

# Tugas3\_Modul6\_123180145

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```
#1  
library(dplyr)
```

```
##  
## Attaching package: 'dplyr'  
  
## The following objects are masked from 'package:stats':  
##  
##   filter, lag  
  
## The following objects are masked from 'package:base':  
##  
##   intersect, setdiff, setequal, union
```

```
library(dslabs)  
data(murders)  
murders <- mutate(murders, rate = total / population)  
murders
```

	state	abb	region	population	total	rate
## 1	Alabama	AL	South	4779736	135	2.824424e-05
## 2	Alaska	AK	West	710231	19	2.675186e-05
## 3	Arizona	AZ	West	6392017	232	3.629527e-05
## 4	Arkansas	AR	South	2915918	93	3.189390e-05
## 5	California	CA	West	37253956	1257	3.374138e-05
## 6	Colorado	CO	West	5029196	65	1.292453e-05
## 7	Connecticut	CT	Northeast	3574097	97	2.713972e-05
## 8	Delaware	DE	South	897934	38	4.231937e-05
## 9	District of Columbia	DC	South	601723	99	1.645275e-04
## 10	Florida	FL	South	19687653	669	3.398069e-05
## 11	Georgia	GA	South	9920000	376	3.790323e-05
## 12	Hawaii	HI	West	1360301	7	5.145920e-06
## 13	Idaho	ID	West	1567582	12	7.655102e-06
## 14	Illinois	IL	North Central	12830632	364	2.836961e-05
## 15	Indiana	IN	North Central	6483802	142	2.190073e-05
## 16	Iowa	IA	North Central	3046355	21	6.893484e-06
## 17	Kansas	KS	North Central	2853118	63	2.208111e-05
## 18	Kentucky	KY	South	4339367	116	2.673201e-05
## 19	Louisiana	LA	South	4533372	351	7.742581e-05
## 20	Maine	ME	Northeast	1328361	11	8.280881e-06

## 21	Maryland	MD	South	5773552	293	5.074866e-05
## 22	Massachusetts	MA	Northeast	6547629	118	1.802179e-05
## 23	Michigan	MI	North Central	9883640	413	4.178622e-05
## 24	Minnesota	MN	North Central	5303925	53	9.992600e-06
## 25	Mississippi	MS	South	2967297	120	4.044085e-05
## 26	Missouri	MO	North Central	5988927	321	5.359892e-05
## 27	Montana	MT	West	989415	12	1.212838e-05
## 28	Nebraska	NE	North Central	1826341	32	1.752137e-05
## 29	Nevada	NV	West	2700551	84	3.110476e-05
## 30	New Hampshire	NH	Northeast	1316470	5	3.798036e-06
## 31	New Jersey	NJ	Northeast	8791894	246	2.798032e-05
## 32	New Mexico	NM	West	2059179	67	3.253724e-05
## 33	New York	NY	Northeast	19378102	517	2.667960e-05
## 34	North Carolina	NC	South	9535483	286	2.999324e-05
## 35	North Dakota	ND	North Central	672591	4	5.947151e-06
## 36	Ohio	OH	North Central	11536504	310	2.687123e-05
## 37	Oklahoma	OK	South	3751351	111	2.958934e-05
## 38	Oregon	OR	West	3831074	36	9.396843e-06
## 39	Pennsylvania	PA	Northeast	12702379	457	3.597751e-05
## 40	Rhode Island	RI	Northeast	1052567	16	1.520093e-05
## 41	South Carolina	SC	South	4625364	207	4.475323e-05
## 42	South Dakota	SD	North Central	814180	8	9.825837e-06
## 43	Tennessee	TN	South	6346105	219	3.450936e-05
## 44	Texas	TX	South	25145561	805	3.201360e-05
## 45	Utah	UT	West	2763885	22	7.959810e-06
## 46	Vermont	VT	Northeast	625741	2	3.196211e-06
## 47	Virginia	VA	South	8001024	250	3.124600e-05
## 48	Washington	WA	West	6724540	93	1.382994e-05
## 49	West Virginia	WV	South	1852994	27	1.457101e-05
## 50	Wisconsin	WI	North Central	5686986	97	1.705649e-05
## 51	Wyoming	WY	West	563626	5	8.871131e-06

