Pertemuan 2 - Sort dan Dasar Visualisasi Data

ryankny

2024-09-11

Sorting

sort()

```r
vektor = c(26,2,20,3)
sort(vektor)
```

```
## [1]  2  3 20 26
```

```r
library(dslabs)
data(murders)
# View(murders)

sort(murders$total, decreasing = TRUE)
```

```
##  [1] 1257  805  669  517  457  413  376  364  351  321  310  293  286  250  246
## [16]  232  219  207  142  135  120  118  116  111   99   97   97   93   93   84
## [31]   67   65   63   53   38   36   32   27   22   21   19   16   12   12   11
## [46]    8    7    5    5    4    2
```

order()

```r
vektor
```

```
## [1] 26  2 20  3
```

```r
order(vektor)
```

```
## [1] 2 4 3 1
```

```r
index = order(vektor)
```

```r
ind = order(murders$total, decreasing = TRUE)
murders$total[ind]
```

```
##  [1] 1257  805  669  517  457  413  376  364  351  321  310  293  286  250  246
## [16]  232  219  207  142  135  120  118  116  111   99   97   97   93   93   84
## [31]   67   65   63   53   38   36   32   27   22   21   19   16   12   12   11
## [46]    8    7    5    5    4    2
```

murders$state[ind]

```
##  [1] "California"           "Texas"              "Florida"
##  [4] "New York"             "Pennsylvania"       "Michigan"
##  [7] "Georgia"              "Illinois"           "Louisiana"
## [10] "Missouri"             "Ohio"               "Maryland"
## [13] "North Carolina"       "Virginia"           "New Jersey"
## [16] "Arizona"              "Tennessee"          "South Carolina"
## [19] "Indiana"              "Alabama"            "Mississippi"
## [22] "Massachusetts"        "Kentucky"           "Oklahoma"
## [25] "District of Columbia" "Connecticut"        "Wisconsin"
## [28] "Arkansas"             "Washington"         "Nevada"
## [31] "New Mexico"           "Colorado"           "Kansas"
## [34] "Minnesota"            "Delaware"           "Oregon"
## [37] "Nebraska"             "West Virginia"      "Utah"
## [40] "Iowa"                 "Alaska"             "Rhode Island"
## [43] "Idaho"                "Montana"            "Maine"
## [46] "South Dakota"         "Hawaii"             "New Hampshire"
## [49] "Wyoming"              "North Dakota"       "Vermont"
```

rank()

vektor

```
## [1] 26  2 20  3
```

rank(-vektor)

```
## [1] 1 4 2 3
```

```
index = order(rank(vektor), decreasing = TRUE)
vektor[index]
```

```
## [1] 26 20  3  2
```

rank(murders$total, ties.method = "min")

```
##  [1] 32 11 36 23 51 20 25 17 27 49 45  5  8 44 33 12 19 29 43  7 40 30 46 18 31
## [26] 42  8 15 22  3 37 21 48 39  2 41 28 16 47 10 34  6 35 50 13  1 38 23 14 25
## [51]  3
```

