Exercise-section18

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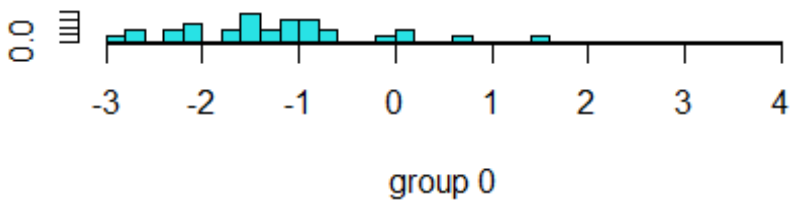
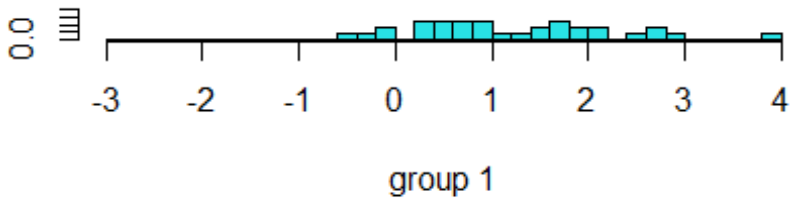
```
library(MASS)
  y1_m =
c(15,17,15,13,20,15,15,13,14,17,17,17,15,18,18,15,18,10,18,18,13,16,11,16,16,
18,16,15,18,18,17,19)
  y2_m =
c(17,15,14,12,17,21,13,5,7,15,17,20,15,19,18,14,17,14,21,21,17,16,15,13,13,18
,15,16,19,16,20,19)
  y3_m =
c(24,32,29,10,26,26,26,22,30,30,26,28,29,32,31,26,33,19,30,34,30,16,25,26,23,
34,28,29,32,33,21,30)
  y4_m =
c(14,26,23,16,28,21,22,22,17,27,20,24,24,28,27,21,26,17,29,26,24,16,23,16,21,
24,27,24,23,23,21,28)
  y1_f =
c(13,14,12,12,11,12,10,10,12,11,12,14,14,13,14,13,16,14,16,13,2,14,17,16,15,1
2,14,13,11,7,12,6)
  y2_f =
c(14,12,19,13,20,9,13,8,20,10,18,18,10,16,8,16,21,17,16,16,6,16,17,13,14,10,1
7,15,16,7,15,5)
  y3_f =
c(12,14,21,10,16,14,18,13,19,11,25,13,25,8,13,23,26,14,15,23,16,22,22,16,20,1
2,24,18,18,19,7,6)
  y4_f =
c(21,26,21,16,16,18,24,23,23,27,25,26,28,14,25,28,26,14,23,24,21,26,28,14,26,
9,23,20,28,18,28,13)
Data  = data.frame(y1 = c(y1_m , y1_f),
                   y2 = c(y2_m , y2_f),
                   y3 = c(y3_m , y3_f),
                   y4 = c(y4_m , y4_f),
                   Gender = c(rep(c(0,1),each= 32)))
m1 = lda(Gender ~ . , data = Data)
m1

## Call:
## lda(Gender ~ ., data = Data)
##
## Prior probabilities of groups:
##   0   1
## 0.5 0.5
##
## Group means:
##         y1       y2       y3      y4
```

```
## 0 15.96875 15.90625 27.18750 22.7500
## 1 12.34375 13.90625 16.65625 21.9375
##
## Coefficients of linear discriminants:
##            LD1
## y1 -0.20666253
## y2  0.08231041
## y3 -0.18869343
## y4  0.12538063

pp = predict(m1)$x
ldahist(data =pp, g=Data$Gender)
```



group 0



group 1

```
p1 <- predict(m1, Data)$class
tab <- table(Predicted = p1, Actual = Data$Gender)
tab

##          Actual
## Predicted  0  1
##         0 28  4
##         1  4 28

sum(diag(tab))/sum(tab)

## [1] 0.875
```

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