

```

1 # 114-1 程式設計與統計軟體
2 # HW2: 2025/11/06
3
4
5 # ex2.70
6 play <- function(id, name, seed) {
7
8   # seed <- 123456
9   # id <- 410971234
10  # name <- "小魯哥"
11  set.seed(seed)
12  computer <- sample(1:9, 4)
13  #cat(" computer:", computer)
14
15  cat("學號:", id, "; 姓名:", name, "\n")
16  cat("幾A幾B猜數字遊戲:\n")
17  cat("=====\n")
18
19  guess_count <- 0
20
21  while(TRUE) {
22
23    guess_count <- guess_count + 1
24    cat("請輸入4位數字猜測 (1-9)且不重複: ")
25    input <- scan(nmax = 1, quiet = TRUE)
26    # 假設輸入格式正確: 4位1-9的數字且不重覆
27
28    # 方法1: 轉為字串後分割
29    #guess <- as.numeric(strsplit(as.character(input), "")[[1]])
30
31    # 方法2: 轉為字串後分割
32    guess <- numeric(4)
33    guess[1] <- input %% 1000
34    guess[2] <- (input %% 100) %% 10
35    guess[3] <- (input %% 10) %% 10
36    guess[4] <- input %% 10
37
38    A_count <- 0
39    B_count <- 0
40
41    for (i in 1:4) {
42      if (guess[i] == computer[i]) {
43        A_count <- A_count + 1
44      } else if (guess[i] %in% computer) {
45        B_count <- B_count + 1
46      }
47    }
48
49    if (A_count == 0 && B_count == 0) {
50      cat("第", guess_count, "次猜測:", input, "\n")
51    } else if (A_count == 4) {
52      cat("第", guess_count, "次猜測:", input, "=> 4A (遊戲結束)\n")
53      cat("=====\n")
54      break
55    } else {
56      cat("第", guess_count, "次猜測:", input, "=> ", A_count, "A", B_count, "B \n")
57    }
58  }
59
60 }
61
62 play(410971234, "小魯哥", 123456)
63
64
65
66 # ex3.27 (用ggplot2畫)
67 library(ggplot2)

```

```
68 plot_var <- c("mpg", "disp", "hp", "drat", "wt", "qsec")
69 mtcars$cyl <- factor(mtcars$cyl)
70
71 index_plot <- function(x){
72   ggplot(mtcars, aes(x = 1:nrow(mtcars), y = c(mtcars[plot_var[x]])[[1]],
73     color = cyl)) +
74     geom_point() +
75     labs(x = "index", y = plot_var[x])
76 }
77 index_list <- lapply(1:6, index_plot)
78 library(grid)
79 library(gridExtra)
80 marrangeGrob(index_list, nrow = 2, ncol = 3, top = "")
81
82
83
84 # ex3.28 (用ggplot2畫)
85 mtcars_tidy <- stack(mtcars[c("mpg", "disp", "hp", "drat", "wt", "qsec")])
86 ggplot(mtcars_tidy, aes(x = ind, y = values, fill = ind)) +
87   geom_boxplot() +
88   labs(title = "mtcars side-by-side boxplot",
89     x = "", y = "values", fill = "變數")
90
91
92
```