max/min & which.max/min

```r
max(murders$total)
```

```
## [1] 1257
```

```r
which.max(murders$total)
```

```
## [1] 5
```

```r
min(murders$total)
```

```
## [1] 2
```

```r
which.min(murders$total)
```
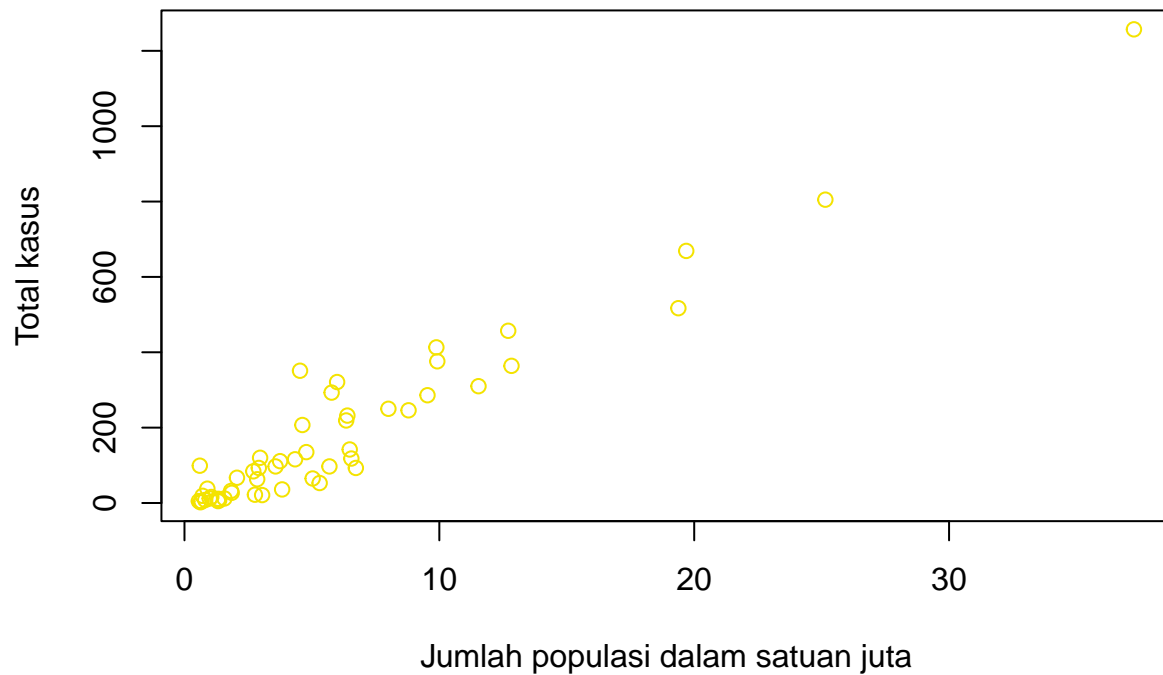
```
## [1] 46
```

Dasar Visualisasi Data

plot

```r
populasi = murders$population / 10^6
total_kasus = murders$total

plot(populasi,
     total_kasus,
     xlab = "Jumlah populasi dalam satuan juta",
     ylab = "Total kasus",
     main = "Statistik pembunuhan bersenjata di US",
     col = "#f4e300"
     )
```
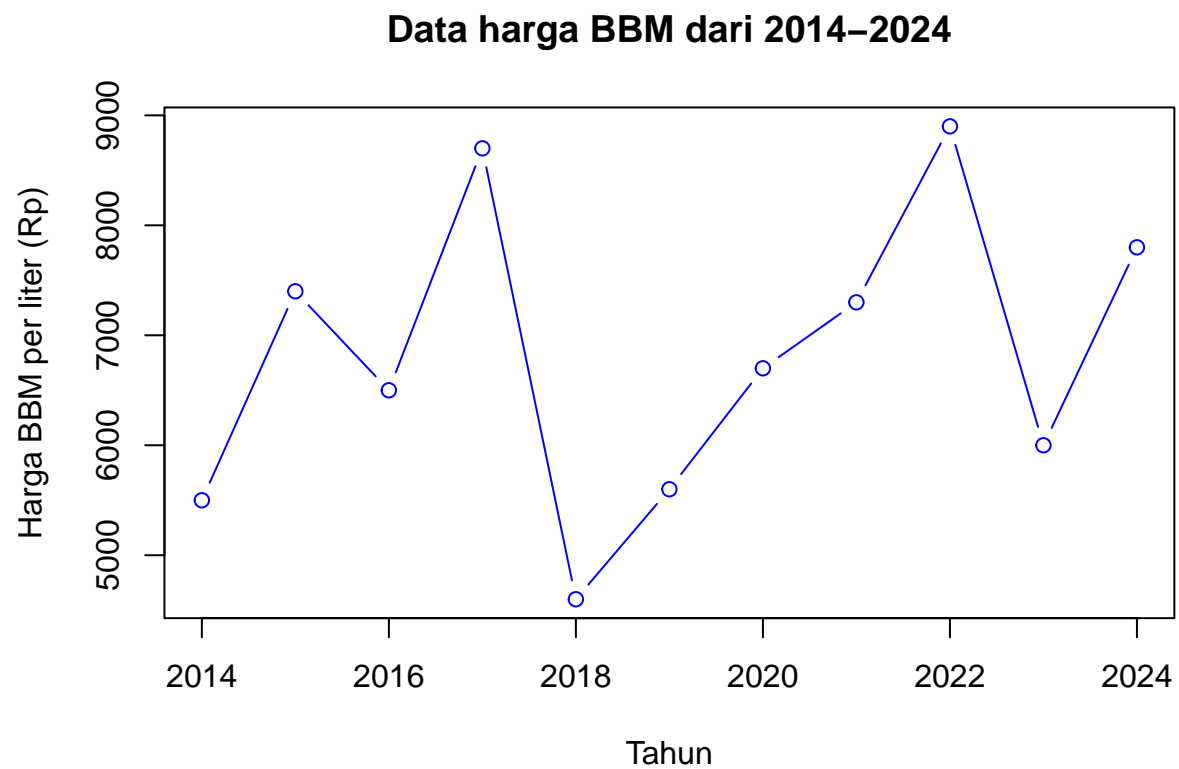
Statistik pembunuhan bersenjata di US

