

DS-A_KUIS_123180145

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```
#1
library(dslabs)
library(tidyverse)

## -- Attaching packages ----- tidyverse 1.3.0 --

## v ggplot2 3.3.2    v purrr  0.3.4
## v tibble  3.0.4    v dplyr  1.0.2
## v tidyr   1.1.2    v stringr 1.4.0
## v readr   1.4.0    v forcats 0.5.0

## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()

data(us_contagious_diseases)

#2
names(us_contagious_diseases)

## [1] "disease"      "state"        "year"         "weeks_reporting"
## [5] "count"        "population"

#3
class(us_contagious_diseases$disease)

## [1] "factor"

#4
us_contagious_diseases %>%
  filter(year <= 1965 & year >= 1955 & disease == "Polio" ) %>%
  arrange(population) %>%
  head(n=10)

##   disease state year weeks_reporting count population
## 1   Polio Nevada 1955             31     85    211798
## 2   Polio Nevada 1956             52     35    224843
## 3   Polio Alaska 1960             32      2    226167
```

```
## 4    Polio Alaska 1961          0    0    232750
## 5    Polio Nevada 1957         49    4    238765
## 6    Polio Alaska 1962          0    0    239521
## 7    Polio Alaska 1963          0    0    246479
## 8    Polio Nevada 1958         39    6    253523
## 9    Polio Alaska 1964          0    0    253624
## 10   Polio Alaska 1965          0    0    260957
```

```
#5
NewData <- us_contagious_diseases %>%
  mutate(Category = case_when(count < 1000 ~ "Biasa",
                              count >=1000 & count < 2000 ~ "Cobaan",
                              count > 2000 ~ "Azab", TRUE ~ "Other"))
head(NewData, n=120)
```

