

#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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> #1.7(a)

> x <- LETTERS[1:5]

> rep(x,5:1)

```
[1] "A" "A" "A" "A" "A" "B" "B" "B" "B" "B" "C" "C" "C" "D" "D" "E"
```

> #1.7(b)

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

```
[1] "b" "d" "f" "h" "j" "l" "n" "p" "r" "t" "v" "x" "z" "a" "c" "e" "g" "i" "k" "m"
```

```
[21] "o" "q" "s" "u" "w" "y"
```

> #1.7(c)

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

> r <- 1:100

> require

```
function (package, lib.loc = NULL, quietly = FALSE, warn.conflicts,
         character.only = FALSE, mask.ok, exclude, include.only, attach.required =
missing(include.only))
{
  if (!character.only)
    package <- as.character(substitute(package))
  loaded <- paste0("package:", package) %in% search()
  if (!loaded) {
    if (!quietly)
      packageStartupMessage(gettextf("Loading required package: %s",
                                     package), domain = NA)
    value <- tryCatch(library(package, lib.loc = lib.loc,
                             character.only = TRUE, logical.return = TRUE, warn.conflicts =
warn.conflicts,
                             quietly = quietly, mask.ok = mask.ok, exclude = exclude,
                             include.only = include.only, attach.required = attach.required),
                      error = function(e) e)
    if (inherits(value, "error")) {
      if (!quietly) {
        msg <- conditionMessage(value)
        cat("Failed with error:  ", sQuote(msg),
            "\n", file = stderr(), sep = "")
        .Internal(printDeferredWarnings())
      }
    }
  }
}
```

```

        return(invisible(FALSE))
    }
    if (!value)
        return(invisible(FALSE))
    }
    else value <- TRUE
    invisible(value)
}
<bytecode: 0x0000018850f8a388>
<environment: namespace:base>
> require(MASS)
> fractions(y/r)
  [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
> #1.7(d)
> month.abb[c(seq(1,12,2),seq(2,12,2))]
 [1] "Jan" "Mar" "May" "Jul" "Sep" "Nov" "Feb" "Apr" "Jun" "Aug" "Oct" "Dec"
> #1.23(a)
> math.score <- c(43,94,20,8,46,72,93,8,28,33,79,60,93,52,8)
> #1.23(b)
> length(math.score)

```

```

[1] 15
> #1.23(c)
> w <- math.score[seq(2,15,2)]
> mean(w)
[1] 46.71429
> #1.23(d)
> names(math.score)=seq(1, length(math.score))
> names(math.score[math.score >= 60])
[1] "2" "6" "7" "11" "12" "13"
> length(math.score[math.score >= 60])
[1] 6
> #1.37(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 <- factor(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 <- factor(sat, levels = c("非常滿意", "滿意", "普通", "非常不滿意"))
> #1.37(b)
> sat2 <- ordered(sat, levels = rev(levels(sat)))
> sat[sat2 >= "滿意"]
[1] 滿意 非常滿意 非常滿意 滿意 非常滿意
Levels: 非常滿意 滿意 普通 非常不滿意
> length(sat[sat2 >= "滿意"])
[1] 5
> #1.37(c)
> t <- index[age >= 40 & gender == "男"]
> mean(t, na.rm = T)
[1] 33.66667
> #加分作業(1)
> a <- 1:5
> rep(a,1:5)
[1] 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5
> #加分作業(2)
> b <- 5:1
> rep(b,1:5)
[1] 5 4 4 3 3 3 2 2 2 2 1 1 1 1 1

```

```

> #加分作業(3)
> rep(1:3,3)
[1] 1 2 3 1 2 3 1 2 3
> #加分作業(4)
> length=readline('請輸入長度值：')
請輸入長度值：10
> d <- c()
> for(i in 1:length)
+ {if(i == 1)
+   d[i] <- 0
+ else if(i == 2)
+   d[i] <- 1
+ else
+   d[i] <- c(d[i - 2] + d[i - 1])
+ }
> cat(d)
0 1 1 2 3 5 8 13 21 34
> #加分作業(5)
> f <- c(1:5)
> for(i in 1:5){
+   cat(f[i:5], "")
+ }
1 2 3 4 5 2 3 4 5 3 4 5 4 5 5
> #加分作業(6)
> length=readline('請輸入長度值：')
請輸入長度值：10
> h <- c()
> count <-5
> for(i in 1:length){
+   if(i == 1)
+     h[i] <- 1
+   else
+     {h[i] <- h[i-1] + count
+     count <- count + 2}
+ }
> cat(h)
1 6 13 22 33 46 61 78 97 118
> #加分作業(7)

```

```
> length= readline('請輸入長度值：')
請輸入長度值：15
> g <- c()
> for(i in 1:length){
+   if(i == 1)
+     g[i] <- i
+   else if(i == 2)
+     g[i] <- i
+   else if(i %% 2 == 0)
+     g[i] <- g[i - 2] * 2
+   else
+     g[i] <- g[i - 2] * 3
+ }
> cat(g)
1 2 3 4 9 8 27 16 81 32 243 64 729 128 2187
```