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> #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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> # ex1.7(a)
> rep(LETTERS[1:5], seq(5, 1, -1))
 [1] "A" "A" "A" "A" "A" "B" "B" "B" "B" "C" "C" "C" "D" "D" "E"
> # ex1.7(b)
> c(letters[seq(2, 26, 2)], letters[seq(1, 25, 2)])
 [1] "b" "d" "f" "h" "j" "l" "n" "p" "r" "t" "v" "x" "z" "a" "c" "e" "g" "i" "k"
[20] "m" "o" "q" "s" "u" "w" "y"
> # ex1.7(c)
> b <- rep(c(1,-1),50)
> c <- 1:100
> require(mass)
Loading required package: mass
Warning message:
In library(package, lib.loc = lib.loc, character.only = TRUE, logical.return = TRUE,    :
  there is no package called 'mass'
> fractions(b/c)
 [1]     1   -1/2    1/3   -1/4    1/5   -1/6    1/7   -1/8    1/9  -1/10   1/11
[12]  -1/12   1/13  -1/14   1/15  -1/16   1/17  -1/18   1/19  -1/20  1/21  -1/22
[23]   1/23  -1/24   1/25  -1/26   1/27  -1/28   1/29  -1/30   1/31 -1/32   1/33
[34]  -1/34   1/35  -1/36   1/37  -1/38   1/39  -1/40   1/41  -1/42  1/43  -1/44
[45]   1/45  -1/46   1/47  -1/48   1/49  -1/50   1/51  -1/52   1/53 -1/54   1/55
[56]  -1/56   1/57  -1/58   1/59  -1/60   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   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   1/85  -1/86  1/87  -1/88
[89]   1/89  -1/90   1/91  -1/92   1/93  -1/94   1/95  -1/96   1/97 -
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1/98    1/99
[100] -1/100
> # ex1.7(d)
> c(month.abb[1:12][seq(1, 12, 2)], month.abb[2:12][seq(1, 11, 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[1:15][seq(2, 15, 2)])
[1] 94   8 72   8 33 60 52
> mean((math.score[1:15][seq(2, 15, 2)]))
[1] 46.71429
>
> # ex1.23(d)
> id <- 1:length(math.score)
> cat(pass.id <- id[math.score >= 60])
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")
>
> sat.ordered <- factor(sat, levels = c("非常不滿意", "普通", "滿意", "非常滿意"), ordered = TRUE)
> sat.ordered
 [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.id <- (1:length(sat.ordered))[sat.ordered >="滿意"]

> length(sat.id)

[1] 5

>

> # ex1.37(c)

> i <- index[age >= 40 & gender == "男"]

> mean(i, na.rm = TRUE)

[1] 33.66667