

Tugas Murders

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```
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
```