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1 # 114-1 程式設計與統計軟體
2 # HW4: 2025/11/20: 4.7、4.8
3
4
5 # ex4.7(a)
6 # 設定中文顯示
7 Sys.setlocale(category = "LC_ALL", locale = "cht")
8 lct <- Sys.getlocale("LC_TIME")
9 Sys.setlocale("LC_TIME", "C")
10
11 stockdata <- read.table("data/stock-data.txt", skip = 1, header = T, encoding = "big5")
12 library(xtable)
13 xtable(head(stockdata, 5))
14 xtable(tail(stockdata, 5))
15
16 summary(stockdata)
17 str(stockdata)
18
19 # ex4.7(b)
20 for (at in 7:9) {
21   stockdata[, at] <- as.numeric(gsub(",", "", stockdata[, at]))
22 }
23 xtable(head(stockdata, 5))
24 str(stockdata)
25
26
27 # ex4.7(c)
28 library(ggplot2)
29 at <- stockdata$半導體公司 %in% c("台積電", "聯發科", "聯電")
30 ggplot(stockdata[at, ], aes(x = 月份, y = 加權平均價, colour = 半導體公司)) +
31   geom_point(aes(size = 週轉率百分比)) +
32   geom_line(aes(lty = 半導體公司)) +
33   scale_x_continuous(breaks = 1:12, labels = month.abb) +
34   ylim(0, 500) +
35   labs(title = "民國100年三家半導體公司股票月成交資訊(元,股)")
36
37
38
39 # ex4.8(a)
40 covid19.date <- seq(as.Date("2021/05/14"), as.Date("2021/05/24"), by = "day")
41 no.date <- length(covid19.date)
42 no.cases.confirmed <- c(29, 180, 257, 441, 355, 391, 375, 363, 353, 287, 334)
43 no.cases.corrected <- c(30, 185, 269, 476, 382, 431, 405, 385, 380, 344, NA)
44 no.cases.adjusted <- no.cases.corrected - no.cases.confirmed
45
46 sum(no.cases.corrected - no.cases.confirmed, na.rm = T)
47
48 mygroup <- factor(rep(c("病歷數", "校正回歸數"), each = no.date), levels = c("校正回歸數",
49 "病歷數"))
50 covid19.data.tidy <- data.frame(研判日 = as.character(covid19.date),
51                               mygroup,
52                               病歷數 = as.integer(c(no.cases.confirmed,
53 no.cases.adjusted)))
54 covid19.data.tidy
55 str(covid19.data.tidy)
56
57
58 # ex4.8(b)
59 library(ggplot2)
60 library(scales)
61 sp <- ggplot(covid19.data.tidy, aes(x = as.Date(研判日), y = 病歷數, fill = mygroup)) +
62   geom_bar(stat = "identity") +
63   theme(legend.position = "top") +
64   scale_fill_manual(
65     labels = c("校正回歸數 (n=256)", "病歷數"),
66     values = c("darkorange", "steelblue")) +
67   ylim(0, 500) +

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66 scale_x_date(labels = date_format("%m/%d")) +
67 labs(title = "5/1-5/23 COVID-19 本土確定病例校正回歸情形",
68       x = "研判日",
69       y = "病歷數",
70       fill = "")
71 sp
72
73
74 # ex4.8(c)
75 library(ggthemes)
76 library(gridExtra)
77 sp + theme_economist() + labs(title = "economist")
78 sp + theme_stata() + labs(title = "stata")
79 sp + theme_wsj() + labs(title = "wsj")
80 options(warn = -1)
81
82
83
```