R Markdown

2025-04-11

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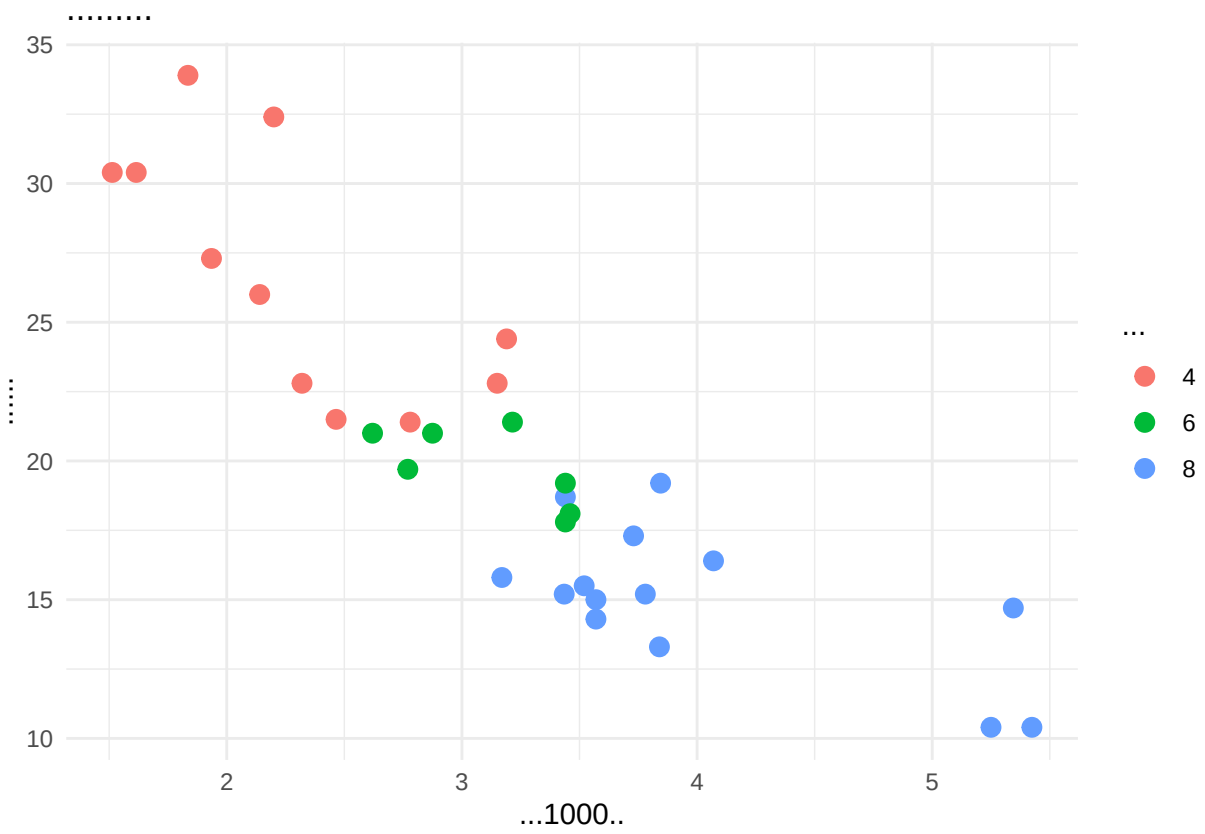
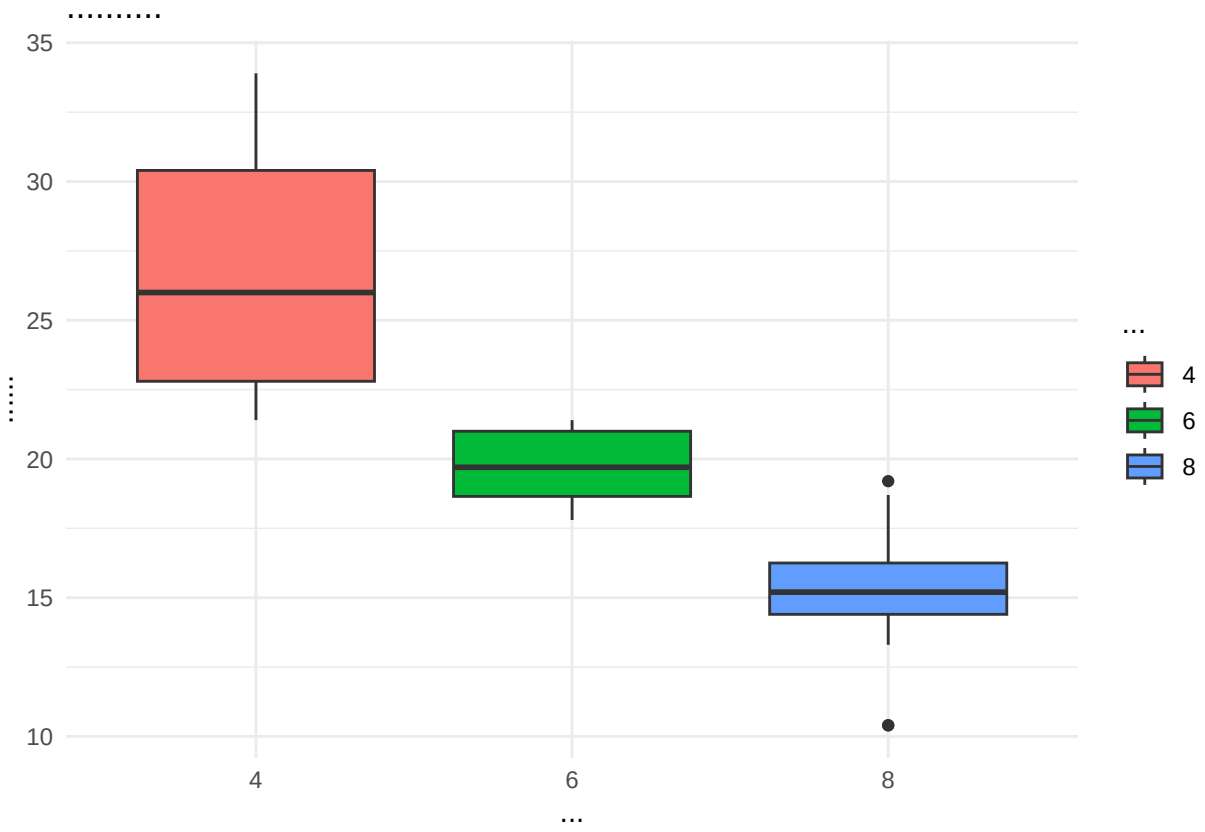
2.1

```
ggplot(mtcars, aes(x = wt, y = mpg, color = factor(cyl))) +
  geom_point(size = 3) +
  labs(title = "     ",
       x = "  1000 ",
       y = "    ",
       color = "  ") +
  theme_minimal()
```



