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

學號: A106260052 姓名: 劉映妤

(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

```
> # 2020/10/23
>
> # ex1.7(a)
> rep(LETTERS[1:5] , c(5,4,3,2,1))
 [1] "A" "A" "A" "A" "A" "B" "B" "B" "B" "C" "C" "C" "D" "D" "E"
>
> # ex1.7(b)
> letters[c(seq(2,26,2),seq(1,26,2))]
 [1] "b" "d" "f" "h" "j" "l" "n" "p" "r" "t" "v" "x" "z" "a" "c" "e" "g" "i" "k" "m"
[21] "o" "q" "s" "u" "w" "y"
>
> # ex1.7(c)
> x <- rep(c(1,-1),times=50)
> y <- 1:100
> z <- x/y
> x/y
  [1]  1.00000000 -0.50000000  0.33333333 -0.25000000  0.20000000 -0.16666667
  [7]  0.14285714 -0.12500000  0.11111111 -0.10000000  0.09090909 -0.08333333
 [13]  0.07692308 -0.07142857  0.06666667 -0.06250000  0.05882353 -0.05555556
 [19]  0.05263158 -0.05000000  0.04761905 -0.04545455  0.04347826 -0.04166667
 [25]  0.04000000 -0.03846154  0.03703704 -0.03571429  0.03448276 -0.03333333
 [31]  0.03225806 -0.03125000  0.03030303 -0.02941176  0.02857143 -0.02777778
 [37]  0.02702703 -0.02631579  0.02564103 -0.02500000  0.02439024 -
```

```
0.02380952
 [43]  0.02325581 -0.02272727  0.02222222 -0.02173913  0.02127660 -
0.02083333
 [49]  0.02040816 -0.02000000  0.01960784 -0.01923077  0.01886792 -
0.01851852
 [55]  0.01818182 -0.01785714  0.01754386 -0.01724138  0.01694915 -
0.01666667
 [61]  0.01639344 -0.01612903  0.01587302 -0.01562500  0.01538462 -
0.01515152
 [67]  0.01492537 -0.01470588  0.01449275 -0.01428571  0.01408451 -
0.01388889
 [73]  0.01369863 -0.01351351  0.01333333 -0.01315789  0.01298701 -
0.01282051
 [79]  0.01265823 -0.01250000  0.01234568 -0.01219512  0.01204819 -
0.01190476
 [85]  0.01176471 -0.01162791  0.01149425 -0.01136364  0.01123596 -
0.01111111
 [91]  0.01098901 -0.01086957  0.01075269 -0.01063830  0.01052632 -
0.01041667
 [97]  0.01030928 -0.01020408  0.01010101 -0.01000000
> # ex1.7(d)
> month.abb[c(seq(1,12,2),seq(2,12,2))]
 [1] "Jan" "Mar" "May" "Jul" "Sep" "Nov" "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)
> math.score[seq(2,15,2)]
[1] 94  8 72  8 33 60 52
> even.id <- math.score[seq(2,15,2)]
> mean(even.id)
[1] 46.71429
>
```

```
> # ex1.23(d)
> id <- 1:length(math.score)
> pass.id <- id[math.score >= 60]
> pass.id
[1]  2  6  7 11 12 13
> length(pass.id)
[1] 6
>
> # 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")
> sat2 <- ordered(sat,levels=c("非常不滿意", "普通", "滿意", "非常滿意"))
> sat2
 [1] 滿意       非常滿意   非常不滿意 非常滿意   普通       非常不滿意 普通
 [8] 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.people <- length(sat)
> pass.sat <- sat.people[sat2 >= "滿意"]
> length(pass.sat)
[1] 5
>
> # ex1.37(c)
> library(tidyverse)
>
> age1 <-c(54, 64, 21, 66, 49, 25, 72, 50, 72)    #扣除一位未做調查的資料(75)
> gender1 <- c("女", "男", "女", "女", "男", "男", "女", "男", "女") #扣除一位未做調查的資料(男)
> index1 <- c(86, 30, 43, 35, 42, 31, 7, 29, 80) #扣除一位未做調查的資料(NA)
>
> data1 <- data.frame(age1, gender1, index1, stringsAsFactors = FALSE)
> data2 <- filter(data1, gender1 == "男" & age1 > 40)
> summarise(data2, mean(index1))
```

	mean(index1)
1	33.66667