2020/10/23(五), 109 學年第一學期 資料科學應用 R 作業(1)

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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

```
> #ex1.7(a)
> rep(LETTERS[1:5], c(5,4,3,2,1))
 [1] "A" "A" "A" "A" "A" "B" "B" "B" "B"
[10] "C" "C" "C" "D" "D" "E"

> #ex1.7(b)
> letters [c(seq(from=2, by=2, len=13), seq(from=1, by=2, len=13))]
 [1] "b" "d" "f" "h" "j" "l" "n" "p" "r"
[10] "t" "v" "x" "z" "a" "c" "e" "g" "i"
[19] "k" "m" "o" "q" "s" "u" "w" "y"

> #ex1.7(c)
> library(MASS)
> x <- c(1,-1)
> y <- rep(x, times=50)
> z <- 1:100
> ans <- (y/z)
> fractions(ans)
  [1]    1  -1/2   1/3  -1/4   1/5  -1/6   1/7
  [8] -1/8   1/9 -1/10  1/11 -1/12  1/13 -1/14
 [15]  1/15 -1/16  1/17 -1/18  1/19 -1/20  1/21
 [22] -1/22  1/23 -1/24  1/25 -1/26  1/27 -1/28
 [29]  1/29 -1/30  1/31 -1/32  1/33 -1/34  1/35
 [36] -1/36  1/37 -1/38  1/39 -1/40  1/41 -1/42
 [43]  1/43 -1/44  1/45 -1/46  1/47 -1/48  1/49
 [50] -1/50  1/51 -1/52  1/53 -1/54  1/55 -1/56
 [57]  1/57 -1/58  1/59 -1/60  1/61 -1/62  1/63
 [64] -1/64  1/65 -1/66  1/67 -1/68  1/69 -1/70
 [71]  1/71 -1/72  1/73 -1/74  1/75 -1/76  1/77
```

```
 [78]  -1/78    1/79  -1/80    1/81  -1/82    1/83  -1/84
 [85]   1/85  -1/86   1/87  -1/88   1/89  -1/90   1/91
 [92]  -1/92    1/93  -1/94    1/95  -1/96    1/97  -1/98
 [99]   1/99 -1/100

> #ex1.7(d)
> month.abb [c(seq(from=1, by=2, len=6), seq(from=2, by=2, len=6))]
 [1] "Jan" "Mar" "May" "Jul" "Sep" "Nov"
 [7] "Feb" "Apr" "Jun" "Aug" "Oct" "Dec"

> #ex1.23(a)
> math.score <- c(43,94,20,8,46,72,93,8,28,33,79,60,93,52,8)

> #ex1.23(b)
> length(math.score)
[1] 15

> #ex1.23(c)
> two.score <- math.score[seq(from=2,to=15,by=2)]
> cat(two.score)
94 8 72 8 33 60 52

> #ex1.37(a)
> age <- c(54,64,75,21,66,49,25,72,50,72)
> gender <- c("女","男","男","女","女","男","男","女","男","女")
> index <- c( 86,30,NA,43,35,42,31,7,29,80)
> sat <- c("滿意","非常滿意","非常不滿意","非常滿意","普通","非常不滿意","普通","滿意","普通","非常滿意")
> sat.2 <- ordered(sat,levels=c("非常不滿意","普通","滿意","非常滿意"))
> sat.2
 [1] 滿意       非常滿意   非常不滿意 非常滿意   普通       非常不滿意
 [7] 普通       滿意       普通       非常滿意
Levels: 非常不滿意 < 普通 < 滿意 < 非常滿意
```

```
> #ex1.37(b)
> sat.3 <- length(sat)
> sat.pass <- sat.3[sat.2 >= "滿意"]
> length(sat.pass)
[1] 5

> #ex1.37(c)
> library(tidyverse)
> age.1 <- c(54,64,21,66,49,25,72,50,72)
> gender.1 <- c("女","男","女","女","男","男","女","男","女")
> index.1 <- c( 86,30,43,35,42,31,7,29,80)
> man.40 <- data.frame(age.1, gender.1, index.1, stringsAsFactors = FALSE)
> man.401 <- filter(man.40 , gender.1 == "男" & age.1 > 40)
> summarise(man.401, mean(index.1))
   mean(index.1)
1       33.66667
```