

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>

> #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)

> letters[c(seq(2,26,2),seq(1,26,2))]

[1] "b" "d" "f" "h" "j" "l" "n" "p" "r" "t" "v"

[12] "x" "z" "a" "c" "e" "g" "i" "k" "m" "o" "q"

[23] "s" "u" "w" "y"

>

> #ex1.17(c)

> y <- rep(c(1,-1), 50)

> x <- 1:100

> require(MASS)

Loading required package: MASS

> fractions((y/x))

[1] 1 -1/2 1/3 -1/4 1/5 -1/6

[7] 1/7 -1/8 1/9 -1/10 1/11 -1/12

[13] 1/13 -1/14 1/15 -1/16 1/17 -1/18

[19] 1/19 -1/20 1/21 -1/22 1/23 -1/24

[25] 1/25 -1/26 1/27 -1/28 1/29 -1/30

[31] 1/31 -1/32 1/33 -1/34 1/35 -1/36

[37] 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

[49] 1/49 -1/50 1/51 -1/52 1/53 -1/54

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[55] 1/55 -1/56 1/57 -1/58 1/59 -1/60
[61] 1/61 -1/62 1/63 -1/64 1/65 -1/66
[67] 1/67 -1/68 1/69 -1/70 1/71 -1/72
[73] 1/73 -1/74 1/75 -1/76 1/77 -1/78
[79] 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
[91] 1/91 -1/92 1/93 -1/94 1/95 -1/96
[97] 1/97 -1/98 1/99 -1/100
>
> #ex1.17(d)
> month.abb[c(seq(1,12,2),seq(2,12,2))]
[1] "Jan" "Mar" "May" "Jul" "Sep" "Nov" "Feb"
[8] "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[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")

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> 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)
> u <- index[age >= 40 & gender == "男"]
> mean(u, na.rm = T)
[1] 33.66667
>
> #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
>

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