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1 # 114-1 程式設計與統計軟體
2 # HW5: 2025/11/27: 4.10
3
4
5 # ex4.10(a)
6 Dengue.fever <- read.csv("data/Age_County_Gender_061.csv")
7 head(Dengue.fever, 5)
8 tail(Dengue.fever, 5)
9
10
11 # ex4.10(b)
12 str(Dengue.fever)
13 summary(Dengue.fever)
14
15
16 # ex4.10(c)
17 library(ggplot2)
18 ggplot(Dengue.fever, aes(x = 發病年份, y = 確定病例數, group = 發病年份)) +
19   geom_boxplot() +
20   labs(title = "(a)各發病年份確定病例數之盒形圖")
21
22 ggplot(Dengue.fever, aes(x = 發病年份, y = log10(確定病例數),
23   group = 發病年份)) +
24   geom_boxplot() +
25   labs(title = "(b)各發病年份確定病例數(log10)之盒形圖")
26
27
28 # ex4.10(d)
29 ggplot(Dengue.fever, aes(x = 縣市, y = 確定病例數)) +
30   geom_dotplot(binaxis = "y", dotsize = 0.2) +
31   coord_flip() +
32   labs(title = "各縣市確定病例數之點圖")
33
34
35 # ex4.10(e)
36 Dengue.fever$發病年組別 <- ifelse(Dengue.fever$發病年份 <= 2012,
37   "2003-2012", "2013-2021")
38 ggplot(Dengue.fever, aes(x = 確定病例數, fill = 性別)) +
39   geom_histogram() +
40   facet_grid(發病年組別 ~ 性別) +
41   labs(title = "各發病年組別及性別之確定病例數直方圖")
42
43
44 # ex4.10(f)
45 各鄉鎮總確定病例數 <- tapply(Dengue.fever$確定病例數,
46   as.factor(Dengue.fever$鄉鎮), sum)
47 Dengue.fever.county <- as.data.frame(各鄉鎮總確定病例數)
48 ggplot(Dengue.fever.county, aes(x = log10(各鄉鎮總確定病例數))) +
49   geom_histogram(aes(y = ..density..),
50   colour = "black",
51   fill = "lightblue") +
52   geom_density(alpha = 0.2, fill = "red") +
53   labs(title = "各鄉鎮總確定病例數之直方圖與其機率密度曲線")
54
55
56 # ex4.10(g)
57 每一發病月份之確定病例數平均 <- tapply(Dengue.fever$確定病例數,
58   as.factor(Dengue.fever$發病月份), mean)
59 Dengue.fever.month <- data.frame(發病月份 = factor(month.abb,
60   levels = month.abb, ordered = T),
61   每一發病月份之確定病例數平均)
62 ggplot(Dengue.fever.month, aes(x = 發病月份, y = 每一發病月份之確定病例數平均,
63   fill = 發病月份)) +
64   geom_bar(stat = "identity", position = "dodge") +
65   geom_text(aes(label = round(每一發病月份之確定病例數平均, 3)),
66   vjust = -0.3, size = 4) +
67   scale_fill_brewer(palette = "Set3")
```