```
#2
murders <- mutate(murders, ranks = rank(-murders$rate))
murders
```

##	state	abb	region	population	total	rate	ranks
## 1	Alabama	AL	South	4779736	135	2.824424e-05	23
## 2	Alaska	AK	West	710231	19	2.675186e-05	27
## 3	Arizona	AZ	West	6392017	232	3.629527e-05	10
## 4	Arkansas	AR	South	2915918	93	3.189390e-05	17
## 5	California	CA	West	37253956	1257	3.374138e-05	14
## 6	Colorado	CO	West	5029196	65	1.292453e-05	38
## 7	Connecticut	CT	Northeast	3574097	97	2.713972e-05	25
## 8	Delaware	DE	South	897934	38	4.231937e-05	6
## 9	District of Columbia	DC	South	601723	99	1.645275e-04	1
## 10	Florida	FL	South	19687653	669	3.398069e-05	13
## 11	Georgia	GA	South	9920000	376	3.790323e-05	9
## 12	Hawaii	HI	West	1360301	7	5.145920e-06	49
## 13	Idaho	ID	West	1567582	12	7.655102e-06	46
## 14	Illinois	IL	North Central	12830632	364	2.836961e-05	22
## 15	Indiana	IN	North Central	6483802	142	2.190073e-05	31
## 16	Iowa	IA	North Central	3046355	21	6.893484e-06	47
## 17	Kansas	KS	North Central	2853118	63	2.208111e-05	30

## 18	Kentucky	KY	South	4339367	116	2.673201e-05	28
## 19	Louisiana	LA	South	4533372	351	7.742581e-05	2
## 20	Maine	ME	Northeast	1328361	11	8.280881e-06	44
## 21	Maryland	MD	South	5773552	293	5.074866e-05	4
## 22	Massachusetts	MA	Northeast	6547629	118	1.802179e-05	32
## 23	Michigan	MI	North Central	9883640	413	4.178622e-05	7
## 24	Minnesota	MN	North Central	5303925	53	9.992600e-06	40
## 25	Mississippi	MS	South	2967297	120	4.044085e-05	8
## 26	Missouri	MO	North Central	5988927	321	5.359892e-05	3
## 27	Montana	MT	West	989415	12	1.212838e-05	39
## 28	Nebraska	NE	North Central	1826341	32	1.752137e-05	33
## 29	Nevada	NV	West	2700551	84	3.110476e-05	19
## 30	New Hampshire	NH	Northeast	1316470	5	3.798036e-06	50
## 31	New Jersey	NJ	Northeast	8791894	246	2.798032e-05	24
## 32	New Mexico	NM	West	2059179	67	3.253724e-05	15
## 33	New York	NY	Northeast	19378102	517	2.667960e-05	29
## 34	North Carolina	NC	South	9535483	286	2.999324e-05	20
## 35	North Dakota	ND	North Central	672591	4	5.947151e-06	48
## 36	Ohio	OH	North Central	11536504	310	2.687123e-05	26
## 37	Oklahoma	OK	South	3751351	111	2.958934e-05	21
## 38	Oregon	OR	West	3831074	36	9.396843e-06	42
## 39	Pennsylvania	PA	Northeast	12702379	457	3.597751e-05	11
## 40	Rhode Island	RI	Northeast	1052567	16	1.520093e-05	35
## 41	South Carolina	SC	South	4625364	207	4.475323e-05	5
## 42	South Dakota	SD	North Central	814180	8	9.825837e-06	41
## 43	Tennessee	TN	South	6346105	219	3.450936e-05	12
## 44	Texas	TX	South	25145561	805	3.201360e-05	16
## 45	Utah	UT	West	2763885	22	7.959810e-06	45
## 46	Vermont	VT	Northeast	625741	2	3.196211e-06	51
## 47	Virginia	VA	South	8001024	250	3.124600e-05	18
## 48	Washington	WA	West	6724540	93	1.382994e-05	37
## 49	West Virginia	WV	South	1852994	27	1.457101e-05	36
## 50	Wisconsin	WI	North Central	5686986	97	1.705649e-05	34
## 51	Wyoming	WY	West	563626	5	8.871131e-06	43

#3

