Assignment 1

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Introduction

This analysis uses a Kaggle dataset - https://www.kaggle.com/anandhuh/latest-covid19-india-statewise-data. This dataset contains latest Covid-19 India state-wise data as on August 03, 2021. This dataset can be used to analyze Covid condition in India.

Load Dataset

CovidCases = read.csv("D:/Business Analysis/Semester 2/INTRO TO ANALYTICS/Assignment/Latest Covid-19 IncovidCases

##							St	tate.UTs	Total.Cases	Active	Discharged
##	1				Aı	ndaman	and	Nicobar	7525	14	7382
##	2					An	dhra	${\tt Pradesh}$	1952513	22358	1916914
##	3					Aruna	chal	${\tt Pradesh}$	45703	4465	41025
##	4							Assam	557437	15726	536597
##	5							Bihar	724390	530	714223
##	6						Cha	andigarh	61922	32	61081
##	7						Chhat	ttisgarh	1001037	2789	984737
##	8	Dadra	and	Nagar	${\tt Haveli}$	and D	aman	and Diu	10637	48	10585
##	9							Delhi	1435844	587	1410216
##	10							Goa	170416	1238	166052
##	11							Gujarat	824683	342	814265
##	12							Haryana	769717	740	759360
##	13					Hima	chal	${\tt Pradesh}$	205017	931	200573
##	14					Jammu	and	${\tt Kashmir}$	320491	1319	314798
##	15						Jł	narkhand	346918	276	341518
##	16						Ka	arnataka	2893556	23928	2833276
##	17							Kerala	3254064	1386262	3099469
##	18							Ladakh	20296	68	20021
##	19						Laks	shadweep	10127	81	9997
##	20					Ma	dhya	${\tt Pradesh}$	791738	149	781077
##	21						Maha	arashtra	6258079	96833	6029817
##	22							${\tt Manipur}$	91460	10251	79744
##	23						Me	eghalaya	60597	4708	54875
##	24							${\tt Mizoram}$	31145	7772	23238
##	25						1	Nagaland	27240	1312	25390
##	26							Odisha	965715	17201	943069
##	27						Puo	ducherry	120227	922	117518

шш	00			Door do b	F00744	774	F01710
	28			Punjab	598741	771	581712
	29			Rajasthan	953522	328	944242
	30			Sikkim	24823	2849	21644
##				Tamil Nadu	2546689	24025	2488775
	32			Telengana	640659	9625	627254
	33			Tripura	76315	3934	71642
	34			Uttar Pradesh	1708152	932	1684471
## ##				Uttarakhand	341673	611	333703
##	30	Doo+ba	Astiro Dotio	West Bengal Discharge.Ratio	1522833	11891	1492878
##	1	129	0.19	98.10		1.71	
##		13241	1.15	98.18		0.68	
##		213	9.77	89.76		0.47	
##		5114	2.82	96.26		0.92	
##		9637	0.07	98.60		1.33	
##		809	0.07	98.64		1.31	
##		13511	0.03	98.37		1.35	
##		4	0.45	99.51		0.04	
##		25041	0.43	98.22		1.74	
	10	3126	0.73	97.44		1.83	
	11	10076	0.04	98.74		1.22	
	12	9617	0.10	98.65		1.25	
	13	3513	0.45	97.83		1.71	
##	14	4374	0.41	98.22		1.36	
##	15	5124	0.08	98.44		1.48	
##	16	36352	0.83	97.92		1.26	
##	17	15969	4.26	95.25		0.49	
##	18	207	0.34	98.65		1.02	
##	19	49	0.80	98.72		0.48	
##	20	10512	0.02	98.65		1.33	
##	21	131429	1.55	96.35		2.10	
##	22	1465	11.21	87.19		1.60	
##	23	1014	7.77	90.56		1.67	
##	24	135	24.95	74.61		0.43	
	25	538	4.82	93.21		1.98	
	26	5445	1.78	97.66		0.56	
	27	1787	0.77	97.75		1.49	
	28	16258	0.13	97.16		2.72	
	29	8952	0.03	99.03		0.94	
	30	330	11.48	87.19		1.33	
	31	33889	0.94	97.73		1.33	
	32	3780	1.50	97.91		0.59	
	33	739	5.15	93.88		0.97	
	34	22749	0.05	98.61		1.33	
	35	7359	0.18	97.67		2.15	
##	36	18064	0.78	98.03		1.19	

