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#2020/12/25(五) 109 學年第一學期 資料科學應用 R 作業(7)
> #學號: A107260088              姓名: 施珮慈
> #ex2.30(a)
> first5.records <- read.table("data/answer.txt",header = TRUE)
> head(first5.records,5)
   Student V1 V2 V3 V4 V5 V6 V7 V8 V9 V10
1       s1  C  D  D  A  D  A  B  C  C   B
2       s2  B  D  B  D  D  A  C  D  B   B
3       s3  B  A  A  B  D  A  C  B  C   B
4       s4  B  D  B  A  B  C  C  D  C   B
5       s5  B  D  D  D  A  C  C  D  A   B
> # ex2.30(b)
> ans <- c("B", "D", "B", "D", "D", "A", "C", "D", "C", "B")
> s <- c("A", "D", "B", "D", "B", "A", "B", "D", "C", "B")
> correct.item <- which(s == ans)
> n.correct <- length(correct.item) * 10
> correct.item
[1]  2  3  4  6  8  9 10
> n.correct
[1] 70
> # ex2.30(c)
> options(max.print=999999)
> my.data <- t(first5.records)
> answer <- data.frame(matrix(0,1,192))
> ans1 <- t(ans)
> ans2 <- t(ans1)
> for (i in 1:10){
+     for(j in 1:192){
+         correct.item1 <- which(my.data[2:(i+1), j] == ans2[1:i,])
+         SS <- length(correct.item1) * 10
+         answer[,j] <- SS
+     }
+ }
> answer <- t(answer)
> my.data1 <- cbind(first5.records , answer)
> score.table <- my.data1[,12]
> table(score.table)
score.table
```

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   0   10   20   30   40   50   60   70   80   90 100
   3   10    9   11   19   23   28   40   30   12    7
> # ex2.30(d)
> a <- order(my.data1$answer, decreasing = TRUE)
> topID <- which(my.data1$answer >= 75)
> lowID <- which(my.data1$answer <= 25)
> n.topID <- length(topID)
> n.lowID <- length(lowID)
> rownames(answer)[topID]
 [1] "X2"   "X12"  "X16"  "X19"  "X20"  "X21"  "X24"  "X25"  "X27"  "X31"
"X41"
[12] "X43"  "X44"  "X47"  "X50"  "X52"  "X54"  "X55"  "X66"  "X69"  "X73"
"X79"
[23] "X80"  "X81"  "X86"  "X95"  "X96"  "X108" "X110" "X112" "X123" "X125"
"X128"
[34] "X129" "X131" "X135" "X136" "X139" "X143" "X146" "X152" "X157" "X159"
"X165"
[45] "X171" "X187" "X189" "X190" "X192"
> rownames(answer)[lowID]
 [1] "X17"  "X32"  "X65"  "X71"  "X74"  "X82"  "X87"  "X90"  "X97"
"X105" "X107"
[12] "X120" "X132" "X142" "X160" "X161" "X163" "X168" "X169" "X174" "X177"
"X178"
> n.topID
[1] 49
> n.lowID
[1] 22
> # ex5.2(a)
> bag <- c(rep("white", 6), rep("red", 4))
> set.seed(123456)
> ball <- sample(bag, 3)
> table(ball)
ball
  red white
    1     2
> # ex5.2(b)
> n <- 10
> Re <- data.frame(white=rep(0, n), red=rep(0,n))
```

```
> for(i in 1:n){
+     Exp <- sample(bag, 3)
+     Re[i, 1] <- length(which(Exp == "white"))
+     Re[i, 2] <- length(which(Exp == "red"))
+ }
> Re
   white red
1      2   1
2      2   1
3      1   2
4      2   1
5      2   1
6      1   2
7      2   1
8      2   1
9      1   2
10     2   1
> # ex5.2(c)
> n <- 100
> Re <- data.frame(white=rep(0, n), red=rep(0, n))
> for(i in 1:n){
+     Exp <- sample(bag, 3)
+     w <- Re[i, 1] <- length(which(Exp == "white"))
+     r <- Re[i, 2] <- length(which(Exp =="red"))
+ }
> Re
    white red
1       1   2
2       3   0
3       1   2
4       1   2
5       2   1
6       2   1
7       3   0
8       1   2
9       1   2
10      1   2
11      1   2
```

12	2	1
13	2	1
14	2	1
15	2	1
16	3	0
17	2	1
18	1	2
19	1	2
20	2	1
21	2	1
22	1	2
23	3	0
24	2	1
25	3	0
26	1	2
27	1	2
28	2	1
29	2	1
30	2	1
31	2	1
32	2	1
33	3	0
34	2	1
35	2	1
36	3	0
37	1	2
38	1	2
39	2	1
40	3	0
41	2	1
42	1	2
43	2	1
44	2	1
45	2	1
46	1	2
47	1	2
48	2	1
49	3	0

50	2	1
51	3	0
52	1	2
53	1	2
54	1	2
55	1	2
56	2	1
57	1	2
58	2	1
59	2	1
60	2	1
61	2	1
62	2	1
63	2	1
64	1	2
65	1	2
66	2	1
67	1	2
68	2	1
69	2	1
70	1	2
71	2	1
72	2	1
73	1	2
74	2	1
75	1	2
76	2	1
77	2	1
78	1	2
79	2	1
80	2	1
81	3	0
82	2	1
83	0	3
84	0	3
85	1	2
86	2	1
87	3	0

```
88          3     0
89          3     0
90          1     2
91          1     2
92          2     1
93          2     1
94          2     1
95          2     1
96          1     2
97          2     1
98          2     1
99          1     2
100         2     1
> b <- Re$white == 2 & Re$red ==1
> length(which(b == Re))
[1] 66
> pro <- length(which(b == Re))/n
> pro
[1] 0.66
```