

```
> #2020/11/27(五), 109 學年第一學期 資料科學應用 R 作業(4)
```

```
> #學號:A107260102      姓名: 熊家濬
```

```
> library(readxl)
```

```
> # 1(a)
```

```
> data <- read.csv("Calculus-score-A.csv", header = TRUE, skip = 2)
```

```
> xlsx_file <- "Calculus-score-B.xls"
```

```
> excel_sheets(xlsx_file)
```

```
[1] "工作表 1"
```

```
> O <- read_excel(xlsx_file, sheet = "工作表 1", na = "NA", skip = 2)
```

```
New names:
```

```
* `0.0700000000000000007` -> `0.070000000000000007...5`
```

```
* `0.0700000000000000007` -> `0.070000000000000007...6`
```

```
* `0.0800000000000000002` -> `0.080000000000000002...7`
```

```
* `0.0800000000000000002` -> `0.080000000000000002...8`
```

```
> data[c(1:5, 36:40), ]
```

	座號	學號	姓名	性別	X7.	X7..1	X8.	X8..1	X15.	X25.	X30.	Times
1	1	401405008	希瑄彥	男	10		0	5	20	0.0	55	50
2												
2	2	401550880	張泓丞	男	25		40	70	87	80.0	46	68
9												
3	3	404550061	張安婕	女	18		15	48	33	86.7	54	79
9												
4	4	404550042	柯政學	男	10		10	NA	NA	13.3	2	0
7												
5	5	404550023	謝文躍	女	35		45	52	97	86.7	55	67
9												
36	36	404550369	陳王霖	女	55		73	92	73	100.0	72	81
9												
37	37	404550420	何瑄穎	男	28		10	35	3	66.7	30	0
7												
38	38	404550431	沈泓霏	女	15		25	53	67	93.3	29	42
9												
39	39	404550442	許安霏	女	53		60	80	72	100.0	61	62
9												
40	40	404550453	李政宜	男	80		100	85	100	100.0	95	100
3												

```
> as.data.frame(head(O, 5))
```

座號	學號	姓名	性別	0.070000000000000007...5
----	----	----	----	--------------------------

0.070000000000000007...6

1	1	404550465	史文羽	男	60
---	---	-----------	-----	---	----

81

2	2	404685071	鄭樺好	男	80
---	---	-----------	-----	---	----

100

3	3	404685084	張敬安	男	10
---	---	-----------	-----	---	----

40

4	4	404685099	何筑亦	女	15
---	---	-----------	-----	---	----

25

5	5	404685100	張儀	女	30
---	---	-----------	----	---	----

45

0.080000000000000002...7 0.080000000000000002...8 0.14999999999999999

0.25

1			100		97
---	--	--	-----	--	----

100.0 90

2			100		92
---	--	--	-----	--	----

100.0 92

3			62		93
---	--	--	----	--	----

100.0 65

4			40		13
---	--	--	----	--	----

93.3 36

5			70		61
---	--	--	----	--	----

93.3 29

0.29999999999999999 Times

1		83	6
---	--	----	---

2		97	2
---	--	----	---

3		84	9
---	--	----	---

4		5	9
---	--	---	---

5		48	4
---	--	----	---

> as.data.frame(tail(O, 5))

座號	學號	姓名	性別	0.070000000000000007...5
----	----	----	----	--------------------------

0.070000000000000007...6

1	51	404685407	鄭鈺尤	女	80
---	----	-----------	-----	---	----

85

2	52	404685905	楊宜路	男	48
---	----	-----------	-----	---	----

35

3	53	404685013	張渝好	男	0
---	----	-----------	-----	---	---

38

38	38 404550431	沈泓霏	女	15	25	53	67	93.3
----	--------------	-----	---	----	----	----	----	------

```

29
39 39 404550442 許安霏 女 53 60 80 72 100.0
61
40 40 404550453 李政宜 男 80 100 85 100 100.0
95
41 1 404550465 史文羽 男 60 81 100 97 100.0
90
42 2 404685071 鄭樺妤 男 80 100 100 92 100.0
92
43 3 404685084 張敬安 男 10 40 62 93 100.0
65

```

FinalExam Attendance class

```

38 42 9 A
39 62 9 A
40 100 3 A
41 83 6 B
42 97 2 B
43 84 9 B

```

```
> # 1(c)
```

```
> gg[is.na(gg)] <- 0 # 使用 is.na ( ) 將 NA 替換為 0
```

```
> QQ <- gg[5]*0.07 + gg[6]*0.07 + gg[7]*0.08 + gg[8]*0.08 + gg[9]*0.15 +
gg[10]*0.25 + gg[11]*0.30 + gg[12]
```

```
> kK <- c(QQ[1:95,])
```

```
> y <- ifelse(kK >= 100, 100, kK)
```

```
> l <- as.data.frame(y)
```

```
> names(l)[1] <- c("學期成績")
```

```
> l
```

學期成績

```

1 33.450
2 70.010
3 67.995
4 10.895
5 73.375
6 67.015
7 38.920
8 78.345
9 48.525
10 20.455

```

11	96.435
12	67.295
13	16.150
14	22.030
15	73.990
16	79.400
17	8.560
18	24.245
19	61.905
20	61.340
21	49.915
22	68.570
23	10.995
24	67.055
25	68.000
26	69.210
27	65.635
28	84.040
29	66.100
30	78.540
31	75.330
32	69.860
33	72.240
34	82.260
35	54.765
36	88.460
37	30.205
38	55.245
39	77.920
40	99.150
41	94.030
42	97.060
43	81.350
44	40.535
45	55.375
46	62.355
47	61.310
48	50.450

