**Practical No.4: Implementing Classification in R (Decision Tree)**

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| **Decision Tree Operation with R** |
| Decision trees in R can be implemented using different packages. Here, we are using the ‘party’  package to operate the decision tree on the Iris dataset. The function ‘***ctree***’ has been used to build a decision tree on the Iris dataset as given below. |
| **> library(party) # Load package party**  **> target = Species ~ Sepal.Length + Sepal.Width + Petal.Length + Petal.Width**  **> cdt <- ctree(target, iris) #Build tree**  **> table(predict(cdt), iris$Species) # Create confusion matrix**    > cdt #To display decision tree rules    > plot(cdt, type=”simple”) #Plotting of decision tree |

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| **Training and testing of the dataset** |
| > library(party)  >  > indexes = sample(150, 99) #select ~2/3 of the instances of iris dataset  >  > iris \_ train = iris[indexes,] # training of instances  >  > iris \_ test = iris[-indexes,] #testing of instances  >  > target = Species ~ Sepal.Length + Sepal.Width + Petal.Length + Petal.Width  >  > cdt <- ctree(target, iris \_ train) #Training of decision tree  >  > table(predict(cdt, newdata=iris \_ test), iris \_ test$Species) # testing of dataset |
| > summary(iris \_ test) #To print summary of results |