> # 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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>

> # ex1

> study(x,y)

13 8 10000 2613 9 10600 29.2513 10 11200 32.513 11 11800 35.7513 12 12400 39

14 8 10400 2814 9 11000 31.514 10 11600 3514 11 12200 38.514 12 12800 42

15 8 10800 3015 9 11400 33.7515 10 12000 37.515 11 12600 41.2515 12 13200 45

16 8 11200 3216 9 11800 3616 10 12400 4016 11 13000 4416 12 13600 48

17 8 11600 3417 9 12200 38.2517 10 12800 42.517 11 13400 46.7517 12 14000 51

> data.frame(x,y, U , Tuition, Fit)

	ID	Calculus	English	ID.1	Calculus.1	English.1	U	Tuition	Fit
1	No.1	72	62	No.71	69	96	26	10000	*
2	No.2	88	97	No.72	51	100	26	10000	*
3	No.3	76	66	No.73	37	50	26	10000	*
4	No.4	89	51	No.74	33	92	26	10000	*
5	No.5	46	15	No.75	4	37	26	10000	*

> list(Eng.hr=x, Comp.hr=y, Tuition=Tuition, U=U)

$Eng.hr

	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

$Comp.hr

	ID	Calculus	English
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

$Tuition

```
[1] 10000

$U
[1] 26

> study <- function(x,y){
+     #    x <-c(13:17)
+     #    y <-c(8:12)
+     a <-matrix(0, 25, 5)
+     for(x in 13:17){
+         for(y in 8:12){
+             U <- x*(0.5)*y*(0.5)
+             Tuition <- 400*x+600*y
+             fit <- ifelse(Tuition <= 12000, "*", "")
+             cat(x,y, Tuition, U)
+         }
+          cat("\n")
+     }
+ }
> library(readxl)
> readxl_example()
 [1] "clippy.xls"      "clippy.xlsx"
 [3] "datasets.xls"    "datasets.xlsx"
 [5] "deaths.xls"      "deaths.xlsx"
 [7] "geometry.xls"    "geometry.xlsx"
 [9] "type-me.xls"     "type-me.xlsx"
> #ex2(a)
> xlsx_file<- "Score-109.xlsx"
> excel_sheets(xlsx_file)
[1] "score"
> mydata<-read_excel(xlsx_file,sheet="score",na="NA",skip=1)
> yue <- as.data.frame(mydata)
> hao<-as.data.frame(head(yue, 5))
> hao<-as.data.frame(tail(yue, 5))
> hao
      ID Calculus English
71 No.71       69       96
72 No.72       51      100
```

	ID	Calculus	English
73	No.73	37	50
74	No.74	33	92
75	No.75	4	37

```
> hao
```

	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)
> yue[is.na(yue)] <- 0
> lin <- which(yue[,2] < 60 & yue[,3] < 60)
> yue[lin,]
```

	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)
> hao1 <- sum(yue[,2])/75
> hao2 <- sum(yue[,3])/75
> my.cor <-for(i in 1:75){
+     l1 <- (yue[i,2] - hao1)*(yue[i,3] - hao2)
+     l2 <- (yue[i,2] - hao1)*2*0.5
+     l3 <- (yue[i,3] - hao2)*2*0.5
+     l <- l1/(l2*l3)
+     l
+ }
> 
> 
> # ex2(d)
> cor(yue[,2:3])
              Calculus      English
Calculus    1.00000000 -0.02334661
English    -0.02334661   1.00000000
> 
> # ex3
> my.dnorm <-function
```