Mall_HW_07

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```
#CS513-HW5
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#Last Name: Mall
#CWID: 10459371
#HW Topic: ANN

rm(list=ls())

#Neuralnet Library
library(neuralnet)

df<-read.csv("/Users/prashantmall1997/Library/CloudStorage/OneDrive-Personal/Coding/Stevens-Courses/CS5

df$diagnosis <- factor(df$diagnosis, levels = c('M','B'),labels = c(1,2))

#Split Data
index<-sort(sample(nrow(df),as.integer(.70*nrow(df))))

#Train and Test data
trainData<-df[index,]
testData<-df[-index,]

#Model
model<- neuralnet(diagnosis~.,trainData[-1], hidden=5, threshold=0.01)

#Plotting neural network
plot(model)

#ANN
ann <-compute(model,testData)
ann$net.result
```

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##         [,1]     [,2]
## 2   0.368556 0.631447
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```

```r
anncat<-ifelse(ann$net.result <1.5,1,2)

#Length
length(anncat)
```

```
## [1] 342
```

```r
length(testData$diagnosis)
```

```
## [1] 171
```

```r
#Error Rate
wrong<- (testData$diagnosis!=anncat)
errorRate<-sum(wrong)/length(wrong)
errorRate
```

```
## [1] 0.6491228
```