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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], 5:1)
 [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)
> 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   -
1/98    1/99
[100] -1/100
> # ex1.7(d)
> c(month.abb[seq(1,11,2)], month.abb[seq(2,12,2)])
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  [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
> mean(math.score[seq(2,15,2)])
[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")
> sat.ordered <- factor(sat, levels = c("非常不滿意","普通","滿意","非常滿意" ),
ordered=T)
> 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
> # ex.1.37(c)
> a <- index[age > 40 & gender == "男"]
> mean(a, na.rm = T)
[1] 33.66667
>
```