Structure of Dataset

```
str(CovidCases)
```

'data.frame': 36 obs. of 8 variables:

```
$ State.UTs
                        : chr
                                "Andaman and Nicobar" "Andhra Pradesh" "Arunachal Pradesh" "Assam" ...
   $ Total.Cases
##
                               7525 1952513 45703 557437 724390 61922 1001037 10637 1435844 170416 ...
                        : int
   $ Active
##
                        : int
                                14 22358 4465 15726 530 32 2789 48 587 1238 ...
                               7382 1916914 41025 536597 714223 61081 984737 10585 1410216 166052 ...
##
  $ Discharged
                        : int
   $ Deaths
                         : int
                               129 13241 213 5114 9637 809 13511 4 25041 3126 ...
##
   $ Active.Ratio....
                        : num 0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 ...
                               98.1 98.2 89.8 96.3 98.6 ...
  $ Discharge.Ratio...: num
                        : num 1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 ...
   $ Death.Ratio....
```

List of Variables

```
names(CovidCases)

## [1] "State.UTs" "Total.Cases" "Active"

## [4] "Discharged" "Deaths" "Active.Ratio...."

## [7] "Discharge.Ratio...." "Death.Ratio...."
```

Print the top 15 rows of dataset

```
head(CovidCases , 15)
```

```
##
                                        State.UTs Total.Cases Active Discharged
## 1
                             Andaman and Nicobar
                                                          7525
                                                                    14
                                                                              7382
## 2
                                  Andhra Pradesh
                                                       1952513
                                                                22358
                                                                          1916914
## 3
                               Arunachal Pradesh
                                                         45703
                                                                  4465
                                                                            41025
## 4
                                            Assam
                                                        557437
                                                                15726
                                                                           536597
## 5
                                            Bihar
                                                        724390
                                                                   530
                                                                           714223
## 6
                                       Chandigarh
                                                         61922
                                                                    32
                                                                            61081
## 7
                                                       1001037
                                                                            984737
                                    Chhattisgarh
                                                                  2789
## 8
      Dadra and Nagar Haveli and Daman and Diu
                                                         10637
                                                                    48
                                                                            10585
## 9
                                            Delhi
                                                       1435844
                                                                   587
                                                                          1410216
## 10
                                              Goa
                                                        170416
                                                                  1238
                                                                            166052
## 11
                                          Gujarat
                                                        824683
                                                                   342
                                                                            814265
## 12
                                          Haryana
                                                        769717
                                                                   740
                                                                           759360
## 13
                                Himachal Pradesh
                                                        205017
                                                                   931
                                                                            200573
## 14
                               Jammu and Kashmir
                                                        320491
                                                                  1319
                                                                           314798
## 15
                                        Jharkhand
                                                        346918
                                                                   276
                                                                           341518
##
      Deaths Active.Ratio.... Discharge.Ratio.... Death.Ratio....
## 1
         129
                           0.19
                                               98.10
                                                                  1.71
## 2
       13241
                                               98.18
                                                                  0.68
                           1.15
## 3
         213
                          9.77
                                               89.76
                                                                  0.47
                                               96.26
## 4
        5114
                           2.82
                                                                 0.92
## 5
        9637
                           0.07
                                               98.60
                                                                  1.33
         809
                                               98.64
                                                                  1.31
## 6
                           0.05
## 7
                                               98.37
       13511
                           0.28
                                                                  1.35
## 8
                           0.45
                                               99.51
                                                                 0.04
## 9
       25041
                           0.04
                                               98.22
                                                                  1.74
                                               97.44
## 10
        3126
                           0.73
                                                                  1.83
## 11
      10076
                           0.04
                                               98.74
                                                                  1.22
```

```
## 12
        9617
                         0.10
                                             98.65
                                                              1.25
## 13
        3513
                         0.45
                                             97.83
                                                              1.71
                         0.41
## 14
        4374
                                             98.22
                                                              1.36
                         0.08
                                             98.44
                                                               1.48
## 15
        5124
```

Function using any of the variables from the data set

```
TotalActiveCases <- function() { sum(CovidCases$Active)}
TotalActiveCases()</pre>
```

[1] 1655848

Data Manipulation Techniques - Filter rows with Active >20000

```
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
##
CovidCasesFiltered <- filter (CovidCases, CovidCases$Active > 20000)
CovidCasesFiltered
##
         State.UTs Total.Cases Active Discharged Deaths Active.Ratio....
## 1 Andhra Pradesh
                       1952513
                                 22358
                                          1916914 13241
                                                                     1.15
## 2
         Karnataka
                       2893556
                                23928
                                          2833276 36352
                                                                    0.83
## 3
            Kerala 3254064 1386262
                                          3099469 15969
                                                                    4.26
                     6258079
                                          6029817 131429
## 4
       Maharashtra
                                96833
                                                                     1.55
## 5
        Tamil Nadu
                       2546689
                                 24025
                                          2488775 33889
                                                                     0.94
   Discharge.Ratio.... Death.Ratio....
## 1
                  98.18
                                   0.68
                  97.92
## 2
                                   1.26
                  95.25
## 3
                                   0.49
```