```
##      disease  state year weeks_reporting count population Category
## 1  Hepatitis A  Alabama 1966          50    321    3345787    Biasa
## 2  Hepatitis A  Alabama 1967          49    291    3364130    Biasa
## 3  Hepatitis A  Alabama 1968          52    314    3386068    Biasa
## 4  Hepatitis A  Alabama 1969          49    380    3412450    Biasa
## 5  Hepatitis A  Alabama 1970          51    413    3444165    Biasa
## 6  Hepatitis A  Alabama 1971          51    378    3481798    Biasa
## 7  Hepatitis A  Alabama 1972          45    342    3524543    Biasa
## 8  Hepatitis A  Alabama 1973          45    467    3571209    Biasa
## 9  Hepatitis A  Alabama 1974          45    244    3620548    Biasa
## 10 Hepatitis A  Alabama 1975          46    286    3671246    Biasa
## 11 Hepatitis A  Alabama 1976          50    220    3721914    Biasa
## 12 Hepatitis A  Alabama 1977          43    206    3771085    Biasa
## 13 Hepatitis A  Alabama 1978          41    203    3817217    Biasa
## 14 Hepatitis A  Alabama 1979          47    257    3858703    Biasa
## 15 Hepatitis A  Alabama 1980          37    200    3893888    Biasa
## 16 Hepatitis A  Alabama 1981          40    138    3921581    Biasa
## 17 Hepatitis A  Alabama 1982          43    128    3942588    Biasa
## 18 Hepatitis A  Alabama 1983          43    178    3958271    Biasa
## 19 Hepatitis A  Alabama 1984          35    115    3970041    Biasa
## 20 Hepatitis A  Alabama 1985          22     37    3979341    Biasa
## 21 Hepatitis A  Alabama 1986          26     51    3987637    Biasa
## 22 Hepatitis A  Alabama 1987          36     81    3996407    Biasa
## 23 Hepatitis A  Alabama 1988          20     13    4007144    Biasa
## 24 Hepatitis A  Alabama 1989          32     56    4021358    Biasa
## 25 Hepatitis A  Alabama 1990          41     86    4040587    Biasa
## 26 Hepatitis A  Alabama 1991          38     39    4066003    Biasa
## 27 Hepatitis A  Alabama 1992          34     35    4097169    Biasa
## 28 Hepatitis A  Alabama 1993          27     40    4133242    Biasa
## 29 Hepatitis A  Alabama 1994          29     72    4173361    Biasa
## 30 Hepatitis A  Alabama 1995          38     75    4216645    Biasa
## 31 Hepatitis A  Alabama 1996          44    196    4262177    Biasa
## 32 Hepatitis A  Alabama 1997          26     40    4309007    Biasa
## 33 Hepatitis A  Alabama 1998          34     64    4356137    Biasa
## 34 Hepatitis A  Alabama 1999          35     52    4402529    Biasa
## 35 Hepatitis A  Alabama 2000          42     53    4447100    Biasa
## 36 Hepatitis A  Alabama 2001          41     66    4488959    Biasa
## 37 Hepatitis A  Alabama 2002          47     35    4528129    Biasa
## 38 Hepatitis A  Alabama 2003          47     14    4564878    Biasa
```

## 39	Hepatitis A	Alabama	2004	41	6	4599490	Biasa
## 40	Hepatitis A	Alabama	2005	47	34	4632262	Biasa
## 41	Hepatitis A	Alabama	2006	42	17	4663504	Biasa
## 42	Hepatitis A	Alabama	2007	48	20	4693536	Biasa
## 43	Hepatitis A	Alabama	2008	49	10	4722691	Biasa
## 44	Hepatitis A	Alabama	2009	49	10	4751307	Biasa
## 45	Hepatitis A	Alabama	2010	51	8	4779736	Biasa
## 46	Hepatitis A	Alabama	2011	27	7	4808274	Biasa
## 47	Hepatitis A	Alaska	1966	34	90	268476	Biasa
## 48	Hepatitis A	Alaska	1967	22	39	276180	Biasa
## 49	Hepatitis A	Alaska	1968	31	84	284068	Biasa
## 50	Hepatitis A	Alaska	1969	32	63	292136	Biasa
## 51	Hepatitis A	Alaska	1970	32	113	300382	Biasa
## 52	Hepatitis A	Alaska	1971	28	96	