```
select(murders, state, abb) %>% head(n=40)
```

##	state	abb
## 1	Alabama	AL
## 2	Alaska	AK
## 3	Arizona	AZ
## 4	Arkansas	AR
## 5	California	CA
## 6	Colorado	CO
## 7	Connecticut	CT
## 8	Delaware	DE
## 9	District of Columbia	DC
## 10	Florida	FL
## 11	Georgia	GA
## 12	Hawaii	HI
## 13	Idaho	ID
## 14	Illinois	IL
## 15	Indiana	IN

```
## 16          Iowa  IA
## 17          Kansas KS
## 18          Kentucky KY
## 19          Louisiana LA
## 20          Maine ME
## 21          Maryland MD
## 22          Massachusetts MA
## 23          Michigan MI
## 24          Minnesota MN
## 25          Mississippi MS
## 26          Missouri MO
## 27          Montana MT
## 28          Nebraska NE
## 29          Nevada NV
## 30          New Hampshire NH
## 31          New Jersey NJ
## 32          New Mexico NM
## 33          New York NY
## 34          North Carolina NC
## 35          North Dakota ND
## 36          Ohio OH
## 37          Oklahoma OK
## 38          Oregon OR
## 39          Pennsylvania PA
## 40          Rhode Island RI
```

```
#4
filter(murders, ranks >= 1 & ranks <= 5 )
```

```
##          state abb      region population total      rate ranks
## 1 District of Columbia DC      South      601723      99 1.645275e-04      1
## 2          Louisiana LA      South      4533372     351 7.742581e-05      2
## 3          Maryland MD      South      5773552     293 5.074866e-05      4
## 4          Missouri MO North Central      5988927     321 5.359892e-05      3
## 5          South Carolina SC      South      4625364     207 4.475323e-05      5
```

```
#5
filter(murders, rate < 1, region=="Northeast" | region == "West") %>% select(state, rate, ranks)
```

```
##          state      rate ranks
## 1          Alaska 2.675186e-05     27
## 2          Arizona 3.629527e-05     10
## 3          California 3.374138e-05     14
## 4          Colorado 1.292453e-05     38
## 5          Connecticut 2.713972e-05     25
## 6          Hawaii 5.145920e-06     49
## 7          Idaho 7.655102e-06     46
## 8          Maine 8.280881e-06     44
## 9          Massachusetts 1.802179e-05     32
## 10          Montana 1.212838e-05     39
## 11          Nevada 3.110476e-05     19
## 12          New Hampshire 3.798036e-06     50
## 13          New Jersey 2.798032e-05     24
```

```
## 14    New Mexico 3.253724e-05    15
## 15      New York 2.667960e-05    29
## 16      Oregon 9.396843e-06    42
## 17 Pennsylvania 3.597751e-05    11
## 18 Rhode Island 1.520093e-05    35
## 19      Utah 7.959810e-06    45
## 20      Vermont 3.196211e-06    51
## 21    Washington 1.382994e-05    37
## 22      Wyoming 8.871131e-06    43
```

```
#Operator Pipe
data(murders)
my_states <- murders %>%
  mutate(rate = total / population, ranks = rank(-(total / population))) %>%
  filter(rate < 1, region=="Northeast" | region == "EastWest") %>%
  select(state, rate, ranks)
my_states
```

```
##      state      rate ranks
## 1 Connecticut 2.713972e-05    25
## 2      Maine 8.280881e-06    44
## 3 Massachusetts 1.802179e-05    32
## 4 New Hampshire 3.798036e-06    50
## 5    New Jersey 2.798032e-05    24
## 6      New York 2.667960e-05    29
## 7 Pennsylvania 3.597751e-05    11
## 8 Rhode Island 1.520093e-05    35
## 9      Vermont 3.196211e-06    51
```