Create new dataset by joining dependent and independent variables

2.10

1.33

96.35

97.73

4

5

CovidCasesnew = cbind(CovidCases\$State.UTs, CovidCases\$Total.Cases, CovidCases\$Active)
CovidCasesnew

```
##
         [,1]
                                                     [,2]
                                                                [,3]
   [1,] "Andaman and Nicobar"
                                                     "7525"
                                                               "14"
   [2,] "Andhra Pradesh"
                                                     "1952513" "22358"
##
   [3,] "Arunachal Pradesh"
                                                     "45703"
                                                               "4465"
## [4,] "Assam"
                                                     "557437"
                                                               "15726"
## [5,] "Bihar"
                                                     "724390"
                                                               "530"
## [6,] "Chandigarh"
                                                               "32"
                                                     "61922"
                                                     "1001037" "2789"
## [7,] "Chhattisgarh"
                                                               "48"
## [8,] "Dadra and Nagar Haveli and Daman and Diu" "10637"
## [9,] "Delhi"
                                                     "1435844" "587"
## [10,] "Goa"
                                                     "170416"
                                                               "1238"
                                                               "342"
## [11,] "Gujarat"
                                                     "824683"
## [12,] "Haryana"
                                                     "769717" "740"
                                                               "931"
                                                     "205017"
## [13,] "Himachal Pradesh"
## [14,] "Jammu and Kashmir"
                                                     "320491" "1319"
## [15,] "Jharkhand"
                                                     "346918" "276"
## [16,] "Karnataka"
                                                     "2893556" "23928"
## [17,] "Kerala"
                                                     "3254064" "1386262"
## [18,] "Ladakh"
                                                     "20296"
                                                               "68"
## [19,] "Lakshadweep"
                                                     "10127"
                                                               "81"
## [20,] "Madhya Pradesh"
                                                     "791738"
                                                               "149"
## [21,] "Maharashtra"
                                                     "6258079" "96833"
## [22,] "Manipur"
                                                     "91460"
                                                               "10251"
                                                     "60597"
                                                               "4708"
## [23,] "Meghalaya"
                                                     "31145"
                                                               "7772"
## [24,] "Mizoram"
## [25,] "Nagaland"
                                                     "27240"
                                                               "1312"
## [26,] "Odisha"
                                                     "965715"
                                                               "17201"
                                                     "120227"
                                                               "922"
## [27,] "Puducherry"
## [28,] "Punjab"
                                                     "598741"
                                                               "771"
## [29,] "Rajasthan"
                                                     "953522"
                                                               "328"
## [30,] "Sikkim"
                                                     "24823"
                                                               "2849"
## [31,] "Tamil Nadu"
                                                     "2546689" "24025"
## [32,] "Telengana"
                                                     "640659"
                                                               "9625"
## [33,] "Tripura"
                                                     "76315"
                                                               "3934"
## [34,] "Uttar Pradesh"
                                                     "1708152" "932"
## [35.] "Uttarakhand"
                                                     "341673" "611"
## [36,] "West Bengal"
                                                     "1522833" "11891"
```

Convert dataset from "matrix" array" to "data.frame" after cbind()

```
class(CovidCasesnew)

## [1] "matrix" "array"

CovidCasesnew = as.data.frame(CovidCasesnew)

class(CovidCasesnew)

## [1] "data.frame"
```