49	21.600
50	36.700
51	32.150
52	76.810
53	48.200
54	52.550
55	69.700
56	43.360
57	60.910
58	94.070
59	77.990
60	23.950
61	39.100
62	80.600
63	72.850
64	22.050
65	47.200
66	20.800
67	61.550
68	58.300
69	40.800
70	55.000
71	26.280
72	70.050
73	49.450
74	62.900
75	54.960
76	74.900
77	71.360
78	67.800
79	85.140
80	21.300
81	72.200
82	78.410
83	82.300
84	51.510
85	74.660
86	45.200

```

87 65.300
88 87.220
89 100.000
90 95.720
91 100.000
92 72.590
93 44.460
94 70.000
95 59.350

```

```
> # 1(d)
```

```
> TT <- ifelse(60 > y & y >= 50, k, (sep="0"))
```

```
> t <- as.data.frame(TT)
```

```
> L <- which(t > 0) #找某元素在向量中的下標，可以用函數 which 實現
```

```
> gg[L,]
```

	座號	學號	姓名	性別	quiz.1.	quiz.2.	quiz.3.	quiz.4.	TA
MidtermExam									
35	35	404550328	李梅祐	男	20	25	55	32	86.7
41									
38	38	404550431	沈泓霏	女	15	25	53	67	93.3
29									
45	5	404685100	張儀	女	30	45	70	61	93.3
29									
48	8	403555042	張水兆	男	0	30	50	80	13.0
0									
54	14	404720027	高凱瓊	男	15	40	35	60	80.0
42									
68	28	404720722	楊佳聿	女	30	35	20	50	60.0
45									
70	30	404720527	馨飛羽	男	15	0	45	65	93.0
44									
75	35	404720037	勳陳	男	20	30	22	60	80.0
50									
84	44	404720932	曾林凱	女	55	18	30	50	80.0
58									
95	55	499555916	楊毅亦	女	5	35	45	55	87.0
58									
FinalExam Attendance class									
35		48		7					A

38	42	9	A
45	48	4	B
48	90	9	B
54	32	9	B
68	63	9	B
70	44	7	B
75	38	9	B
84	15	9	B
95	60	3	B

```
> # 1(e)
```

```
> A <- which(gg[,13] == "A")
```

```
> B <- which(gg[,13] == "B")
```

```
> # A 班總成績平均各為多少
```

```
> sum(l[A,]) / length(A)
```

```
[1] 58.84575
```

```
> # B 班總成績平均各為多少
```

```
> sum(l[B,]) / length(B)
```

```
[1] 61.123
```

```
> PP <- which(h[,4] == "女")
```

```
> EK <- which(h[,4] == "男")
```

```
> # 女生總成績平均各為多少
```

```
> sum(l[PP,]) / length(PP)
```

```
[1] 58.95292
```

```
> # 男生總成績平均各為多少
```

```
> sum(l[EK,]) / length(EK)
```

```
[1] 60.90322
```

```
> # 1(f)
```

```
> AC <- ifelse(60 > y & h[,13] == "A", k, (sep="0"))
```

```
> AG <- as.data.frame(AC)
```

```
> AH <- which(AG > 0)
```

```
> # A 班學期成績不及格比例為多少?
```

```
> length(AH) / length(A)
```

```
[1] 0.35
```

```
> BN <- ifelse(60 > y & h[,13] == "B" & h[,4] == "男", k, (sep="0"))
```

```
> BH <- as.data.frame(BN)
```

```
> BG <- which(BH > 0)
```

```
> # B 班男同學學期成績不及格比例為多少?
```

```
> length(BG) / length(B)
```



```
[1] 0.2909091
> # 1(g)
> J1 <- transform(score,score = y1)
> names(J1)[14] <- c("score")
> SJ <- J1[A1,]
> DB <- J1[B1,]
> S1 <- order(SJ$score, decreasing = TRUE)
> SD1 <- order(DB$score, decreasing = TRUE)
> S2 <- SJ[S1,]
> SC2 <- DB[SD1,]
> head(S2, 5)
```

	座號	學號	姓名	性別	quiz.1.	quiz.2.	quiz.3.	quiz.4.	TA
MidtermExam									
89	49	404720541	詹傑仙	女	98	80	98	98	100.0
96									
91	51	404685407	鄭鈺尤	女	80	85	100	85	100.0
89									
11	11	404550189	丁易偉	女	80	100	100	93	93.3
90									
36	36	404550369	陳王霖	女	55	73	92	73	100.0
72									
79	39	404720436	曼李儷	女	60	40	73	90	100.0
68									

	FinalExam	Attendance	class	score
89	95	9	B	100.000
91	95	9	B	100.000
11	93	4	A	96.435
36	81	9	A	88.460
79	87	7	B	85.140

```
> head(SC2, 5)
```

	座號	學號	姓名	性別	quiz.1.	quiz.2.	quiz.3.	quiz.4.	TA	MidtermExam
40	40	404550453	李政宜	男	80	100	85	100	100	100
95										
42	2	404685071	鄭樺妤	男	80	100	100	92	100	
92										
90	50	404685109	許 何	男	88	73	85	100	100	
83										
58	18	404720161	劉莞韋	男	95	86	85	75	100	

80

41 1 404550465 史文羽 男 60 81 100 97 100

90

FinalExam Attendance class score

40 100 3 A 99.15

42 97 2 B 97.06

90 83 9 B 95.72

58 82 9 B 94.07

41 83 6 B 94.03

> # 2(a)

> set.seed <- c(123456)

> Yy <- c(sample(LETTERS[1:5], 20, replace=T))

> Qx <-c()

> for(i in 1:20){

+ if(Yy[i] == "A")

+ Qx[i] <- 1

+