308810	Biasa
## 53	Hepatitis A	Alaska	1972	37	199	317458	Biasa
## 54	Hepatitis A	Alaska	1973	32	225	326376	Biasa
## 55	Hepatitis A	Alaska	1974	30	248	335621	Biasa
## 56	Hepatitis A	Alaska	1975	37	409	345253	Biasa
## 57	Hepatitis A	Alaska	1976	13	1094	355341	Cobaan
## 58	Hepatitis A	Alaska	1977	39	551	365958	Biasa
## 59	Hepatitis A	Alaska	1978	39	125	377187	Biasa
## 60	Hepatitis A	Alaska	1979	28	61	389118	Biasa
## 61	Hepatitis A	Alaska	1980	14	18	401851	Biasa
## 62	Hepatitis A	Alaska	1981	22	45	415458	Biasa
## 63	Hepatitis A	Alaska	1982	15	17	429850	Biasa
## 64	Hepatitis A	Alaska	1983	22	43	444879	Biasa
## 65	Hepatitis A	Alaska	1984	11	14	460375	Biasa
## 66	Hepatitis A	Alaska	1985	12	18	476138	Biasa
## 67	Hepatitis A	Alaska	1986	21	66	491942	Biasa
## 68	Hepatitis A	Alaska	1987	47	240	507531	Biasa
## 69	Hepatitis A	Alaska	1988	22	268	522622	Biasa
## 70	Hepatitis A	Alaska	1989	33	494	536903	Biasa
## 71	Hepatitis A	Alaska	1990	39	167	550043	Biasa
## 72	Hepatitis A	Alaska	1991	37	80	561769	Biasa
## 73	Hepatitis A	Alaska	1992	32	65	572122	Biasa
## 74	Hepatitis A	Alaska	1993	24	374	581250	Biasa
## 75	Hepatitis A	Alaska	1994	29	163	589317	Biasa
## 76	Hepatitis A	Alaska	1995	39	38	596513	Biasa
## 77	Hepatitis A	Alaska	1996	41	46	603039	Biasa
## 78	Hepatitis A	Alaska	1997	24	20	609112	Biasa
## 79	Hepatitis A	Alaska	1998	30	6	614959	Biasa
## 80	Hepatitis A	Alaska	1999	36	7	620817	Biasa
## 81	Hepatitis A	Alaska	2000	39	8	626932	Biasa
## 82	Hepatitis A	Alaska	2001	40	10	633510	Biasa
## 83	Hepatitis A	Alaska	2002	42	11	640570	Biasa
## 84	Hepatitis A	Alaska	2003	44	8	648078	Biasa
## 85	Hepatitis A	Alaska	2004	43	4	656003	Biasa
## 86	Hepatitis A	Alaska	2005	44	3	664309	Biasa
## 87	Hepatitis A	Alaska	2006	0	0	672961	Biasa
## 88	Hepatitis A	Alaska	2007	42	3	681920	Biasa
## 89	Hepatitis A	Alaska	2008	41	3	691147	Biasa
## 90	Hepatitis A	Alaska	2009	46	6	700599	Biasa
## 91	Hepatitis A	Alaska	2010	24	4	710231	Biasa
## 92	Hepatitis A	Alaska	2011	38	1	720004	Biasa

## 93	Hepatitis A	Arizona	1966	50	415	1572291	Biasa
## 94	Hepatitis A	Arizona	1967	48	390	1615310	Biasa
## 95	Hepatitis A	Arizona	1968	50	425	1661517	Biasa
## 96	Hepatitis A	Arizona	1969	49	528	1712707	Biasa
## 97	Hepatitis A	Arizona	1970	50	615	1770900	Biasa
## 98	Hepatitis A	Arizona	1971	51	896	1837891	Biasa
## 99	Hepatitis A	Arizona	1972	46	660	1913632	Biasa
## 100	Hepatitis A	Arizona	1973	22	160	1997501	Biasa
## 101	Hepatitis A	Arizona	1974	49	512	2088732	Biasa
## 102	Hepatitis A	Arizona	1975	50	437	2186365	Biasa
## 103	Hepatitis A	Arizona	1976	51	560	2289201	Biasa
## 104	Hepatitis A	Arizona	1977	51	929	2395761	Biasa
## 105	Hepatitis A	Arizona	1978	48	1137	2504256	Cobaan
## 106	Hepatitis A	Arizona	1979	50	1788	2612561	Cobaan
## 107	Hepatitis A	Arizona	1980	33	635	2718215	Biasa
## 108	Hepatitis A	Arizona	1981	43	434	2819039	Biasa
## 109	Hepatitis A	Arizona	1982	41	514	2915148	Biasa
## 110	Hepatitis A	Arizona	1983	44	845	3007444	Biasa
## 111	Hepatitis A	Arizona	1984	46	721	3097045	Biasa
## 112	Hepatitis A	Arizona	1985	42	1013	3185267	Cobaan
## 113	Hepatitis A	Arizona	1986	37	1015	3273618	Cobaan
## 114	Hepatitis A	Arizona	1987	47	1925	3363792	Cobaan
## 115	Hepatitis A	Arizona	1988	23	972	3457679	Biasa
## 116	Hepatitis A	Arizona	1989	33	2009	3557380	Azab
## 117	Hepatitis A	Arizona	1990	42	1645	3665228	Cobaan
## 118	Hepatitis A	Arizona	1991	37	837	3783229	Biasa
## 119	Hepatitis A	Arizona	1992	35	761	3911122	Biasa
## 120	Hepatitis A	Arizona	1993	26	662	4047937	Biasa

#6

