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1 # 114-1 程式設計與統計軟體
2 # HW1: 2025/10/30: 2.48, 2.49, 2.67
3
4
5 # ex2.48
6 ComputeWeight <- function() {
7   cat("世界衛生組織計算標準體重\n")
8   cat("請輸入性別 (1) 男生, (2) 女生: ")
9   gender <- scan(nmax = 1, quiet = TRUE)
10  cat("請輸入身高: ")
11  height <- scan(nmax = 1, quiet = TRUE)
12  if (gender == 1) {
13    ideal.weight <- (height - 80) * 0.7
14  } else{
15    ideal.weight <- (height - 70) * 0.6
16  }
17  cat("您的標準體重為: ", ideal.weight, "(公斤)\n")
18
19 }
20
21 ComputeWeight()
22
23
24
25 # ex2.49a)
26 Products <- list(
27   印刷品類 = c("書", "雜誌", "報紙"),
28   食物類 = c("蔬菜", "肉品", "飲料"),
29   衣服類 = c("T恤", "牛仔褲", "上衣")
30 )
31 VAT <- c(0.08, 0.10, 0.20)
32
33 buy <- list(item = c("書", "肉品", "上衣", "牛仔褲", "飲料"),
34             price = c(50, 200, 299, 1200, 20))
35
36 item_at <- integer(length(buy$item))
37 for (i in 1:length(Products)) {
38   # i <- 1
39   item_at[buy$item %in% Products[[i]]] <- i
40 }
41
42 names(Products)
43 sale_VAT <- data.frame(
44   品項 = buy$item,
45   價格 = buy$price,
46   類別 = names(Products)[item_at],
47   VAT = VAT[item_at]
48 )
49 sale_VAT
50
51
52 # ex2.49(b)
53 sum(sale_VAT$價格 * sale_VAT$VAT)
54
55
56
57 # ex2.67(a)
58 rock_paper_scissors <- c("剪刀", "石頭", "布")
59 computer <- sample(rock_paper_scissors, 1)
60 computer
61
62 # ex2.67(b)
63 cat("請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):")
64 myin <- scan(what = "character", nmax = 1, quiet = T)
65 player <- switch(myin,
66                 a = "剪刀",
67                 b = "石頭",

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```
68         c = "布",
69         d = "不玩了")
70 cat("玩家出:", player)
71
72 # ex2.67(c)
73 game <- function() {
74   cat("### 剪刀石頭布遊戲開始 ###\n")
75   repeat {
76     rock_paper_scissors <- c("剪刀", "石頭", "布")
77     computer <- sample(rock_paper_scissors, 1)
78
79     cat("請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):")
80     myin <- scan(what = "character",
81                 nmax = 1,
82                 quiet = T)
83     player <- switch(
84       myin,
85       a = "剪刀",
86       b = "石頭",
87       c = "布",
88       d = "不玩了"
89     )
90
91     is.win <- "輸"
92     if ((computer == "剪刀" & player == "石頭") |
93         (computer == "石頭" & player == "布") |
94         (computer == "布" & player == "剪刀")) {
95       is.win <- "贏"
96     } else if ((computer == "剪刀" & player == "剪刀") |
97                (computer == "石頭" & player == "石頭") |
98                (computer == "布" & player == "布")) {
99       is.win <- "平手"
100    }
101
102    if (player == "不玩了") {
103      cat("謝謝再會!")
104      break
105    } else{
106      cat("電腦出[",
107          computer,
108          "], 你出[",
109          player,
110          "], 你[",
111          is.win,
112          "]了!\n\n")
113    }
114  }
115 }
116
117 set.seed(12345)
118 game()
119
```