUE FALSE), and table_matrix ('table' int [1:3, 1:3] 20 0 0 0 19 3 0 1 17).



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RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

exp-4.R exp-3.R exp-5.R

Source on Save Run Source

```
1 library(Rweka)
2 library(partykit)
3 library(caTools)
4
5 iris_data=iris
6 str(iris_data)
7 summary(iris_data)
8 spl=sample.split(iris_data,SplitRatio = 0.7)
9
10 dataTrain=subset(iris_data,spl==TRUE)
11 dataTest=subset(iris_data,spl==FALSE)
12 m1<-J48 (Species~,dataTrain)
13
```

1938 (Top Level)

Console Terminal Background Jobs

```
R 4.2.2 ~\
Species
setosa :50
versicolor:50
virginica :50

> spl=sample.split(iris_data,SplitRatio = 0.7)
> dataTrain=subset(iris_data,spl==TRUE)
> dataTest=subset(iris_data,spl==FALSE)
> m1<-J48 (Species~,dataTrain)
> dataTestPred<- predict(m1,newdata=dataTest)
> table_matrix<- table(dataTest$Species,dataTestPred)
> print(table_matrix)
      dataTestPred
      setosa versicolor virginica
setosa      20         0         0
versicolor  0         19         1
virginica   0         3         17
> accuracy_test <- sum(diag(table_matrix))/sum(table_matrix)
> cat("Test Accuracy is",accuracy_test)
Test Accuracy is 0.9333333
> pdf("Iris_decision_plot.pdf",paper = "a4")
> plot(m1,type="simple")
> dev.off()
null device
      1
> |
```

Environment History Connections Tutorial

R Global Environment

Data

Data	5 obs. of 5 variables
Data1	4 obs. of 4 variables
dataTest	60 obs. of 5 variables
dataTrain	90 obs. of 5 variables
Groceries	Formal class transactions
iris_data	150 obs. of 5 variables
m1	List of 6
Mushroom	Large transactions (8124 elements, 1.3 MB)
N	5 obs. of 5 variables
rules	Formal class rules

Values

accuracy_test	0.933333333333333
avg_sleep_hour	num [1:5] 20 21 23 24 25
city	chr [1:5] "Delhi" "Garhwal" "Jaipur" "Guhawati" "Chandiga...
country	chr [1:4] "india" "india" "india" "india"
dataTestPred	Factor w/ 3 levels "setosa","versicolor",...: 1 1 1 1 1 ...
height	num [1:5] 180 175 177 172 169
name	chr [1:5] "Nabha" "Nikhil" "Yash" "Dj" "Arsh"
rating	int [1:5] 1 2 3 4 5
spl	logi [1:5] FALSE TRUE TRUE TRUE FALSE
table_matrix	'table' int [1:3, 1:3] 20 0 0 0 19 3 0 1 17

Files Plots Packages Help Viewer Presentation