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)
> x <- c(1,-1)
> y <- rep(x, times=50)
> z <- 1:100
> ans <- (y/z)
> cat (ans)
1 -0.5 0.3333333 -0.25 0.2 -0.1666667 0.1428571 -0.125 0.1111111 -0.1 0.09090909
-0.08333333 0.07692308 -0.07142857 0.06666667 -0.0625 0.05882353 -0.05555556
0.05263158 -0.05 0.04761905 -0.04545455 0.04347826 -0.04166667 0.04 -
0.03846154 0.03703704 -0.03571429 0.03448276 -0.03333333 0.03225806 -0.03125
0.03030303 -0.02941176 0.02857143 -0.02777778 0.02702703 -0.02631579
0.02564103 -0.025 0.02439024 -0.02380952 0.02325581 -0.02272727 0.02222222 -
0.02173913 0.0212766 -0.02083333 0.02040816 -0.02 0.01960784 -0.01923077
0.01886792 -0.01851852 0.01818182 -0.01785714 0.01754386 -0.01724138
0.01694915 -0.01666667 0.01639344 -0.01612903 0.01587302 -0.015625
0.01538462 -0.01515152 0.01492537 -0.01470588 0.01449275 -0.01428571
0.01408451 -0.01388889 0.01369863 -0.01351351 0.01333333 -0.01315789
0.01298701 -0.01282051 0.01265823 -0.0125 0.01234568 -0.01219512 0.01204819 -
```

0.01190476 0.01176471 -0.01162791 0.01149425 -0.01136364 0.01123596 -0.01111111 0.01098901 -0.01086957 0.01075269 -0.0106383 0.01052632 -0.01041667 0.01030928 -0.01020408 0.01010101 -0.01

```
> #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
```