ImplementSVM/Decisiontreeclassificationtechnique

**AIM:**

ToImplementSVMandDecisiontreeclassificationtechniquesusingRprogramming in R Studio.

# SVMINR

#Installandloadthee1071package(ifnotalreadyinstalled) install.packages("e1071") library(e1071)

#Loadtheirisdatasetdata(iris)

#Inspectthefirstfewrowsofthedatasethead(iris)

#Splitthedataintotraining(70%)andtesting(30%)sets set.seed(123)# For reproducibility

sample\_indices<-sample(1:nrow(iris),0.7\*nrow(iris)) train\_data<- iris[sample\_indices, ]test\_data<- iris[- sample\_indices, ]

#FittheSVMmodelsvm\_model<-svm(Species~.,data= train\_data, kernel = "radial")

#Print thesummary ofthemodelsummary(svm\_model)

#Predictthetestsetpredictions<-predict(svm\_model, newdata = test\_data)

#Evaluatethemodel'sperformance

confusion\_matrix<-table(Predicted=predictions,Actual =test\_data$Species)print(confusion\_matrix)

# Calculate accuracy accuracy<- sum(diag(confusion\_matrix))/sum(confusion\_matrix) cat("Accuracy:", accuracy \* 100, "%\n")

# OUTPUT:





1. **DecisiontreeinR**

#Installandloadtherpartpackage(ifnotalreadyinstalled) install.packages("rpart") library(rpart)

#Loadtheirisdatasetdata(iris)

#Splitthedataintotraining(70%)andtesting(30%)sets set.seed(123)# For reproducibility

sample\_indices<-sample(1:nrow(iris),0.7\*nrow(iris)) train\_data<- iris[sample\_indices, ]test\_data<- iris[- sample\_indices, ]

#FittheDecisionTreemodel tree\_model<-rpart(Species~

.,data =train\_data, method = "class")

#Printthesummaryofthemodelsummary(tree\_model) # Plot the Decision Tree

plot(tree\_model)text(tree\_model, pretty =

0)

#Predictthetestsetpredictions<-predict(tree\_model, newdata = test\_data, type = "class")

#Evaluatethemodel'sperformance

confusion\_matrix<-table(Predicted=predictions,Actual =test\_data$Species)print(confusion\_matrix)

#Calculate accuracy

accuracy<-sum(diag(confusion\_matrix))/sum(confusion\_matrix)cat("Accuracy:", accuracy \* 100, "%\n")

# OUTPUT:





**RESULT:**

Thus,theImplementationSVM/DecisiontreeclassificationtechniquesusingR programming in R Studio.