```
NewData <- NewData %>%
  mutate(Rate = count / population * 100000)
head(NewData, n=120)
```

##	disease	state	year	weeks_reporting	count	population	Category
## 1	Hepatitis A	Alabama	1966	50	321	3345787	Biasa
## 2	Hepatitis A	Alabama	1967	49	291	3364130	Biasa
## 3	Hepatitis A	Alabama	1968	52	314	3386068	Biasa
## 4	Hepatitis A	Alabama	1969	49	380	3412450	Biasa
## 5	Hepatitis A	Alabama	1970	51	413	3444165	Biasa
## 6	Hepatitis A	Alabama	1971	51	378	3481798	Biasa
## 7	Hepatitis A	Alabama	1972	45	342	3524543	Biasa
## 8	Hepatitis A	Alabama	1973	45	467	3571209	Biasa
## 9	Hepatitis A	Alabama	1974	45	244	3620548	Biasa
## 10	Hepatitis A	Alabama	1975	46	286	3671246	Biasa
## 11	Hepatitis A	Alabama	1976	50	220	3721914	Biasa
## 12	Hepatitis A	Alabama	1977	43	206	3771085	Biasa
## 13	Hepatitis A	Alabama	1978	41	203	3817217	Biasa
## 14	Hepatitis A	Alabama	1979	47	257	3858703	Biasa
## 15	Hepatitis A	Alabama	1980	37	200	3893888	Biasa
## 16	Hepatitis A	Alabama	1981	40	138	3921581	Biasa
## 17	Hepatitis A	Alabama	1982	43	128	3942588	Biasa
## 18	Hepatitis A	Alabama	1983	43	178	3958271	Biasa
## 19	Hepatitis A	Alabama	1984	35	115	3970041	Biasa

## 20	Hepatitis A	Alabama	1985	22	37	3979341	Biasa
## 21	Hepatitis A	Alabama	1986	26	51	3987637	Biasa
## 22	Hepatitis A	Alabama	1987	36	81	3996407	Biasa
## 23	Hepatitis A	Alabama	1988	20	13	4007144	Biasa
## 24	Hepatitis A	Alabama	1989	32	56	4021358	Biasa
## 25	Hepatitis A	Alabama	1990	41	86	4040587	Biasa
## 26	Hepatitis A	Alabama	1991	38	39	4066003	Biasa
## 27	Hepatitis A	Alabama	1992	34	35	4097169	Biasa
## 28	Hepatitis A	Alabama	1993	27	40	4133242	Biasa
## 29	Hepatitis A	Alabama	1994	29	72	4173361	Biasa
## 30	Hepatitis A	Alabama	1995	38	75	4216645	Biasa
## 31	Hepatitis A	Alabama	1996	44	196	4262177	Biasa
## 32	Hepatitis A	Alabama	1997	26	40	4309007	Biasa
## 33	Hepatitis A	Alabama	1998	34	64	4356137	Biasa
## 34	Hepatitis A	Alabama	1999	35	52	4402529	Biasa
## 35	Hepatitis A	Alabama	2000	42	53	4447100	Biasa
## 36	Hepatitis A	Alabama	2001	41	66	4488959	Biasa
## 37	Hepatitis A	Alabama	2002	47	35	4528129	Biasa
## 38	Hepatitis A	Alabama	2003	47	14	4564878	Biasa
## 39	Hepatitis A	Alabama	2004	41	6	4599490	Biasa
## 40	Hepatitis A	Alabama	2005	47	34	4632262	Biasa
## 41	Hepatitis A	Alabama	2006	42	17	4663504	Biasa
## 42	Hepatitis A	Alabama	2007	48	20	4693536	Biasa
## 43	Hepatitis A	Alabama	2008	49	10	4722691	Biasa
## 44	Hepatitis A	Alabama	2009	49	10	4751307	Biasa
## 45	Hepatitis A	Alabama	2010	51	8	4779736	Biasa
## 46	Hepatitis A	Alabama	2011	27	7	4808274	Biasa
## 47	Hepatitis A	Alaska	1966	34	90	268476	Biasa
## 48	Hepatitis A	Alaska	1967	22	39	276180	Biasa
## 49	Hepatitis A	Alaska	1968	31	84	284068	Biasa
## 50	Hepatitis A	Alaska	1969	32	63	292136	Biasa
## 51	Hepatitis A	