Rename column names V1, V2, V3 in CovidCasesnew dataset

```
names(CovidCasesnew)[1] = "State.UTs"
names(CovidCasesnew)[2] = "Total.Cases"
names(CovidCasesnew)[3] = "Active"
CovidCasesnew
```

```
##
                                       State.UTs Total.Cases Active
## 1
                            Andaman and Nicobar
                                                         7525
                                                                    14
## 2
                                  Andhra Pradesh
                                                      1952513
                                                                 22358
## 3
                               Arunachal Pradesh
                                                        45703
                                                                  4465
## 4
                                            Assam
                                                       557437
                                                                 15726
## 5
                                            Bihar
                                                       724390
                                                                   530
## 6
                                      Chandigarh
                                                        61922
                                                                    32
## 7
                                    Chhattisgarh
                                                      1001037
                                                                  2789
## 8
      Dadra and Nagar Haveli and Daman and Diu
                                                                    48
                                                         10637
## 9
                                            Delhi
                                                      1435844
                                                                   587
## 10
                                              Goa
                                                       170416
                                                                  1238
                                         Gujarat
## 11
                                                       824683
                                                                   342
## 12
                                         Haryana
                                                       769717
                                                                   740
## 13
                                Himachal Pradesh
                                                                   931
                                                       205017
## 14
                               Jammu and Kashmir
                                                       320491
                                                                  1319
## 15
                                       Jharkhand
                                                                   276
                                                       346918
## 16
                                       Karnataka
                                                      2893556
                                                                 23928
## 17
                                          Kerala
                                                      3254064 1386262
## 18
                                          Ladakh
                                                        20296
                                                                    68
## 19
                                     Lakshadweep
                                                        10127
                                                                    81
## 20
                                  Madhya Pradesh
                                                       791738
                                                                   149
                                     Maharashtra
## 21
                                                      6258079
                                                                 96833
## 22
                                                        91460
                                                                 10251
                                         Manipur
## 23
                                       Meghalaya
                                                        60597
                                                                  4708
## 24
                                         Mizoram
                                                        31145
                                                                  7772
## 25
                                        Nagaland
                                                        27240
                                                                  1312
## 26
                                          Odisha
                                                       965715
                                                                 17201
## 27
                                      Puducherry
                                                       120227
                                                                   922
## 28
                                          Punjab
                                                       598741
                                                                   771
## 29
                                       Rajasthan
                                                       953522
                                                                   328
## 30
                                                                  2849
                                          Sikkim
                                                        24823
## 31
                                      Tamil Nadu
                                                      2546689
                                                                 24025
## 32
                                       Telengana
                                                       640659
                                                                  9625
## 33
                                         Tripura
                                                         76315
                                                                  3934
## 34
                                   Uttar Pradesh
                                                      1708152
                                                                   932
## 35
                                     Uttarakhand
                                                       341673
                                                                   611
## 36
                                     West Bengal
                                                      1522833
                                                                 11891
```

Remove missing values in CovidCases dataset

```
CovidCases <- na.omit(CovidCases)
CovidCases
```

State.UTs Total.Cases Active Discharged

```
## 1
                             Andaman and Nicobar
                                                            7525
                                                                       14
                                                                                 7382
## 2
                                   Andhra Pradesh
                                                        1952513
                                                                   22358
                                                                             1916914
## 3
                                Arunachal Pradesh
                                                          45703
                                                                     4465
                                                                                41025
## 4
                                             Assam
                                                         557437
                                                                   15726
                                                                              536597
## 5
                                             Bihar
                                                         724390
                                                                      530
                                                                              714223
## 6
                                        Chandigarh
                                                          61922
                                                                       32
                                                                                61081
## 7
                                     Chhattisgarh
                                                                     2789
                                                                              984737
                                                        1001037
## 8
      Dadra and Nagar Haveli and Daman and Diu
                                                          10637
                                                                       48
                                                                                10585
## 9
                                             Delhi
                                                        1435844
                                                                      587
                                                                              1410216
## 10
                                               Goa
                                                          170416
                                                                     1238
                                                                              166052
## 11
                                           Gujarat
                                                         824683
                                                                      342
                                                                              814265
## 12
                                           Haryana
                                                         769717
                                                                      740
                                                                              759360
## 13
                                 Himachal Pradesh
                                                          205017
                                                                      931
                                                                              200573
## 14
                                Jammu and Kashmir
                                                         320491
                                                                     1319
                                                                              314798
## 15
                                         Jharkhand
                                                         346918
                                                                      276
                                                                              341518
## 16
                                         Karnataka
                                                        2893556
                                                                   23928
                                                                              2833276
## 17
                                            Kerala
                                                        3254064 1386262
                                                                             3099469
## 18
                                            Ladakh
                                                          20296
                                                                       68
                                                                                20021
## 19
                                      Lakshadweep
                                                          10127
                                                                       81
                                                                                 9997
## 20
                                   Madhya Pradesh
                                                         791738
                                                                      149
                                                                              781077
## 21
                                      Maharashtra
                                                        6258079
                                                                   96833
                                                                             6029817
## 22
                                           Manipur
                                                          91460
                                                                    10251
                                                                                79744
## 23
                                                          60597
                                                                     4708
                                                                                54875
                                         Meghalaya
## 24
                                           Mizoram
                                                          31145
                                                                     7772
                                                                                23238
## 25
                                          Nagaland
                                                          27240
                                                                     1312
                                                                                25390
## 26
                                            Odisha
                                                         965715
                                                                   17201
                                                                              943069
## 27
                                        Puducherry
                                                          120227
                                                                      922
                                                                              117518
## 28
                                                         598741
                                            Punjab
                                                                      771
                                                                              581712
## 29
                                         Rajasthan
                                                         953522
                                                                      328
                                                                              944242
## 30
                                            Sikkim
                                                          24823
                                                                     2849
                                                                                21644
## 31
                                        Tamil Nadu
                                                        2546689
                                                                   24025
                                                                             2488775
## 32
                                         Telengana
                                                         640659
                                                                     9625
                                                                              627254
## 33
                                           Tripura
                                                          76315
                                                                     3934
                                                                                71642
## 34
                                    Uttar Pradesh
                                                        1708152
                                                                      932
                                                                             1684471
## 35
                                       Uttarakhand
                                                         341673
                                                                      611
                                                                              333703
##
  36
                                      West Bengal
                                                                   11891
                                                                             1492878
                                                        1522833
##
      Deaths Active.Ratio.... Discharge.Ratio.... Death.Ratio....
## 1
          129
                           0.19
                                                98.10
                                                                    1.71
## 2
       13241
                           1.15
                                                98.18
                                                                   0.68
## 3
          213
                           9.77
                                                89.76
                                                                   0.47
## 4
        5114
                           2.82
                                                96.26
                                                                   0.92
## 5
        9637
                           0.07
                                                98.60
                                                                   1.33
## 6
          809
                           0.05
                                                98.64
                                                                   1.31
## 7
       13511
                                                98.37
                           0.28
                                                                   1.35
## 8
                                                99.51
                           0.45
                                                                   0.04
## 9
                                                98.22
       25041
                           0.04
                                                                   1.74
## 10
                                                97.44
        3126
                           0.73
                                                                   1.83
## 11
                                                98.74
                                                                   1.22
       10076
                           0.04
## 12
        9617
                           0.10
                                                98.65
                                                                   1.25
## 13
        3513
                           0.45
                                                97.83
                                                                   1.71
## 14
        4374
                           0.41
                                                98.22
                                                                   1.36
## 15
                           0.08
        5124
                                                98.44
                                                                   1.48
## 16
       36352
                           0.83
                                                97.92
                                                                   1.26
                                                95.25
## 17
       15969
                           4.26
                                                                   0.49
```

