Chapter 11 – Neural Nets

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Data Mining for Business Intelligence

Shmueli, Patel & Bruce

Credit - 1

```
library("neuralnet")
setwd("C:/BA/NN")
dataset <- read.csv("creditset.csv")
head(dataset)
## extract a set to train the NN
trainset <- dataset[1:800, ]
## select the test set
testset <- dataset[801:2000, ]
## build the neural network (NN)
creditnet <- neuralnet(default10yr ~ LTI + age, trainset,
hidden = 4, lifesign = "minimal",   linear.output = FALSE,
threshold = 0.1)
```

Credit - 2

```
creditnet <- neuralnet(default10yr ~ LTI + age, trainset,
hidden = 4, lifesign = 'minimal', linear.output = FALSE,
threshold = 0.1)
```

#模型：输入层有LTI和age，输出层是default10yr，隐藏层有4个节点，lifesign可选择的参数有'minimal'、'full'和'none' 表示运行过程中信息输出的丰富程度。linear.output表示是否对输出层进行默认的使用logistic函数进行非线性处理。如果选择TRUE则直接输出隐藏层的加权和。如果选择FALSE还要对加权和做logistic函数处理。threshold 表示错误对权重的偏导数到达什么时候停止。这里选择0.1，默认是0.01。

```
## plot the NN
plot(creditnet, rep = "best")
```

Credit - 3

```
## test the resulting output

temp_test <- subset(testset, select = c("LTI", "age"))

creditnet.results <- compute(creditnet, temp_test)

results <- data.frame(actual = testset$default10yr,
prediction = creditnet.results$net.result)

results[100:115, ]

results$prediction <- round(results$prediction)

results[100:115, ]

table(results)
```