Assignment 6

Support Vector Machines

**# loading neccessary packages and dataset**

library(caret)

library(e1071)

data(GermanCredit)

dataset = GermanCredit

help("lapply")

**# str function gives the compact view of the data set, we can check the structure of dataset**

**# Slecting all the rows and first seven columns from the datalist as a list using lapply**

**# after that we are checking wether the dataset is a dataframe or not, if not then convert it into data frame**

**# Again checking the structure of newly created dataframe using str()**

str(dataset)

dataset[,1:7] = as.data.frame(lapply(dataset[,1:7], scale))

str(dataset)

help("sample")

**# sample function is used to devide the data into parts, in this case we have taken 200 values from 1000 values**

**# taking 200 values and storing it into test\_dataset**

**# rest of the values are used as a training\_dataset**

sample\_index = sample(1000, 200)

test\_dateset = dataset[sample\_index,]

train\_dateset = dataset[-sample\_index,]

help("tune")

**# Created 3 models using different kernal, used tune function to tune the model over various values of**

**# gamma and cost.**

model\_linear<-tune(svm,Class~.,kernel="linear",data=train\_dateset,ranges=list(gamma=2^(-10:5),cost=2^(2:10)))

summary(model\_linear)

model\_radial<-tune(svm,Class~.,kernel="radial",data=train\_dateset,ranges=list(gamma=2^(-10:5),cost=2^(2:10)))

summary(model\_radial)

model\_polynomial<-tune(svm,Class~.,kernel="linear",data=train\_dateset,ranges=list(gamma=2^(-10:10),cost=2^(2:8)))

summary(obj1)

help("predict")

**# predict is a generic function for predictions from the results of various model fitting functions.**

**#The function invokes particular methods which depend on the class of the first argument.**

predictions <- predict(model, test\_dateset[-10])

help("table")

# table() function represents result in tabular form

table(test\_dateset[,10], predictions)

**Output:**

