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(a)

#2020/10/23  回家作業
>
> #ex1.17(a)
> z <- rev(seq(1, 5, 1))
> rep(LETTERS[1:5], z)
 [1] "A" "A" "A" "A" "A" "B" "B" "B" "B" "C" "C"
[12] "C" "D" "D" "E"
>
> #ex1.17(b)
>
>
> #ex1.17(c)
> x <- 1:100
> fractions((1/x))
  [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
>
> #ex1.17(d)
> paste(month.abb, sep="")
 [1] "Jan" "Feb" "Mar" "Apr" "May" "Jun" "Jul"
 [8] "Aug" "Sep" "Oct" "Nov" "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[c(2, 4, 6, 8, 10, 12, 14)]
[1] 94   8 72   8 33 60 52
> mean(math.score[c(2, 4, 6, 8, 10, 12, 14)])
[1] 46.71429
>
> #ex1.23(d)
> x <- 1:length(math.score)
> x[math.score >= 60]
[1]   2   6   7 11 12 13
> y <- x[math.score >= 60]
> length(y)
[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")
> sat.f <- factor(sat)
> sat.f1 <- ordered(sat.f, levels = c("非常不滿意", "普通", "滿意", "非常滿意"))
> sat.f1
```

[1] 滿意　　　　非常滿意　　非常不滿意　非常滿意
  [5] 普通　　　　非常不滿意　普通　　　　滿意
  [9] 普通　　　　非常滿意
4 Levels: 非常不滿意 ＜ 普通 ＜ … ＜ 非常滿意
>
> #ex1.37(b)
> x <- sat.f1[which(sat.f1 >= "滿意")]
> length(x)
[1] 5
>
> #ex1.37(c)
>
>
> #課堂練習加分題
> #(1)
> rep(1:5, 1:5)
  [1] 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5
>
> #(2)
> rev(rep(1:5, 5:1))
  [1] 5 4 4 3 3 3 2 2 2 2 1 1 1 1 1
>
> #(3)
> rep(c(1, 2, 3), 3)
[1] 1 2 3 1 2 3 1 2 3
>