scatter plot

line graph

```r
data_bbm = data.frame(
  year = c(2014:2024),
  price = c(5500, 7400, 6500, 8700, 4600, 5600, 6700, 7300, 8900, 6000, 7800)
)

plot(data_bbm$year,
     data_bbm$price,
     type = "b",
     xlab = "Tahun",
     ylab = "Harga BBM per liter (Rp)",
     main = "Data harga BBM dari 2014-2024",
     col = "blue"
     )
```

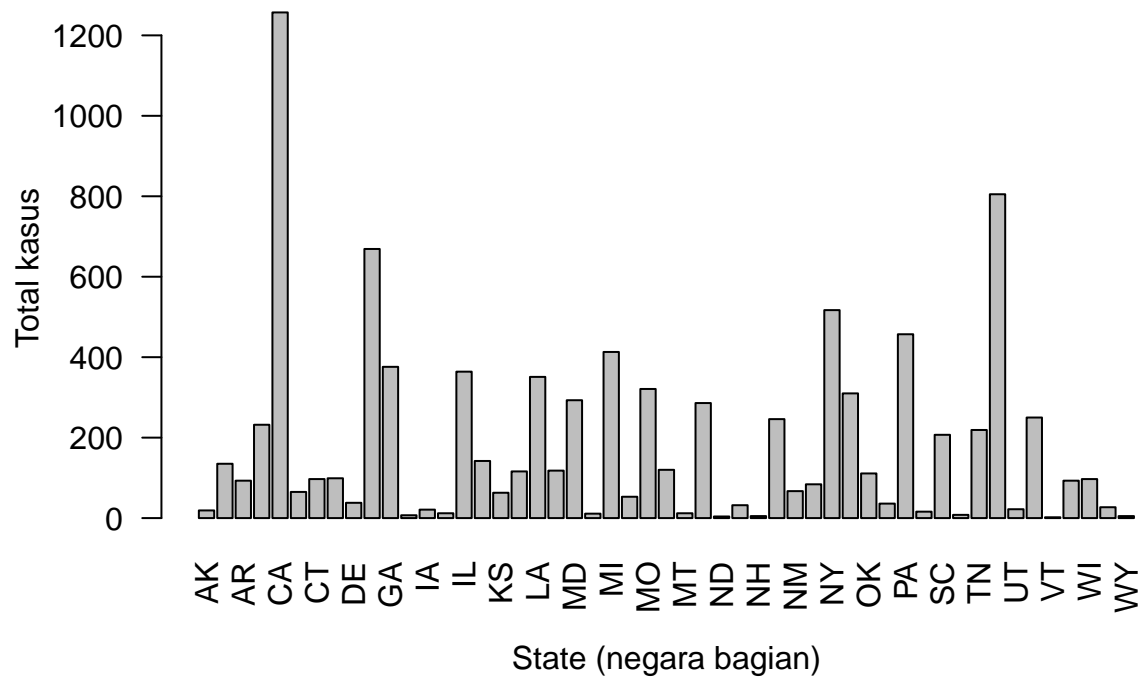# Data harga BBM dari 2014–2024