##	18	207	0.34	98.65	1.02
##	19	49	0.80	98.72	0.48
##	20	10512	0.02	98.65	1.33
##	21	131429	1.55	96.35	2.10
##	22	1465	11.21	87.19	1.60
##	23	1014	7.77	90.56	1.67
##	24	135	24.95	74.61	0.43
##	25	538	4.82	93.21	1.98
##	26	5445	1.78	97.66	0.56
##	27	1787	0.77	97.75	1.49
##	28	16258	0.13	97.16	2.72
##	29	8952	0.03	99.03	0.94
##	30	330	11.48	87.19	1.33
##	31	33889	0.94	97.73	1.33
##	32	3780	1.50	97.91	0.59
##	33	739	5.15	93.88	0.97
##	34	22749	0.05	98.61	1.33
##	35	7359	0.18	97.67	2.15
##	36	18064	0.78	98.03	1.19

Create duplicated data in dataset

```
B <- tail(CovidCases, 2)</pre>
##
       State.UTs Total.Cases Active Discharged Deaths Active.Ratio....
## 35 Uttarakhand
                     341673
                                 611
                                        333703
                                                  7359
                                                                   0.18
## 36 West Bengal
                     1522833 11891
                                      1492878 18064
                                                                   0.78
     Discharge.Ratio.... Death.Ratio....
## 35
                    97.67
                                    2.15
## 36
                    98.03
                                    1.19
```

Create new dataset CovidCaseWITHDUP with duplicated data in dataset

```
CovidCasesWITHDUP = rbind(CovidCases,B)
CovidCasesWITHDUP
```

##		State.UT:	s Total.Cases	Active	Discharged
##	1	Andaman and Nicoba	7525	14	7382
##	2	Andhra Pradesl	n 1952513	22358	1916914
##	3	Arunachal Pradesl	a 45703	4465	41025
##	4	Assar	n 557437	15726	536597
##	5	Biha	724390	530	714223
##	6	Chandigarl	n 61922	32	61081
##	7	Chhattisgarl	n 1001037	2789	984737
##	8	Dadra and Nagar Haveli and Daman and Di	10637	48	10585
##	9	Delh:	i 1435844	587	1410216
##	10	Goa	a 170416	1238	166052
##	11	Gujara	824683	342	814265