2.2

```
ggplot(mtcars, aes(x = factor(cyl), y = mpg, fill = factor(cyl))) +
  geom_boxplot() +
  labs(title = "      ",
       x = "  ",
       y = "    ",
       fill = "  ") +
  theme_minimal()
```



3

3.1

```
knitr::kable(head(mtcars[, 1:5]),
             caption = "mtcars   6 ",
             booktabs = TRUE)
```

Table 1: mtcars 6

	mpg	cyl	disp	hp	drat
Mazda RX4	21.0	6	160	110	3.90
Mazda RX4 Wag	21.0	6	160	110	3.90
Datsun 710	22.8	4	108	93	3.85
Hornet 4 Drive	21.4	6	258	110	3.08
Hornet Sportabout	18.7	8	360	175	3.15
Valiant	18.1	6	225	105	2.76

3.2

```
summary_stats <- aggregate(mpg ~ cyl, data = mtcars,
                           FUN = function(x) c(mean = mean(x),
                                               sd = sd(x)))
knitr::kable(summary_stats,
```

```
            caption = "      ",
            booktabs = TRUE)
```

```
## Warning in `[<-.data.frame`(`*tmp*`, , isn, value = structure(list(cyl =
## structure(c("4", : provided 3 variables to replace 2 variables
```

Table 2:

cyl	mpg
4	26.663636
6	19.742857
8	15.100000

4

$x \to \infty \quad e^{-x} \to 0$

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

5

```
fibonacci <- function(n) {
  if (n <= 1) return(n)
  fib <- numeric(n+1)
  fib[1] <- 0
  fib[2] <- 1
  for (i in 3:(n+1)) {
    fib[i] <- fib[i-1] + fib[i-2]
  }
  return(fib[n+1])
}

#
sapply(0:5, fibonacci)
```

```
## [1] 0 1 1 2 3 5
```