Alaska	1970	32	113	300382	Biasa
## 52	Hepatitis A	Alaska	1971	28	96	308810	Biasa
## 53	Hepatitis A	Alaska	1972	37	199	317458	Biasa
## 54	Hepatitis A	Alaska	1973	32	225	326376	Biasa
## 55	Hepatitis A	Alaska	1974	30	248	335621	Biasa
## 56	Hepatitis A	Alaska	1975	37	409	345253	Biasa
## 57	Hepatitis A	Alaska	1976	13	1094	355341	Cobaan
## 58	Hepatitis A	Alaska	1977	39	551	365958	Biasa
## 59	Hepatitis A	Alaska	1978	39	125	377187	Biasa
## 60	Hepatitis A	Alaska	1979	28	61	389118	Biasa
## 61	Hepatitis A	Alaska	1980	14	18	401851	Biasa
## 62	Hepatitis A	Alaska	1981	22	45	415458	Biasa
## 63	Hepatitis A	Alaska	1982	15	17	429850	Biasa
## 64	Hepatitis A	Alaska	1983	22	43	444879	Biasa
## 65	Hepatitis A	Alaska	1984	11	14	460375	Biasa
## 66	Hepatitis A	Alaska	1985	12	18	476138	Biasa
## 67	Hepatitis A	Alaska	1986	21	66	491942	Biasa
## 68	Hepatitis A	Alaska	1987	47	240	507531	Biasa
## 69	Hepatitis A	Alaska	1988	22	268	522622	Biasa
## 70	Hepatitis A	Alaska	1989	33	494	536903	Biasa
## 71	Hepatitis A	Alaska	1990	39	167	550043	Biasa
## 72	Hepatitis A	Alaska	1991	37	80	561769	Biasa
## 73	Hepatitis A	Alaska	1992	32	65	572122	Biasa

## 74	Hepatitis A	Alaska	1993	24	374	581250	Biasa
## 75	Hepatitis A	Alaska	1994	29	163	589317	Biasa
## 76	Hepatitis A	Alaska	1995	39	38	596513	Biasa
## 77	Hepatitis A	Alaska	1996	41	46	603039	Biasa
## 78	Hepatitis A	Alaska	1997	24	20	609112	Biasa
## 79	Hepatitis A	Alaska	1998	30	6	614959	Biasa
## 80	Hepatitis A	Alaska	1999	36	7	620817	Biasa
## 81	Hepatitis A	Alaska	2000	39	8	626932	Biasa
## 82	Hepatitis A	Alaska	2001	40	10	633510	Biasa
## 83	Hepatitis A	Alaska	2002	42	11	640570	Biasa
## 84	Hepatitis A	Alaska	2003	44	8	648078	Biasa
## 85	Hepatitis A	Alaska	2004	43	4	656003	Biasa
## 86	Hepatitis A	Alaska	2005	44	3	664309	Biasa
## 87	Hepatitis A	Alaska	2006	0	0	672961	Biasa
## 88	Hepatitis A	Alaska	2007	42	3	681920	Biasa
## 89	Hepatitis A	Alaska	2008	41	3	691147	Biasa
## 90	Hepatitis A	Alaska	2009	46	6	700599	Biasa
## 91	Hepatitis A	Alaska	2010	24	4	710231	Biasa
## 92	Hepatitis A	Alaska	2011	38	1	720004	Biasa
## 93	Hepatitis A	Arizona	1966	50	415	1572291	Biasa
## 94	Hepatitis A	Arizona	1967	48	390	1615310	Biasa
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## 96	Hepatitis A	Arizona	1969	49	528	1712707	Biasa
## 97	Hepatitis A	Arizona	1970	50	615	1770900	Biasa
## 98	Hepatitis A	Arizona	1971	51	896	1837891	Biasa
## 99	Hepatitis A	Arizona	1972	46	660	1913632	Biasa
## 100	Hepatitis A	Arizona	1973	22	160	1997501	Biasa
## 101	Hepatitis A	Arizona	1974	49	512	2088732	Biasa
## 102	Hepatitis A	Arizona	1975	50	437	2186365	Biasa
## 103	Hepatitis A	Arizona	1976	51	560	2289201	Biasa
## 104	Hepatitis A	Arizona	1977	51	929	2395761	Biasa
## 105	Hepatitis A	Arizona	1978	48	1137	2504256	Cobaan
## 106	