	4.0			**	700747	740	750000
	12			Haryana	769717	740	759360
##	13			Himachal Pradesh	205017	931	200573
##	14		•	Jammu and Kashmir	320491	1319	314798
##	15			Jharkhand	346918	276	341518
##	16			Karnataka	2893556	23928	2833276
##	17			Kerala	3254064	1386262	3099469
##	18			Ladakh	20296	68	20021
##	19			Lakshadweep	10127	81	9997
##	20			Madhya Pradesh	791738	149	781077
##	21			Maharashtra	6258079	96833	6029817
##	22			Manipur	91460	10251	79744
##	23			Meghalaya	60597	4708	54875
##	24			Mizoram	31145	7772	23238
##	25			Nagaland	27240	1312	25390
##	26			Odisha	965715	17201	943069
##	27			Puducherry	120227	922	117518
##	28			Punjab	598741	771	581712
##	29			Rajasthan	953522	328	944242
##	30			Sikkim	24823	2849	21644
##	31			Tamil Nadu	2546689	24025	2488775
##	32			Telengana	640659	9625	627254
##	33			Tripura	76315	3934	71642
##	34			Uttar Pradesh	1708152	932	1684471
##	35			Uttarakhand	341673	611	333703
##	36			West Bengal	1522833	11891	1492878
##	351			Uttarakhand	341673	611	333703
##	361			West Bengal	1522833	11891	1492878
##		Deaths	Active.Ratio	Discharge.Ratio			
## ##	1	Deaths 129	Active.Ratio 0.19	_	Death.Rat		
				Discharge.Ratio	Death.Rat	io	
## ##		129	0.19	Discharge.Ratio 98.10	Death.Rat	io 1.71	
## ## ##	2	129 13241	0.19 1.15	Discharge.Ratio 98.10 98.18	Death.Rat	1.71 0.68	
## ## ## ##	2	129 13241 213	0.19 1.15 9.77	Discharge.Ratio 98.10 98.18 89.76	Death.Rat	1.71 0.68 0.47	
## ## ## ##	2 3 4	129 13241 213 5114	0.19 1.15 9.77 2.82	Discharge.Ratio 98.10 98.18 89.76 96.26	Death.Rat	1.71 0.68 0.47 0.92	
## ## ## ## ##	2 3 4 5	129 13241 213 5114 9637	0.19 1.15 9.77 2.82 0.07	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60	Death.Rat	1.71 0.68 0.47 0.92 1.33	
## ## ## ## ## ##	2 3 4 5 6	129 13241 213 5114 9637 809	0.19 1.15 9.77 2.82 0.07 0.05	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31	
## ## ## ## ## ##	2 3 4 5 6 7 8	129 13241 213 5114 9637 809 13511	0.19 1.15 9.77 2.82 0.07 0.05 0.28	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37	Death.Ra	1.71 0.68 0.47 0.92 1.33 1.31	
## ## ## ## ## ##	2 3 4 5 6 7 8 9	129 13241 213 5114 9637 809 13511	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51	Death.Ra	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04	
## ## ## ## ## ## ##	2 3 4 5 6 7 8 9	129 13241 213 5114 9637 809 13511 4 25041	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04	Discharge.Ratio 98.10 98.18 89.76 96.26 98.64 98.37 99.51 98.22	Death.Ra	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04	
## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10	129 13241 213 5114 9637 809 13511 4 25041 3126	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44	Death.Ra	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74	
## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10 11	129 13241 213 5114 9637 809 13511 4 25041 3126 10076	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22	
## ## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10 11 12	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25	
## ## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10 11 12	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10	Discharge.Ratio 98.10 98.18 89.76 96.26 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71	
## ## ## ## ## ## ## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10 11 12 13 14	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41	Discharge.Ratio 98.10 98.18 89.76 96.26 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71	
## ## ## ## ## ## ## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10 11 12 13 14 15	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48	
## ## ## ## ## ## ## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92	Death.Rad	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26	
## ## ## ## ## ## ## ## ## ##	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25	Death.Rad	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49	
######################################	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969 207	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26 0.34	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49 1.02	
######################################	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969 207 49	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26 0.34	Discharge.Ratio 98.10 98.18 89.76 96.26 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25 98.65	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49 1.02 0.48	
######################################	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969 207 49 10512	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26 0.34 0.80 0.02	Discharge.Ratio 98.10 98.18 89.76 96.26 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25 98.65	Death.Rat	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49 1.02 0.48 1.33	
#######################################	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969 207 49 10512 131429	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26 0.34 0.80 0.02 1.55	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25 98.65 98.72 98.65	Death.Rad	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49 1.02 0.48 1.33 2.10	
##########################	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969 207 49 10512 131429 1465	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26 0.34 0.80 0.02 1.55 11.21	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25 98.65 98.72 98.65 96.35 87.19	Death.Rad	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49 1.02 0.48 1.33 2.10 1.60	
##########################	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969 207 49 10512 131429 1465 1014	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26 0.34 0.80 0.02 1.55 11.21 7.77	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25 98.65 98.72 98.65 96.35 87.19	Death.Rad	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49 1.02 0.48 1.33 2.10 1.60 1.67	
############################	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	129 13241 213 5114 9637 809 13511 4 25041 3126 10076 9617 3513 4374 5124 36352 15969 207 49 10512 131429 1465 1014 135	0.19 1.15 9.77 2.82 0.07 0.05 0.28 0.45 0.04 0.73 0.04 0.10 0.45 0.41 0.08 0.83 4.26 0.34 0.80 0.02 1.55 11.21 7.77 24.95	Discharge.Ratio 98.10 98.18 89.76 96.26 98.60 98.64 98.37 99.51 98.22 97.44 98.74 98.65 97.83 98.22 98.44 97.92 95.25 98.65 98.72 98.65 98.71 99.56 74.61	Death.Rad	1.71 0.68 0.47 0.92 1.33 1.31 1.35 0.04 1.74 1.83 1.22 1.25 1.71 1.36 1.48 1.26 0.49 1.02 0.48 1.33 2.10 1.60 1.67 0.43	

