2020/12/11(五), 109 學年第一學期 資料科學應用 R 期中

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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

```
> #exl1
>
> a <- matrix(0, nrow = 25 ,ncol = 5)
> #i <- Comp.hr(8:12)
> # j <-Eng.hr(13:17)
> 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,"*"," ")
+         o <- cat(j,i,Tuition,U,Fit,"\n")
+         for (s in 1:25){
+             a[o,] <- s
+         }
+     }
+ }
13 8 10000 26 *
14 8 10400 28 *
15 8 10800 30 *
16 8 11200 32 *
17 8 11600 34 *
13 9 10600 29.25 *
14 9 11000 31.5 *
15 9 11400 33.75 *
16 9 11800 36 *
17 9 12200 38.25
13 10 11200 32.5 *
14 10 11600 35 *
15 10 12000 37.5 *
16 10 12400 40
```

```
17 10 12800 42.5
13 11 11800 35.75 *
14 11 12200 38.5
15 11 12600 41.25
16 11 13000 44
17 11 13400 46.75
13 12 12400 39
14 12 12800 42
15 12 13200 45
16 12 13600 48
17 12 14000 51
>
> 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
>
>
> #exl2(a)
> library(readxl)
>
> Rscore <- read_excel("score-109.xlsx", skip = 1)
> head(Rscore, 5)
# A tibble: 5 x 3
   ID       Calculus English
   <chr> <chr>       <chr>
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
> tail(Rscore, 5)
# A tibble: 5 x 3
   ID       Calculus English
   <chr> <chr>       <chr>
1 No.71 69           96
2 No.72 51           100
3 No.73 37           50
4 No.74 33           92
5 No.75 4            37
>
> #exl2(b)
> set.seed(12345)
> ID <- paste("No.", 1:75, sep="")
> score.calculus <- sample(0:100, 75, replace=T)
> score.english <- sample(0:100, 75, replace=T)
>
> mydata[is.na(mydata)] <- 0
> score <- which(mydata[,2] < 60 & mydata[,3] < 60,)
> mydata[score,]
# A tibble: 23 x 3
```

```
   ID       Calculus English
   <chr>       <dbl>   <dbl>
 1 No.5           46      15
 2 No.7           32      51
 3 No.8           51       0
 4 No.11           3       0
 5 No.15          39       6
 6 No.18          40       0
 7 No.21          45      51
 8 No.26          39      29
 9 No.30          48      52
10 No.33          18       0
# ... with 13 more rows
>
> # ex2(c)
> x1 <- sum(mydata[,2])/75
> y1 <- sum(mydata[,3])/75
> my.cor <-for(i in 1:75){
+     a1 <- (mydata[i,2] - x1)*(mydata[i,3] - y1)
+     a2 <- (mydata[i,2] - x1)*2*0.5
+     a3 <- (mydata[i,3] - y1)*2*0.5
+     a <- r1/(r2*r3)
+     list(a)
+ }
>
>
> # ex2(d)
> cor(mydata[,2:3])
                Calculus     English
Calculus    1.00000000 -0.02334661
English    -0.02334661  1.00000000
>
>
> #ex3
> dnorm(x, mean=0, sd=1)
  [1] 0.004431848 0.004566590 0.004704958 0.004847033 0.004992899
0.005142641 0.005296344
  [8] 0.005454095 0.005615984 0.005782099 0.005952532 0.006127377
```

0.006306726 0.006490676
[15] 0.006679324 0.006872767 0.007071105 0.007274439 0.007482873
0.007696508 0.007915452
[22] 0.008139809 0.008369689 0.008605201 0.008846454 0.009093563
0.009346638 0.009605797
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0.013582969 0.013940061
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0.074766262 0.076143274
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[176] 0.182649085 0.184937281 0.187235418 0.189543158 0.191860155
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0.004431848
>