Tugas3

Ayi

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```
library(dslabs)
data("murders")
```

1.Gunakan operator aksesor ($) untuk mengakses variabel populasi dan menyimpannya padaobjek baru "pop". Kemudian gunakan fungsi sort untuk mengurutkan variabel "pop". Pada langkah terakhir, gunakan operator ([) untuk menampilkan nilai populasi terkecil.

```
pop = murders$population
sort(pop)
```

```
##  [1]     563626    601723    625741    672591    710231    814180    897934    989415
##  [9]    1052567   1316470   1328361   1360301   1567582   1826341   1852994   2059179
## [17]    2700551   2763885   2853118   2915918   2967297   3046355   3574097   3751351
## [25]    3831074   4339367   4533372   4625364   4779736   5029196   5303925   5686986
## [33]    5773552   5988927   6346105   6392017   6483802   6547629   6724540   8001024
## [41]    8791894   9535483   9883640   9920000  11536504  12702379  12830632  19378102
## [49]   19687653  25145561  37253956
```

```
sort(pop)[1]
```

```
## [1] 563626
```

2.Tampilkan indeks dari data yang memiliki nilai populasi terkecil.

```
pop2=order(pop)
pop2[1]
```

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

3. Dengan fungsi which.min, Tulis satu baris kode yang dapat menampilkan hasil yang sama dengan langkah diatas

```
which.min(pop)
```

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

4.Tampilkan nama negara yang memiliki populasi terkecil.

```
statemin=murders$state
statemin[which.min(pop)]
```

```
## [1] "Wyoming"
```

5.

```
ranks=rank(pop)
my_df = data.frame(name = murders$state, rank = ranks)
my_df
```

```
##                         name rank
## 1                    Alabama   29
## 2                     Alaska    5
## 3                    Arizona   36
## 4                   Arkansas   20
## 5                 California   51
## 6                   Colorado   30
## 7                Connecticut   23
## 8                   Delaware    7
## 9       District of Columbia    2
## 10                   Florida   49
## 11                   Georgia   44
## 12                    Hawaii   12
## 13                     Idaho   13
## 14                  Illinois   47
## 15                   Indiana   37
## 16                      Iowa   22
## 17                    Kansas   19
## 18                  Kentucky   26
## 19                 Louisiana   27
## 20                     Maine   11
## 21                  Maryland   33
## 22             Massachusetts   38
## 23                  Michigan   43
## 24                 Minnesota   31
## 25               Mississippi   21
## 26                  Missouri   34
## 27                   Montana    8
## 28                  Nebraska   14
## 29                    Nevada   17
## 30             New Hampshire   10
## 31                New Jersey   41
## 32                New Mexico   16
## 33                  New York   48
## 34            North Carolina   42
## 35              North Dakota    4
## 36                      Ohio   45
```

```
## 37              Oklahoma   24
## 38                Oregon   25
## 39          Pennsylvania   46
## 40          Rhode Island    9
## 41        South Carolina   28
## 42          South Dakota    6
## 43             Tennessee   35
## 44                 Texas   50
## 45                  Utah   18
## 46               Vermont    3
## 47              Virginia   40
## 48            Washington   39
## 49         West Virginia   15
## 50             Wisconsin   32
## 51               Wyoming    1
```

6.

```
ind = order(my_df$rank)
rank2= sort(my_df$rank)
my_df = data.frame(name = my_df$name[ind], rank = rank2)
my_df
```

```
##                      name rank
## 1                 Wyoming    1
## 2   District of Columbia    2
## 3                 Vermont    3
## 4            North Dakota    4
## 5                  Alaska    5
## 6            South Dakota    6
## 7                Delaware    7
## 8                 Montana    8
## 9            Rhode Island    9
## 10         New Hampshire   10
## 11                 Maine   11
## 12                Hawaii   12
## 13                 Idaho   13
## 14              Nebraska   14
## 15         West Virginia   15
## 16            New Mexico   16
## 17                Nevada   17
## 18                  Utah   18
## 19                Kansas   19
## 20              Arkansas   20
## 21           Mississippi   21
## 22                  Iowa   22
## 23           Connecticut   23
## 24              Oklahoma   24
## 25                Oregon   25
## 26              Kentucky   26
## 27             Louisiana   27
## 28        South Carolina   28
```