Hepatitis A	Arizona	1979	50	1788	2612561	Cobaan
## 107	Hepatitis A	Arizona	1980	33	635	2718215	Biasa
## 108	Hepatitis A	Arizona	1981	43	434	2819039	Biasa
## 109	Hepatitis A	Arizona	1982	41	514	2915148	Biasa
## 110	Hepatitis A	Arizona	1983	44	845	3007444	Biasa
## 111	Hepatitis A	Arizona	1984	46	721	3097045	Biasa
## 112	Hepatitis A	Arizona	1985	42	1013	3185267	Cobaan
## 113	Hepatitis A	Arizona	1986	37	1015	3273618	Cobaan
## 114	Hepatitis A	Arizona	1987	47	1925	3363792	Cobaan
## 115	Hepatitis A	Arizona	1988	23	972	3457679	Biasa
## 116	Hepatitis A	Arizona	1989	33	2009	3557380	Azab
## 117	Hepatitis A	Arizona	1990	42	1645	3665228	Cobaan
## 118	Hepatitis A	Arizona	1991	37	837	3783229	Biasa
## 119	Hepatitis A	Arizona	1992	35	761	3911122	Biasa
## 120	Hepatitis A	Arizona	1993	26	662	4047937	Biasa
##	Rate						
## 1	9.5941553						
## 2	8.6500819						
## 3	9.2732928						
## 4	11.1356943						
## 5	11.9912954						
## 6	10.8564598						

## 7	9.7033857
## 8	13.0768040
## 9	6.7393113
## 10	7.7902707
## 11	5.9109372
## 12	5.4626188
## 13	5.3180105
## 14	6.6602690
## 15	5.1362546
## 16	3.5189889
## 17	3.2465984
## 18	4.4969129
## 19	2.8966955
## 20	0.9298022
## 21	1.2789529
## 22	2.0268206
## 23	0.3244206
## 24	1.3925644
## 25	2.1284036
## 26	0.9591729
## 27	0.8542484
## 28	0.9677633
## 29	1.7252282
## 30	1.7786653
## 31	4.5985889
## 32	0.9282881
## 33	1.4691916
## 34	1.1811393
## 35	1.1917879
## 36	1.4702741
## 37	0.7729462
## 38	0.3066895
## 39	0.1304492
## 40	0.7339827
## 41	0.3645328
## 42	0.4261180
## 43	0.2117437
## 44	0.2104684
## 45	0.1673733
## 46	0.1455824
## 47	33.5225495
## 48	14.1212253
## 49	29.5703846
## 50	21.5652984
## 51	37.6187654
## 52	31.0870762
## 53	62.6854576
## 54	68.9388926
## 55	73.8928732
## 56	118.4638511
## 57	307.8732823
## 58	150.5637259
## 59	33.1400605
## 60	15.6764786

## 61	4.4792722
## 62	10.8314198
## 63	3.9548680
## 64	9.6655495
## 65	3.0409992
## 66	3.7804166
## 67	13.4162157
## 68	47.2877519
## 69	51.2798925
## 70	92.0091711
## 71	30.3612627
## 72	14.2407288
## 73	11.3612132
## 74	64.3440860
## 75	27.6591376
## 76	6.3703557
## 77	7.6280307
## 78	3.2834684
## 79	0.9756748
## 80	1.1275464
## 81	1.2760555
## 82	1.5785070
## 83	1.7172206
## 84	1.2344193
## 85	0.6097533
## 86	0.4515971
## 87	0.0000000
## 88	0.4399343
## 89	0.4340611
## 90	0.8564100
## 91	0.5631970
## 92	0.1388881
## 93	26.3946051
## 94	24.1439724
## 95	25.5790341
## 96	30.8283904
## 97	34.7281044
## 98	48.7515310
## 99	34.4893898
## 100	8.0100085
## 101	24.5124793
## 102	19.9875135
## 103	24.4626837
## 104	38.7768229
## 105	45.4027064
## 106	68.4385934
## 107	23.3609188
## 108	15.3953173
## 109	17.6320379
## 110	28.0969488
## 111	23.2802559
## 112	31.8026715
## 113	31.0054502
## 114	57.2270818


