2020/12/11(五), 109 學年第一學期 資料科學應用 R 期中考

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(請依照規定)貼上執行程式碼及執行結果。
詳見: R 程式作業繳交方式
http://www.hmwu.idv.tw/web/teaching/doc/R-how-homework.pdf

```
> # ex1
> a <- matrix(0, nrow = 25 ,ncol = 5)
> for(i in 8:12){
+     for(j in 13:17){
+         Tuition <- j*400+i*600
+         U <- i*(0.5)*j*(0.5)
+         Fit <- ifelse(Tuition <= 12000,"*"," ")
+         A <- cat(j,i,Tuition,U,Fit,"\n")
+         for (k in 1:25){
+             a[k,] <- A
+         }
+     }
+ }
13 8 10000 26 *
Error in a[k, ] <- A :  被替換的項目不是替換值長度的倍數
> rownames(a) <- c(1:25)
> colnames(a) <- c("Eng.hr", "Comp.hr", "Tuition", "U", "Fit")
> a
      Eng.hr Comp.hr Tuition U Fit
1          0       0       0 0    0
2          0       0       0 0    0
3          0       0       0 0    0
4          0       0       0 0    0
5          0       0       0 0    0
6          0       0       0 0    0
7          0       0       0 0    0
8          0       0       0 0    0
9          0       0       0 0    0
10         0       0       0 0    0
11         0       0       0 0    0
12         0       0       0 0    0
```

```
13          0          0          0 0     0
14          0          0          0 0     0
15          0          0          0 0     0
16          0          0          0 0     0
17          0          0          0 0     0
18          0          0          0 0     0
19          0          0          0 0     0
20          0          0          0 0     0
21          0          0          0 0     0
22          0          0          0 0     0
23          0          0          0 0     0
24          0          0          0 0     0
25          0          0          0 0     0
> #ex2(a)
> xlsx_file<- "Score-109.xlsx"
> excel_sheets(xlsx_file)
[1] "score"
> mydata<-read_excel(xlsx_file,sheet="score",na="NA",skip=1)
> mydata11 <- as.data.frame(mydata)
> z<-as.data.frame(head(mydata11, 5))
> Z<-as.data.frame(tail(mydata11, 5))
> z
      ID Calculus English
1 No.1          72          62
2 No.2          88          97
3 No.3          76          66
4 No.4          89          51
5 No.5          46          15
> Z
          ID Calculus English
71 No.71          69          96
72 No.72          51         100
73 No.73          37          50
74 No.74          33          92
75 No.75           4          37
> #ex2(b)
> mydata11[is.na(mydata11)] <- 0
> sc <- which(mydata11[,2] < 60 & mydata11[,3] < 60)
```

```
> mydata11[sc,]
          ID Calculus English
5      No.5       46      15
7      No.7       32      51
8      No.8       51       0
11 No.11          3       0
15 No.15         39       6
18 No.18         40       0
21 No.21         45      51
26 No.26         39      29
30 No.30         48      52
33 No.33         18       0
35 No.35         37      21
39 No.39          0      38
45 No.45         26      32
46 No.46         32      56
47 No.47          6      52
48 No.48          4       9
53 No.53         31      18
54 No.54         21      28
56 No.56         50       3
66 No.66         22      52
68 No.68         15      21
73 No.73         37      50
75 No.75          4      37
> # ex2(c)
> x1 <- sum(mydata11[,2])/75
> y1 <- sum(mydata11[,3])/75
> my.cor <-for(i in 1:75){
+      r1 <- (mydata11[i,2] - x1)*(mydata11[i,3] - y1)
+      r2 <- (mydata11[i,2] - x1)*2*0.5
+      r3 <- (mydata11[i,3] - y1)*2*0.5
+      r <- r1/(r2*r3)
+      cat(r)
+ }
1111111111111111111111111111111111111111111111111111111111111111111111111
1111111
> # ex2(d)
```

```
> cor(mydata11[,2:3])
                Calculus     English
Calculus    1.00000000 -0.02334661
English    -0.02334661  1.00000000
>
```