Barplot

```
barplot(
  data_bbm$price ~ data_bbm$year,
  xlab = "Tahun",
  ylab = "Harga BBM per liter (Rp)",
  main = "Data harga BBM dari 2014-2024",
  las = 2
)
```
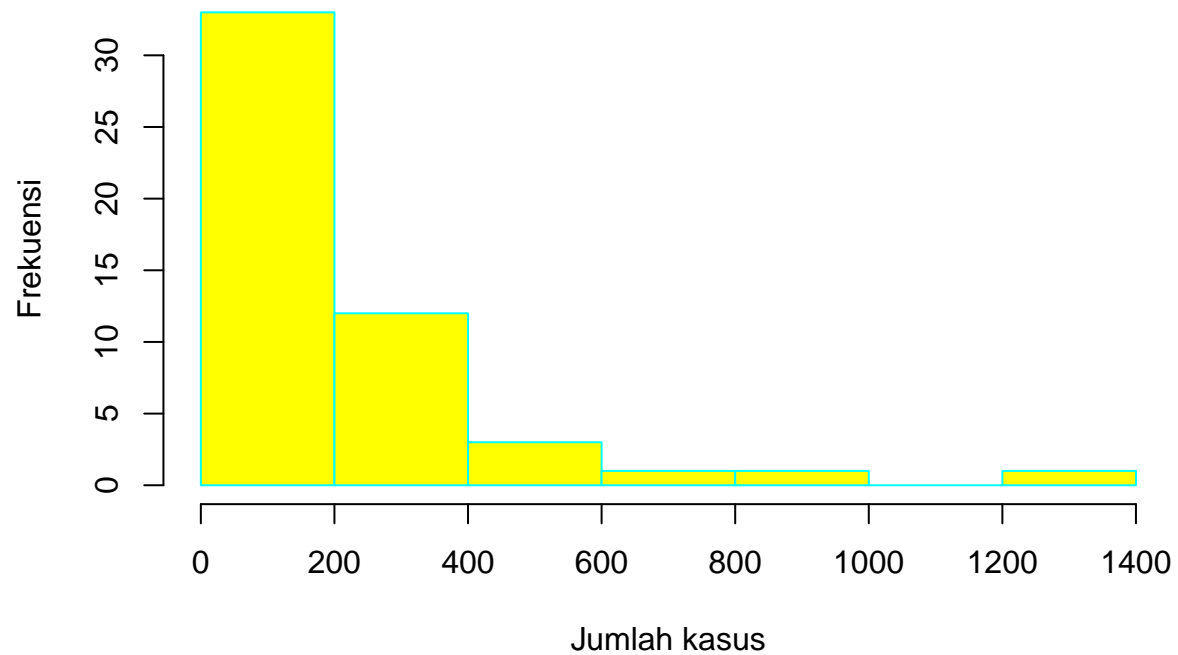
Data harga BBM dari 2014–2024
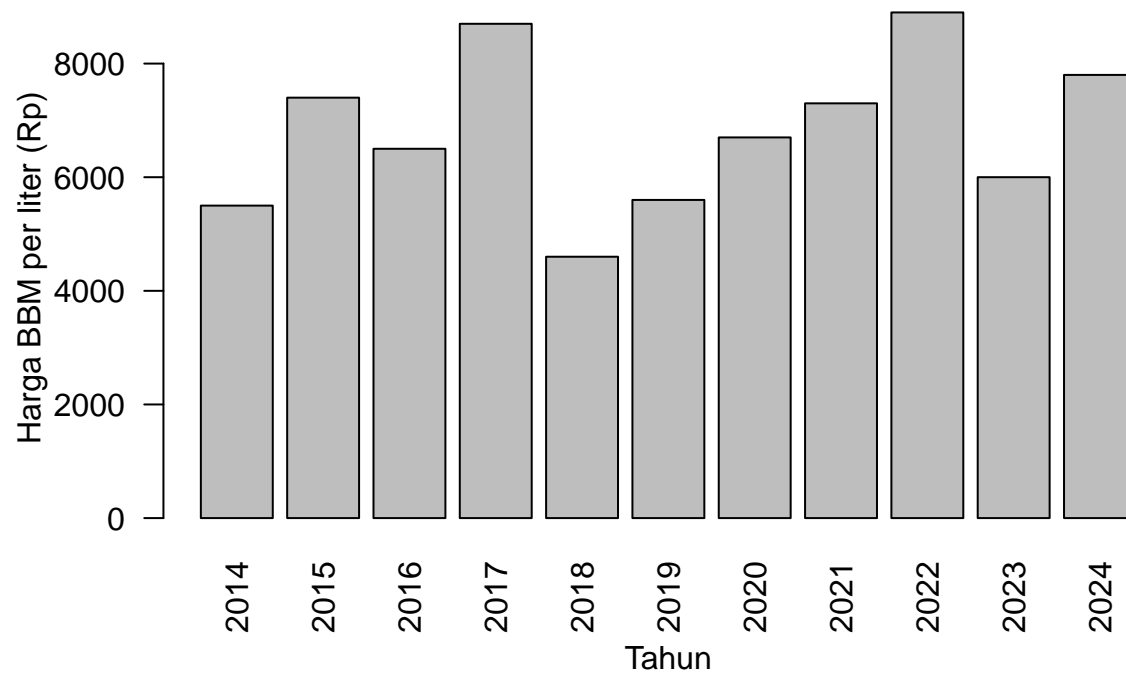

```r
barplot(
  murders$total ~ murders$abb,
  las = 2,
  xlab = "State (negara bagian)",
  ylab = "Total kasus"
)
```