```
## 29               Alabama   29
## 30              Colorado   30
## 31             Minnesota   31
## 32             Wisconsin   32
## 33              Maryland   33
## 34              Missouri   34
## 35             Tennessee   35
## 36               Arizona   36
## 37               Indiana   37
## 38         Massachusetts   38
## 39            Washington   39
## 40              Virginia   40
## 41            New Jersey   41
## 42        North Carolina   42
## 43              Michigan   43
## 44               Georgia   44
## 45                  Ohio   45
## 46          Pennsylvania   46
## 47              Illinois   47
## 48              New York   48
## 49               Florida   49
## 50                 Texas   50
## 51            California   51
```
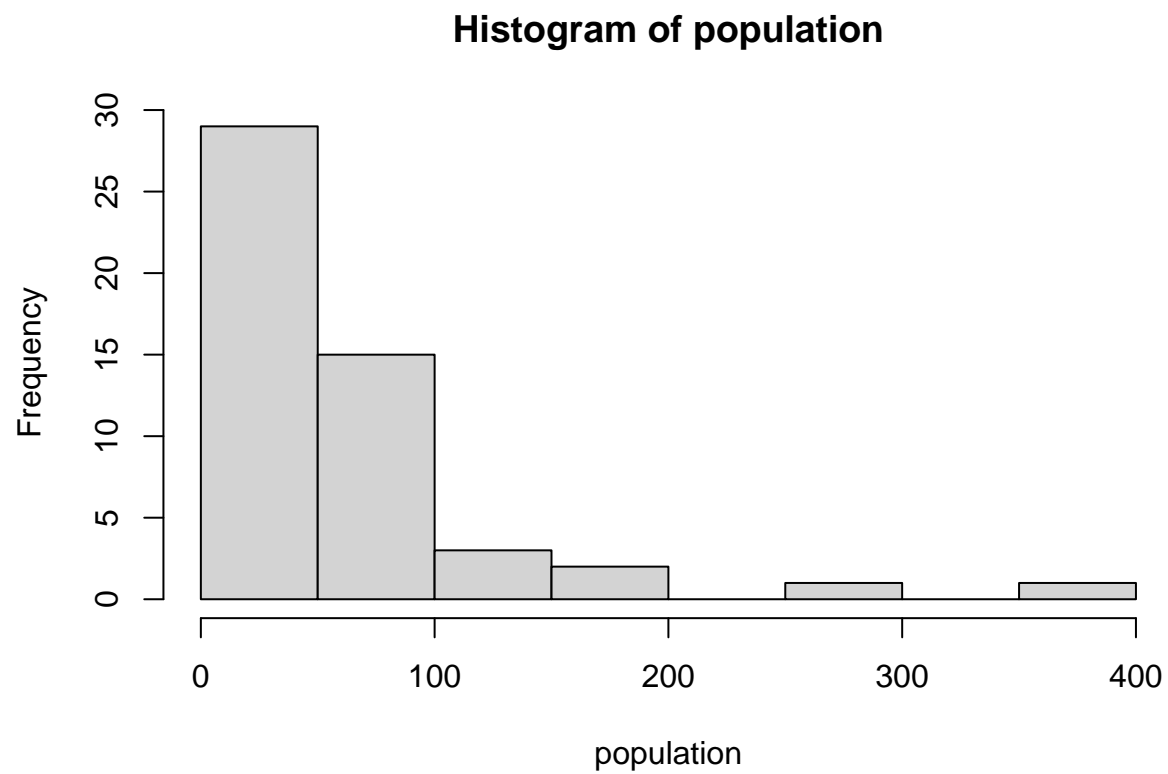
7.

```
population_in_log <- murders$population
total_gun_murders <- murders$total
plot(log10(population_in_log), log10(total_gun_murders))
```
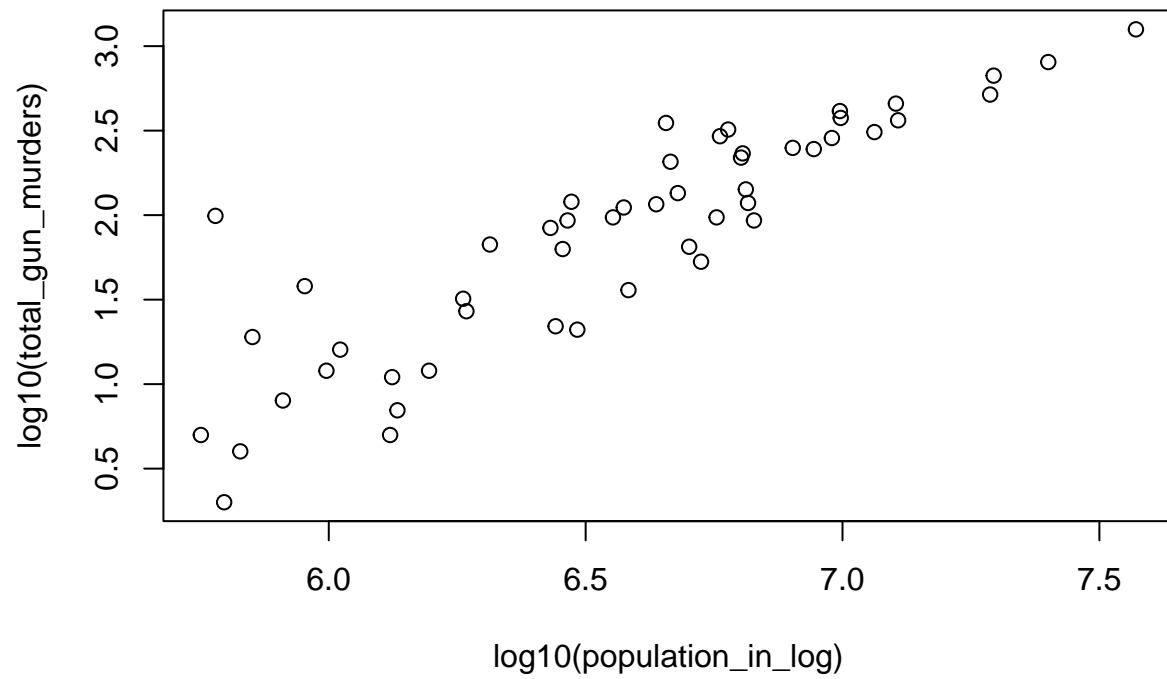
8.Buat histogram dari populasi negara bagian.(per 100.000)

```
population <- with(murders, population/100000)
hist(population)
```

Histogram of population

9.Hasilkan boxplot dari populasi negara bagian berdasarkan wilayahnya.

```
pop <- with(murders,population/ 100000)
boxplot(pop~region, data = murders)
```