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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)
> #學號: A107260012     姓名: 江鴻麟
> #ex1.7(a)
> a1 <- LETTERS[1:5]
> rep(a1,5:1)
 [1] "A" "A" "A" "A" "A" "B" "B" "B" "B" "C" "C" "C" "D" "D"
[15] "E"
> #ex1.7(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"
[15] "c" "e" "g" "i" "k" "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
  [9]  1/9 -1/10  1/11 -1/12  1/13 -1/14  1/15 -1/16
 [17] 1/17 -1/18  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  1/31 -1/32
 [33] 1/33 -1/34  1/35 -1/36  1/37 -1/38  1/39 -1/40
 [41] 1/41 -1/42  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  1/55 -1/56
 [57] 1/57 -1/58  1/59 -1/60  1/61 -1/62  1/63 -1/64
 [65] 1/65 -1/66  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  1/79 -1/80
 [81] 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
 [97] 1/97 -1/98  1/99 -1/100
> #ex.1.7(d)
> month.abb[c(seq(1,12,2),seq(2,12,2))]
 [1] "Jan" "Mar" "May" "Jul" "Sep" "Nov" "Feb" "Apr" "Jun"
[10] "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)
> d <- math.score[seq(2,15,2)]
> mean(d)
[1] 46.71429
> #ex1.23(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
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> #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 <- 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"))
> #ex1.37(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
> #ex1.37(c)
> i <- index[age >= 40 & gender == "男"]
> mean(i, na.rm = T)
[1] 33.66667
> #加分作業(1)
> e <- 1:5
> rep(e,1:5)
 [1] 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5
> #加分作業(2)
> f <- 5:1
> rep(f,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：30
> g <- c()
> for(i in  1 : length)
+ {if(i == 1)g[i] <- 0
+ else if(i == 2) g[i] <- 1
+ else g[i] <- c(g[i - 2] + g[i - 1])}
> cat(g)
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711
28657 46368 75025 121393 196418 317811 514229
> #加分作業(5)
> h <- c(1 : 5)
> for(i in 1:5){cat(h[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：30
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```
> j <- c()
> count <-5
> for(i in 1 : length){
+ if(i == 1)
+ j[i] <- 1
+ else{j[i] <- j[i-1] + count
+ count <- count + 2}}
> cat(j)
1 6 13 22 33 46 61 78 97 118 141 166 193 222 253 286 321 358 397 438 481 526 573 622
673 726 781 838 897 958
> #加分作業(7)
> length=readline('請輸入長度值：')
請輸入長度值：30
> k <- c()
> for(i in  1: length){
+ if(i ==  1)
+ k[i] <- i
+ else if(i == 2)
+ k[i] <- i
+ else if(i %% 2 == 0)
+ k[i] <- k[i - 2] * 2
+ else
+ k[i] <- k[i - 2] * 3}
> cat(k)
1 2 3 4 9 8 27 16 81 32 243 64 729 128 2187 256 6561 512 19683 1024 59049 2048
177147 4096 531441 8192 1594323 16384 4782969 32768
>
>
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