histogram

```
hist(
  murders$total,
  main = "Total pembunuhan bersenjata di US",
  xlab = "Jumlah kasus",
  ylab = "Frekuensi",
  col = "yellow",
  border = "cyan"
)
```
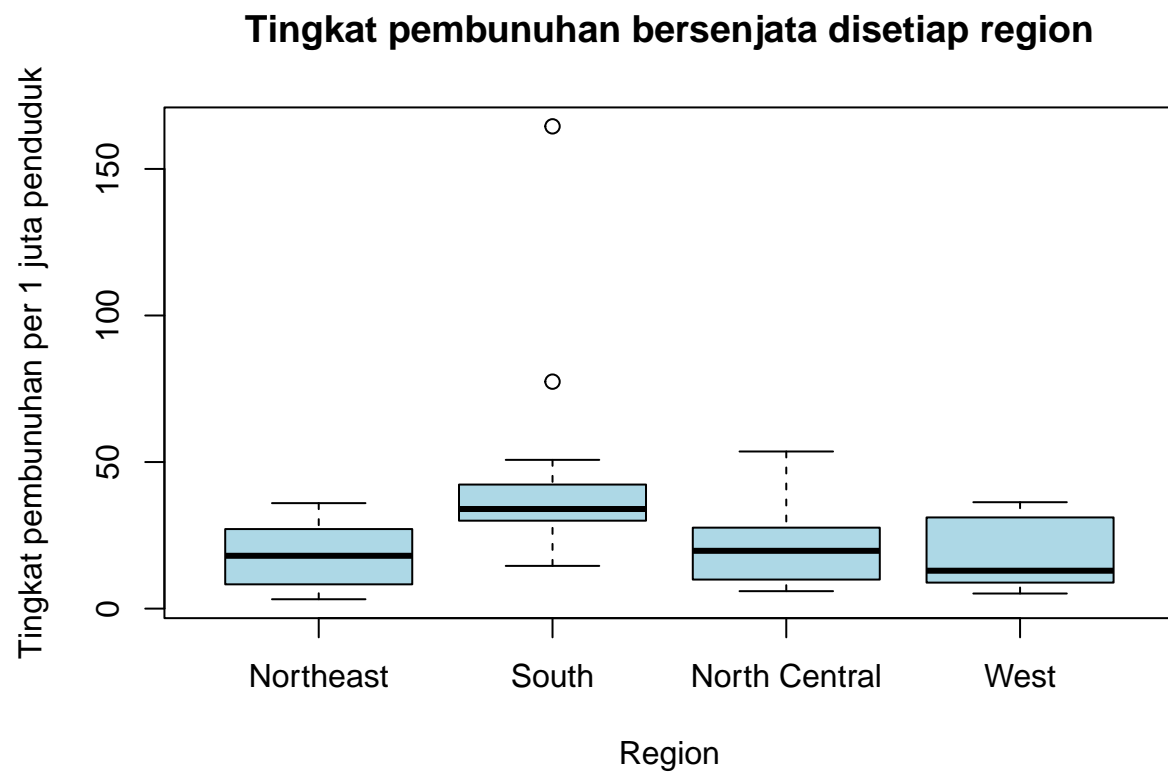
Total pembunuhan bersenjata di US

boxplot

```r
murders$rate = murders$total / murders$population * 10^6
boxplot(
  rate ~ region,
  data = murders,
  main = "Tingkat pembunuhan bersenjata disetiap region",
  xlab = "Region",
  ylab = "Tingkat pembunuhan per 1 juta penduduk",
  col = "lightblue"
)
```

Tingkat pembunuhan bersenjata disetiap region

image

```r
x = matrix(1:120, ncol = 12, nrow = 10)
image(x,
      col = hcl.colors(12, "viridis", rev = TRUE))
```