Classify the Size\_Categorie using SVM.

**Ans :**

**R Code :**

## Support Vector Machines

########## Forestfires Data Set #########

forestfires\_r <- read.csv('D:\\Data Science\\Excelr\\Assignments\\Assignment\\Support Vector Machines\\forestfires\_r.csv')

# divide into training and test data

forestfires\_train <- forestfires\_r[1:354, ]

forestfires\_test <- forestfires\_r[355:517, ]

##Training a model on the data ----

# begin by training a simple linear SVM

library(kernlab)

size\_classifier <- ksvm(size\_category ~ ., data = forestfires\_train,

kernel = "vanilladot")

## Evaluating model performance ----

# predictions on testing dataset

size\_predictions <- predict(size\_classifier, forestfires\_test)

head(size\_predictions)

#table(forestfires\_predictions, forestfires\_test$letter)

agreement <- size\_predictions == forestfires\_test$size\_category

prop.table(table(agreement))

## Improving model performance ----

size\_classifier\_rbf <- ksvm(size\_category ~ ., data = forestfires\_train, kernel = "rbfdot")

size\_predictions\_rbf <- predict(size\_classifier\_rbf, forestfires\_test)

head(size\_predictions\_rbf)

agreement\_rbf <- size\_predictions\_rbf == forestfires\_test$size\_category

table(agreement\_rbf)

prop.table(table(agreement\_rbf))

**Results :**

> size\_classifier <- ksvm(size\_category ~ ., data = forestfires\_train,

+ kernel = "vanilladot")

> ## Evaluating model performance ----

> # predictions on testing dataset

> size\_predictions <- predict(size\_classifier, forestfires\_test)

> head(size\_predictions)

[1] small small small large small small

Levels: large small

> #table(forestfires\_predictions, forestfires\_test$letter)

> agreement <- size\_predictions == forestfires\_test$size\_category

> prop.table(table(agreement))

agreement

FALSE TRUE

0.05521472 0.94478528

> ## Improving model performance ----

> size\_classifier\_rbf <- ksvm(size\_category ~ ., data = forestfires\_train, kernel = "rbfdot")

> size\_predictions\_rbf <- predict(size\_classifier\_rbf, forestfires\_test)

> head(size\_predictions\_rbf)

[1] small small small small small small

Levels: large small

> agreement\_rbf <- size\_predictions\_rbf == forestfires\_test$size\_category

> table(agreement\_rbf)

agreement\_rbf

FALSE TRUE

37 126

> prop.table(table(agreement\_rbf))

agreement\_rbf

FALSE TRUE

0.2269939 0.7730061

**Inference :**

Getting good results in kernel vanilladot.