*# 1*

library("neuralnet")

setwd("D:/RStudio")

data <- read.csv("commerce.csv")

View(data)

max\_data <- apply(data[,2:9],2,max)

min\_data <- apply(data[,2:9],2,min)

data\_scaled <- scale(data[,2:9],center = min\_data, scale = max\_data - min\_data)

REE = as.numeric(data$REE)-1

data\_scaled = cbind(REE,data\_scaled)

index = sample(1:nrow(data),round(0.70\*nrow(data)))

train\_data <- as.data.frame(data\_scaled[index,])

test\_data <- as.data.frame(data\_scaled[-index,])

n = names(train\_data)

f <- as.formula(paste("REE ~", paste(n[!n %in% "REE"], collapse = "+ ")))

deep\_net = neuralnet(f,data=train\_data,hidden=c(4,2),linear.output=F)

plot(deep\_net)

predicted\_data <- compute(deep\_net, test\_data[,2:9])

print(head(predicted\_data$net.result))

predicted\_data$net.result <- sapply (predicted\_data$net.result,round,digits=0)

table(test\_data$REE,predicted\_data$net.result)

table(test\_data$REE)

table(predicted\_data$net.result)

Acc = (23 + 23) / (23 + 23 + 2 + 1)

Acc

*# 2*

library("neuralnet")

setwd("D:/RStudio")

data <- read.csv("commerce.csv")

View(data)

max\_data <- apply(data[,2:9],2,max)

min\_data <- apply(data[,2:9],2,min)

data\_scaled <- scale(data[,2:9],center = min\_data, scale = max\_data - min\_data)

REE = as.numeric(data$REE)-1

data\_scaled = cbind(REE,data\_scaled)

index = sample(1:nrow(data),round(0.70\*nrow(data)))

train\_data <- as.data.frame(data\_scaled[index,])

test\_data <- as.data.frame(data\_scaled[-index,])

n = names(train\_data)

f <- as.formula(paste("REE ~", paste(n[!n %in% "REE"], collapse = "+ ")))

deep\_net = neuralnet(f,data=train\_data,hidden=c(5,3),linear.output=F)

plot(deep\_net)

predicted\_data <- compute(deep\_net, test\_data[,2:9])

print(head(predicted\_data$net.result))

predicted\_data$net.result <- sapply (predicted\_data$net.result,round,digits=0)

table(test\_data$REE,predicted\_data$net.result)

table(test\_data$REE)

table(predicted\_data$net.result)

Acc = (22 + 23) / (22 + 23 + 2 + 2)

Acc

*# 3*

library("neuralnet")

setwd("D:/RStudio")

data <- read.csv("commerce.csv")

View(data)

max\_data <- apply(data[,2:9],2,max)

min\_data <- apply(data[,2:9],2,min)

data\_scaled <- scale(data[,2:9],center = min\_data, scale = max\_data - min\_data)

REE = as.numeric(data$REE)-1

data\_scaled = cbind(REE,data\_scaled)

index = sample(1:nrow(data),round(0.75\*nrow(data)))

train\_data <- as.data.frame(data\_scaled[index,])

test\_data <- as.data.frame(data\_scaled[-index,])

n = names(train\_data)

f <- as.formula(paste("REE ~", paste(n[!n %in% "REE"], collapse = "+ ")))

deep\_net = neuralnet(f,data=train\_data,hidden=c(4,2),linear.output=F)

plot(deep\_net)

predicted\_data <- compute(deep\_net, test\_data[,2:9])

print(head(predicted\_data$net.result))

predicted\_data$net.result <- sapply (predicted\_data$net.result,round,digits=0)

table(test\_data$REE,predicted\_data$net.result)

table(test\_data$REE)

table(predicted\_data$net.result)

Acc = (18 + 19) / (18 + 19 + 3 + 0)

Acc

*# 4*

library("neuralnet")

setwd("D:/RStudio")

data <- read.csv("commerce.csv")

View(data)

max\_data <- apply(data[,2:9],2,max)

min\_data <- apply(data[,2:9],2,min)

data\_scaled <- scale(data[,2:9],center = min\_data, scale = max\_data - min\_data)

REE = as.numeric(data$REE)-1

data\_scaled = cbind(REE,data\_scaled)

index = sample(1:nrow(data),round(0.75\*nrow(data)))

train\_data <- as.data.frame(data\_scaled[index,])

test\_data <- as.data.frame(data\_scaled[-index,])

n = names(train\_data)

f <- as.formula(paste("REE ~", paste(n[!n %in% "REE"], collapse = "+ ")))

deep\_net = neuralnet(f,data=train\_data,hidden=c(5,3),linear.output=F)

plot(deep\_net)

predicted\_data <- compute(deep\_net, test\_data[,2:9])

print(head(predicted\_data$net.result))

predicted\_data$net.result <- sapply (predicted\_data$net.result,round,digits=0)

table(test\_data$REE,predicted\_data$net.result)

table(test\_data$REE)

table(predicted\_data$net.result)

Acc = (15 + 22) / (15 + 22 + 1 + 2)

Acc

Reference: Giuseppe, C.; Balaji, V. Neural Networks with R[M]. Li H.C. (translator). Beijing: China Machine Press, 2018.