CIS 635 Data Mining Name \_Dhynasah Cakir

Homework 7

Hand in sheet

Write in or copy and paste the answers for the following:

### Part 1

1. \_-1\_\_\_\_\_
2. \_1\_\_\_\_\_\_
3. \_\_0\_\_\_\_\_

### Part 2

1. confusion matrix \_\_\_\_\_301\_\_\_\_\_ \_\_\_\_\_219\_\_\_\_\_ \_\_\_\_\_\_20\_\_\_\_  
     
    \_\_\_\_6\_\_\_\_\_\_ \_\_\_\_\_49\_\_\_\_\_ \_\_\_\_\_\_3\_\_\_\_  
     
    \_\_\_\_3\_\_\_\_\_\_ \_\_\_\_\_14\_\_\_\_\_ \_\_\_\_\_\_285\_\_\_\_
2. attach R script

setwd("C:/Users/Mauri/Documents/CIS 635/Homework/hw7")

library(e1071)

library("caret")

y = read.table("hw07dataTest.txt", header =TRUE)

x = read.table("hw07dataTrain.txt", header = TRUE)

var3= x$var3

ind0 = x[,3]==0

ind1 = x[,3]==1

ind2 = x[,3]==2

x01 = x[ind0 | ind1,]

ind = x01[,3]==0

x01[ind,3]=1

x01[!ind,3]=-1

x01[,3]=as.factor(x01[,3])

mod01=svm(x01[,1:2],x01[,3]) #svm only takes numeric data, and also include labels

pred= predict(mod01,y[,1:2])

x02 = x[ind0 | ind2,]

indtwo = x02[,3]==0

x02[indtwo,3]=1

x02[!indtwo,3]=-1

x02[,3]=as.factor(x02[,3])

mod02= svm(x02[,1:2], x02[,3])

pred2 = predict(mod02,y[,1:2])

x12 = x[ind1 | ind2,]

indT = x12[,3]==1

x12[indT,3]=1

x12[!indT,3]=-1

x12[,3]=as.factor(x12[,3])

mod12 = svm(x12[,1:2],x12[,3])

pred3 = predict(mod12, y[,1:2])

pairwise\_class = function(pred, pred2, pred3, i){

if(pred[i]==1 && pred2[i]==1){

return(0)

}

else if(pred2[i]==1 && pred3[i]==1){

return(1)

}

else if(pred[i]==-1 && pred3[i]==-1){

return(2)

}

else

return(0)

}

finalList = as.character(pred)

for(i in 1:length(pred)){

predict = pairwise\_class(pred,pred2,pred3,i)

finalList[i]= predict

}

# Needed to convert the actual values to factors to use with confusion matrix

factored\_actual = factor(y[,3])

factored\_predicted = factor(finalList)

confusionMatrix(factored\_predicted,factored\_actual)

table(factored\_predicted,factored\_actual)