TugasLatihan3

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9/29/2021

Latihan 3 Praktikum Datasience

```
library(dslabs)
data(murders)
str(murders)
```

1. Gunakan fungsi str untuk memeriksa struktur objek "murders".

```
## 'data.frame':    51 obs. of  5 variables:
##  $ state     : chr  "Alabama" "Alaska" "Arizona" "Arkansas" ...
##  $ abb       : chr  "AL" "AK" "AZ" "AR" ...
##  $ region    : Factor w/ 4 levels "Northeast","South",..: 2 4 4 2 4 4 1 2 2 2 ...
##  $ population: num  4779736 710231 6392017 2915918 37253956 ...
##  $ total     : num  135 19 232 93 1257 ...
```

a. Terdiri dari 51 negara.

```
length(murders$state)
```

```
## [1] 51
```

b. Data berisi tingkat pembunuhan pada 50 negara bagian dan DC

```
murders$state
```

```
##  [1] "Alabama"              "Alaska"               "Arizona"
##  [4] "Arkansas"             "California"           "Colorado"
##  [7] "Connecticut"          "Delaware"             "District of Columbia"
## [10] "Florida"              "Georgia"              "Hawaii"
## [13] "Idaho"                "Illinois"             "Indiana"
## [16] "Iowa"                 "Kansas"               "Kentucky"
## [19] "Louisiana"            "Maine"                "Maryland"
## [22] "Massachusetts"        "Michigan"             "Minnesota"
## [25] "Mississippi"          "Missouri"             "Montana"
## [28] "Nebraska"             "Nevada"               "New Hampshire"
## [31] "New Jersey"           "New Mexico"           "New York"
## [34] "North Carolina"       "North Dakota"         "Ohio"
```

```
## [37] "Oklahoma"               "Oregon"                "Pennsylvania"
## [40] "Rhode Island"           "South Carolina"        "South Dakota"
## [43] "Tennessee"              "Texas"                 "Utah"
## [46] "Vermont"                "Virginia"              "Washington"
## [49] "West Virginia"          "Wisconsin"             "Wyoming"
```

    c. Data berisi Nama negara bagian, singkatan dari nama negara bagian, wilayah negara bagian, dan populasi negara bagian serta jumlah total pembunuhan pada tahun 2010.

```
murders
```

```
##                   state abb          region population total
## 1               Alabama  AL           South    4779736   135
## 2                Alaska  AK            West     710231    19
## 3               Arizona  AZ            West    6392017   232
## 4              Arkansas  AR           South    2915918    93
## 5            California  CA            West   37253956  1257
## 6              Colorado  CO            West    5029196    65
## 7           Connecticut  CT       Northeast    3574097    97
## 8              Delaware  DE           South     897934    38
## 9  District of Columbia  DC           South     601723    99
## 10              Florida  FL           South   19687653   669
## 11              Georgia  GA           South    9920000   376
## 12               Hawaii  HI            West    1360301     7
## 13                Idaho  ID            West    1567582    12
## 14             Illinois  IL North Central   12830632   364
## 15              Indiana  IN North Central    6483802   142
## 16                 Iowa  IA North Central    3046355    21
## 17               Kansas  KS North Central    2853118    63
## 18             Kentucky  KY           South    4339367   116
## 19            Louisiana  LA           South    4533372   351
## 20                Maine  ME       Northeast    1328361    11
## 21             Maryland  MD           South    5773552   293
## 22        Massachusetts  MA       Northeast    6547629   118
## 23             Michigan  MI North Central    9883640   413
## 24            Minnesota  MN North Central    5303925    53
## 25          Mississippi  MS           South    2967297   120
## 26             Missouri  MO North Central    5988927   321
## 27              Montana  MT            West     989415    12
## 28             Nebraska  NE North Central    1826341    32
## 29               Nevada  NV            West    2700551    84
## 30        New Hampshire  NH       Northeast    1316470     5
## 31           New Jersey  NJ       Northeast    8791894   246
## 32           New Mexico  NM            West    2059179    67
## 33             New York  NY       Northeast   19378102   517
## 34       North Carolina  NC           South    9535483   286
## 35         North Dakota  ND North Central     672591     4
## 36                 Ohio  OH North Central   11536504   310
## 37             Oklahoma  OK           South    3751351   111
## 38               Oregon  OR            West    3831074    36
## 39         Pennsylvania  PA       Northeast   12702379   457
## 40         Rhode Island  RI       Northeast    1052567    16
## 41       South Carolina  SC           South    4625364   207
```

```
## 42       South Dakota  SD North Central    814180    8
## 43         Tennessee  TN        South   6346105  219
## 44            Texas  TX        South  25145561  805
## 45             Utah  UT         West   2763885   22
## 46          Vermont  VT    Northeast    625741    2
## 47         Virginia  VA        South   8001024  250
## 48       Washington  WA         West   6724540   93
## 49    West Virginia  WV        South   1852994   27
## 50        Wisconsin  WI North Central   5686986   97
## 51          Wyoming  WY         West    563626    5
```

2. Sebutkan apa saja nama kolom yang digunakan pada data frame

```
names(murders)
```

```
## [1] "state"      "abb"        "region"     "population" "total"
```

3. Gunakan operator aksesor ($) untuk mengekstrak informasi singkatan negara dan menyimpannya pada objek "a". Sebutkan jenis class dari objek tersebut.

```
a = murders$abb
class(a)
```

```
## [1] "character"
```

4. Gunakan tanda kurung siku untuk mengekstrak singkatan negara dan menyimpannya pada objek "b". Tentukan apakah variabel "a" dan "b" bernilai sama?

```
b=murders[[2]]
a
```

```
##  [1] "AL" "AK" "AZ" "AR" "CA" "CO" "CT" "DE" "DC" "FL" "GA" "HI" "ID" "IL" "IN"
## [16] "IA" "KS" "KY" "LA" "ME" "MD" "MA" "MI" "MN" "MS" "MO" "MT" "NE" "NV" "NH"
## [31] "NJ" "NM" "NY" "NC" "ND" "OH" "OK" "OR" "PA" "RI" "SC" "SD" "TN" "TX" "UT"
## [46] "VT" "VA" "WA" "WV" "WI" "WY"
```

```
b
```

```
##  [1] "AL" "AK" "AZ" "AR" "CA" "CO" "CT" "DE" "DC" "FL" "GA" "HI" "ID" "IL" "IN"
## [16] "IA" "KS" "KY" "LA" "ME" "MD" "MA" "MI" "MN" "MS" "MO" "MT" "NE" "NV" "NH"
## [31] "NJ" "NM" "NY" "NC" "ND" "OH" "OK" "OR" "PA" "RI" "SC" "SD" "TN" "TX" "UT"
## [46] "VT" "VA" "WA" "WV" "WI" "WY"
```

Bernilai sama

5. Variabel region memiliki tipe data: factor. Dengan satu baris kode, gunakan fungsi level dan length untuk menentukan jumlah region yang dimiliki dataset.

```
length(levels(murders$region))
```

```
## [1] 4
```

6. Fungsi table dapat digunakan untuk ekstraksi data pada tipe vektor dan menampilkan frekuensi dari setiap elemen. Dengan menerapkan fungsi tersebut, dapat diketahui jumlah state pada tiap region. Gunakan fungsi table dalam satu baris kode untuk menampilkan tabel baru yang berisi jumlah state pada tiap region.

```
table(murders$region)
```

```
##
##     Northeast        South North Central         West
##             9           17            12           13
```