##	27	1787	0.77	97.75	1.49
##	28	16258	0.13	97.16	2.72
##	29	8952	0.03	99.03	0.94
##	30	330	11.48	87.19	1.33
##	31	33889	0.94	97.73	1.33
##	32	3780	1.50	97.91	0.59
##	33	739	5.15	93.88	0.97
##	34	22749	0.05	98.61	1.33
##	35	7359	0.18	97.67	2.15
##	36	18064	0.78	98.03	1.19
##	351	7359	0.18	97.67	2.15
##	361	18064	0.78	98.03	1.19

$Remove\ duplicated\ data\ in\ dataset\ CovidCasesWITHDUP$

##							St	tate.UTs	Total.Cases	Active	Discharged
##	1				Aı	ndaman	and	${\tt Nicobar}$	7525	14	7382
##	2					And	hra	${\tt Pradesh}$	1952513	22358	1916914
##	3					Arunac	hal	${\tt Pradesh}$	45703	4465	41025
##	4							Assam	557437	15726	536597
##	5							Bihar	724390	530	714223
##	6						Cha	andigarh	61922	32	61081
##	7					C	hhat	ttisgarh	1001037	2789	984737
##	8	${\tt Dadra}$	and	Nagar	Haveli	and Da	man	and Diu	10637	48	10585
##	9							Delhi	1435844	587	1410216
##	10							Goa	170416	1238	166052
##	11							Gujarat	824683	342	814265
##	12							Haryana	769717	740	759360
##	13					Himac	hal	${\tt Pradesh}$	205017	931	200573
##	14					Jammu	and	${\tt Kashmir}$	320491	1319	314798
##	15						Jł	narkhand	346918	276	341518
##	16						Ka	arnataka	2893556	23928	2833276
##	17							Kerala	3254064	1386262	3099469
##	18							Ladakh	20296	68	20021

##	19			Lakshadweep	10127	81	9997
##	20			Madhya Pradesh	791738	149	781077
##	21			Maharashtra	6258079	96833	6029817
##	22			Manipur	91460	10251	79744
##	23			Meghalaya	60597	4708	54875
##				Mizoram	31145	7772	23238
##				Nagaland	27240	1312	25390
	26			Odisha	965715	17201	943069
##				Puducherry	120227	922	117518
	28			Punjab	598741	771	581712
	29			Rajasthan	953522	328	944242
	30			Sikkim	24823	2849	21644
	31			Tamil Nadu	2546689	24025	2488775
	32			Telengana	640659	9625	627254
	33			Tripura	76315	3934	71642
	34			Uttar Pradesh	1708152	932	1684471
	35			Uttarakhand	341673	611	333703
##	36			West Bengal	1522833	11891	1492878
##			Active.Ratio	Discharge.Ratio			
##	1	129	0.19	98.10)	1.71	
##	2	13241	1.15	98.18	3	0.68	
##	3	213	9.77	89.76	;	0.47	
##	4	5114	2.82	96.26	i	0.92	
##	5	9637	0.07	98.60)	1.33	
##	6	809	0.05	98.64	:	1.31	
##	7	13511	0.28	98.37	•	1.35	
##	8	4	0.45	99.51		0.04	
##	9	25041	0.04	98.22	!	1.74	
##	10	3126	0.73	97.44	:	1.83	
##	11	10076	0.04	98.74	:	1.22	
##	12	9617	0.10	98.65	•	1.25	
##	13	3513	0.45	97.83	}	1.71	
##	14	4374	0.41	98.22	!	1.36	
##	15	5124	0.08	98.44	:	1.48	
##	16	36352	0.83	97.92		1.26	
##	17	15969	4.26	95.25		0.49	
##	18	207	0.34	98.65		1.02	
##		49	0.80	98.72		0.48	
	20	10512	0.02	98.65		1.33	
		131429	1.55	96.35		2.10	
	22	1465	11.21	87.19		1.60	
	23	1014	7.77	90.56		1.67	
	24	135	24.95	74.61		0.43	
##		538	4.82	93.21		1.98	
##		5445	1.78	97.66		0.56	
##		1787	0.77	97.75		1.49	
##		16258	0.13	97.16		2.72	
##		8952	0.03	99.03		0.94	
##		330	11.48	87.19		1.33	
##		33889	0.94	97.73		1.33	
	32	3780	1.50	97.91		0.59	
##		739	5.15	93.88		0.97	
##		22749	0.05	98.61		1.33	
##	35	7359	0.18	97.67	•	2.15	