```
## 115 28.1113429
## 116 56.4741467
## 117 44.8812461
## 118 22.1239581
## 119 19.4573322
## 120 16.3540095
```

#7

```
NewData <- NewData %>% group_by(state) %>% summarise(Rate = mean(Rate, na.rm = TRUE))
```

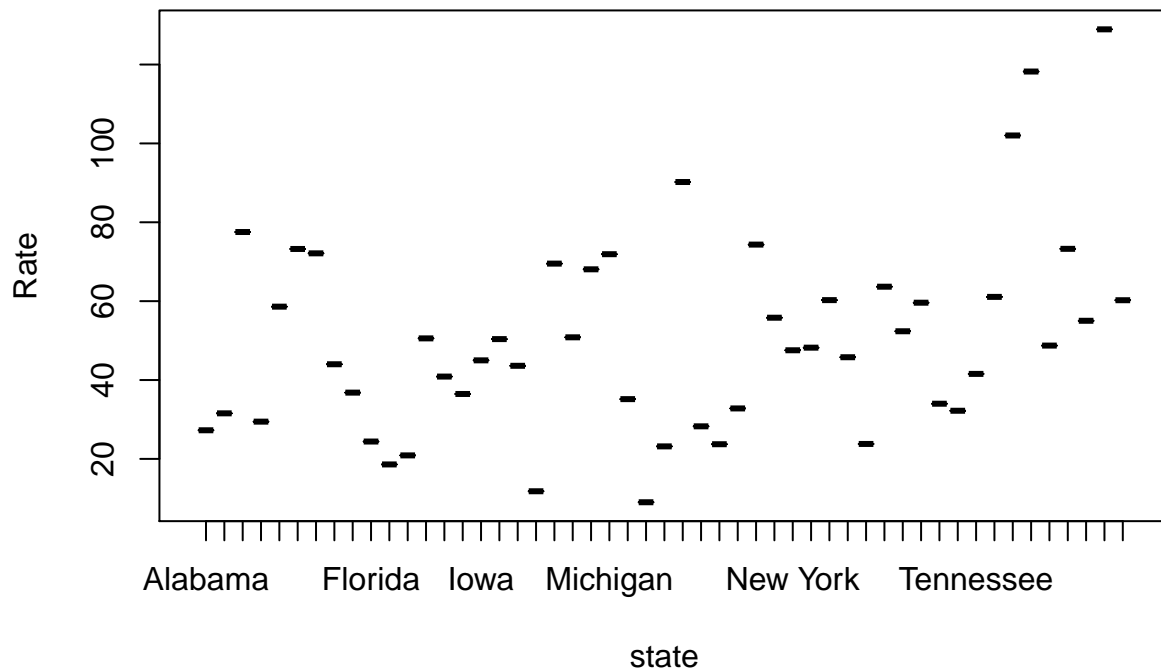
```
## 'summarise()' ungrouping output (override with '.groups' argument)
```

NewData

