**Assignment 7**

**7.1: Use the ANN methodology with five (5) nodes in the hidden layer, to develop a classification model for the Diagnosis.**

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#to clear entire environment and installation

rm(list = ls())

library(neuralnet)

df = read.csv("F:/Sem1/CS513/lecture7/wisc\_bc\_ContinuousVar.csv",header=TRUE, sep=",")

View(df)

df$diagnosis<-ifelse(df$diagnosis == "M",2,1)

#70% training and 30% testing data

idx<-sort(sample(nrow(df),as.integer(.70\*nrow(df))))

training<-df[idx,]

testing<-df[-idx,]

#ploting ANN

ann<- neuralnet( diagnosis~. ,training[,c(-1)], hidden=5,threshold=0.01)

plot(ann)

#prediction

prediction <-predict(ann , testing)

print(prediction)

pred\_cat <- ifelse(prediction<1.5,1,2)

table(Actual = testing$diagnosis, Prediction = pred\_cat)

#error rate

wrong<- (testing$diagnosis!=pred\_cat)

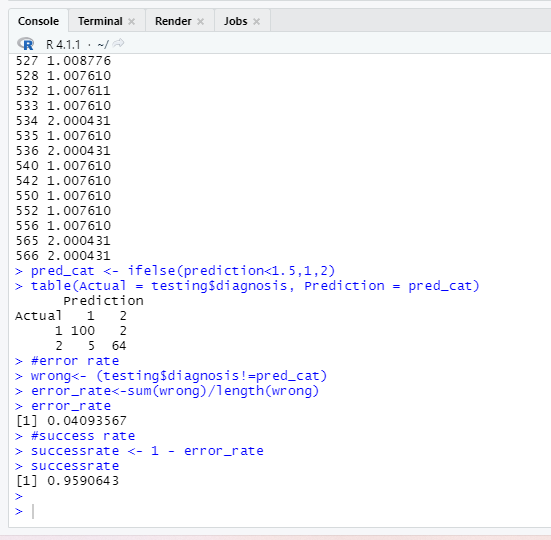
error\_rate<-sum(wrong)/length(wrong)

error\_rate

#success rate

successrate <- 1 - error\_rate

successrate



Chart

Description automatically generated