

## Exercise sec19

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12/3/2021

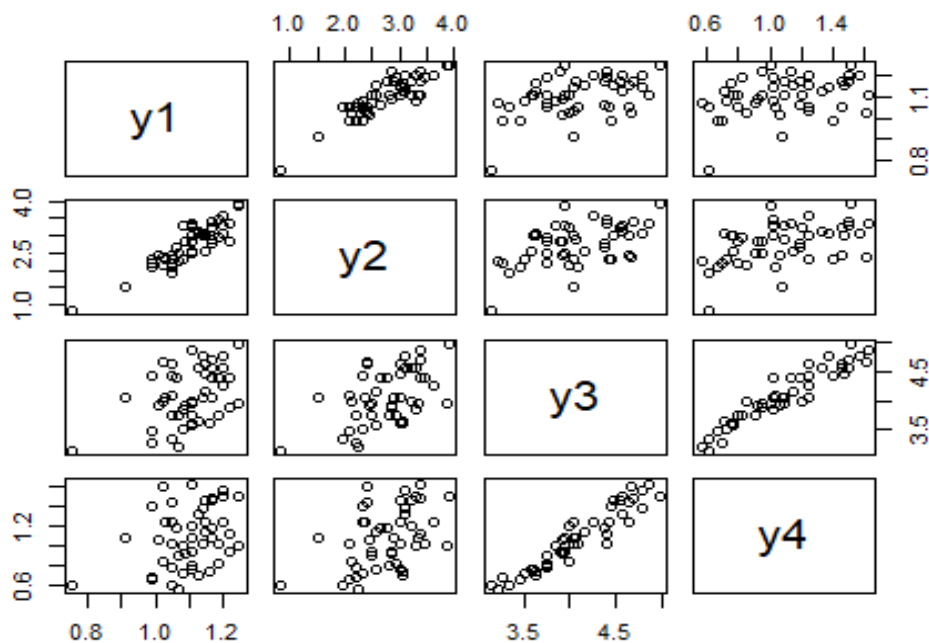
```
library(MASS)
data = read.table("F:/lessons/Multi countios Variate2/data/apple-
data.txt",header = TRUE)
head(data,4)

##  group  y1    y2    y3    y4
## 1      1 1.11 2.569 3.58 0.760
## 2      1 1.19 2.928 3.75 0.821
## 3      1 1.09 2.865 3.93 0.928
## 4      1 1.25 3.844 3.94 1.009

tail(data,4)

##  group  y1    y2    y3    y4
## 45      6 1.05 1.949 3.34 0.610
## 46      6 1.07 2.251 3.21 0.562
## 47      6 1.13 3.064 3.63 0.707
## 48      6 1.11 2.469 3.95 0.952

plot(data[, -1])
```



```

model = qda(data$group~. , data = data)
model

## Call:
## qda(data$group ~ ., data = data)
##
## Prior probabilities of groups:
##          1          2          3          4          5          6
## 0.1666667 0.1666667 0.1666667 0.1666667 0.1666667 0.1666667
##
## Group means:
##          y1          y2          y3          y4
## 1 1.13750 2.977125 3.73875 0.871125
## 2 1.15750 3.109125 4.51500 1.280500
## 3 1.10750 2.815250 4.45500 1.391375
## 4 1.09750 2.879750 3.90625 1.039000
## 5 1.08000 2.557250 4.31250 1.181000
## 6 1.03625 2.214625 3.59625 0.735000

pp = predict(model)
(t=table(pp$class,data$group))

##
##      1 2 3 4 5 6
## 1 8 0 1 0 0 2
## 2 0 7 0 0 3 0
## 3 0 0 6 1 0 0
## 4 0 1 0 7 0 0
## 5 0 0 1 0 4 1
## 6 0 0 0 0 1 5

(accuracy = sum(diag(t)) / length(data$group))
## [1] 0.7708333

(miss_err_classification_rate = 1 - accuracy)
## [1] 0.2291667

```