```
## # A tibble: 51 x 2
##   state      Rate
##   <fct>    <dbl>
## 1 Alabama    27.3
## 2 Alaska     31.5
## 3 Arizona    77.5
## 4 Arkansas   29.4
## 5 California 58.6
## 6 Colorado   73.2
## 7 Connecticut 72.1
## 8 Delaware   44.0
## 9 District Of Columbia 36.8
## 10 Florida    24.4
## # ... with 41 more rows
```

#8

```
boxplot(Rate~state, data = NewData)
```



```
#1
library(here)
```

```
## here() starts at D:/R Studio File/RMarkdown/praktikum2020
```

```
library(vroom)
library(tidyverse)
```

```
#2
CovidData <- vroom(here("data-raw", "Covid19_Asean.csv"))
```

```
## Rows: 10
## Columns: 5
## Delimiter: ","
## chr [2]: Country, CountryCode
## dbl [3]: Confirmed, Recovered, Deaths
##
## Use 'spec()' to retrieve the guessed column specification
## Pass a specification to the 'col_types' argument to quiet this message
```

```
str(CovidData)
```

```
## tibble [10 x 5] (S3: tbl_df/tbl/data.frame)
## $ Country      : chr [1:10] "Indonesia" "Malaysia" "Myanmar" "Vietnam" ...
```

```
## $ CountryCode: chr [1:10] "ID" "MY" "MM" "VN" ...
## $ Confirmed : num [1:10] 2738 3963 22 249 2258 ...
## $ Recovered : num [1:10] 204 1321 0 123 888 ...
## $ Deaths : num [1:10] 221 63 1 0 27 0 0 6 177 0
## - attr(*, "spec")=
## .. cols(
## .. Country = col_character(),
## .. CountryCode = col_character(),
## .. Confirmed = col_double(),
## .. Recovered = col_double(),
## .. Deaths = col_double()
## .. )
```

#3

```
CovidData %>% select(Country, Confirmed) %>% arrange(desc(Confirmed))
```

```
## # A tibble: 10 x 2
##   Country      Confirmed
##   <chr>         <dbl>
## 1 Malaysia      3963
## 2 Filipina      3764
## 3 Indonesia     2738
## 4 Thailand      2258
## 5 Singapura     1481
## 6 Vietnam       249
## 7 Kamboja       115
## 8 Myanmar        22
## 9 Laos          14
## 10 Timor Leste    1
```

#4

```
NewCovidData <- CovidData %>% mutate(RateDeaths = Deaths / Confirmed)
NewCovidData
```

```
## # A tibble: 10 x 6
##   Country      CountryCode Confirmed Recovered Deaths RateDeaths
##   <chr>         <chr>         <dbl>     <dbl>   <dbl>     <dbl>
## 1 Indonesia    ID             2738      204    221     0.0807
## 2 Malaysia     MY             3963     1321    63     0.0159
## 3 Myanmar      MM              22         0      1     0.0455
## 4 Vietnam      VN             249      123     0      0
## 5 Thailand     TH            2258     888     27     0.0120
## 6 Laos         LA              14         0      0      0
## 7 Kamboja      KB             115        58      0      0
## 8 Singapura    SG            1481     377      6     0.00405
## 9 Filipina     PH            3764      84     177     0.0470
## 10 Timor Leste TL              1         0      0      0
```

#5

```
NewCovidData %>%
  select(Country, RateDeaths) %>%
  filter(RateDeaths == max(RateDeaths))
```

```
## # A tibble: 1 x 2
##   Country   RateDeaths
##   <chr>      <dbl>
## 1 Indonesia 0.0807
```

```
NewCovidData %>%
  select(Country, RateDeaths) %>%
  filter(RateDeaths == min(RateDeaths))
```

```
## # A tibble: 4 x 2
##   Country   RateDeaths
##   <chr>      <dbl>
## 1 Vietnam      0
## 2 Laos         0
## 3 Kamboja      0
## 4 Timor Leste  0
```

```
#6 antara penderita yang sembuh degan penderita yang terkonfirmasi Covid-19
plot(CovidData$Recovered, CovidData$Confirmed)
```