36 18064 0.78 98.03 1.19

Reorder multiple rows in descending alphabetical order of State and Total Cases

CovidCases %>% arrange(desc(CovidCases\$State.UTs, Total.Cases))

##				Total.Cases		Discharged
##	1		West Bengal	1522833	11891	1492878
##	2		Uttarakhand	341673	611	333703
##	3		Uttar Pradesh	1708152	932	1684471
	4		Tripura	76315	3934	71642
##	5		Telengana	640659	9625	627254
##	6		Tamil Nadu	2546689	24025	2488775
##	7		Sikkim	24823	2849	21644
##	8		Rajasthan	953522	328	944242
##	9		Punjab	598741	771	581712
##	10		Puducherry	120227	922	117518
##	11		Odisha	965715	17201	943069
##	12		Nagaland	27240	1312	25390
##	13		Mizoram	31145	7772	23238
##	14		Meghalaya	60597	4708	54875
##	15		Manipur	91460	10251	79744
##	16		Maharashtra	6258079	96833	6029817
##	17		Madhya Pradesh	791738	149	781077
##	18		Lakshadweep	10127	81	9997
##	19		Ladakh	20296	68	20021
##	20		Kerala		1386262	3099469
##	21		Karnataka	2893556	23928	2833276
##	22		Jharkhand	346918	276	341518
##	23		Jammu and Kashmir	320491	1319	314798
##	24		Himachal Pradesh	205017	931	200573
	25		Haryana	769717	740	759360
##	26		Gujarat	824683	342	814265
##	27		Goa	170416	1238	166052
##	28		Delhi	1435844	587	1410216
##	29	Dadra and Nagar Haveli		10637	48	10585
##	30		Chhattisgarh	1001037	2789	984737
##	31		Chandigarh	61922	32	61081
	32		Bihar	724390	530	714223
##	33		Assam	557437	15726	536597
##	34		Arunachal Pradesh	45703	4465	41025
##	35		Andhra Pradesh	1952513	22358	1916914
##	36	Ar	daman and Nicobar	7525	14	7382
##		Deaths Active.Ratio	Discharge.Ratio.	Death.Rat	io	
##	1	18064 0.78	98.	. 03	1.19	
##	2	7359 0.18	97.	. 67	2.15	
##	3	22749 0.05	98.	.61	1.33	
##	4	739 5.15	93.	.88	0.97	
##	5	3780 1.50	97.	.91	0.59	
##		33889 0.94			1.33	
##		330 11.48			1.33	
##		8952 0.03			0.94	

##	9	16258	0.13	97.16	2.72
##	10	1787	0.77	97.75	1.49
##	11	5445	1.78	97.66	0.56
##	12	538	4.82	93.21	1.98
##	13	135	24.95	74.61	0.43
##	14	1014	7.77	90.56	1.67
##	15	1465	11.21	87.19	1.60
##	16	131429	1.55	96.35	2.10
##	17	10512	0.02	98.65	1.33
##	18	49	0.80	98.72	0.48
##	19	207	0.34	98.65	1.02
##	20	15969	4.26	95.25	0.49
##	21	36352	0.83	97.92	1.26
##	22	5124	0.08	98.44	1.48
##	23	4374	0.41	98.22	1.36
##	24	3513	0.45	97.83	1.71
##	25	9617	0.10	98.65	1.25
##	26	10076	0.04	98.74	1.22
##	27	3126	0.73	97.44	1.83
##	28	25041	0.04	98.22	1.74
##	29	4	0.45	99.51	0.04
##	30	13511	0.28	98.37	1.35
##	31	809	0.05	98.64	1.31
##	32	9637	0.07	98.60	1.33
##	33	5114	2.82	96.26	0.92
##	34	213	9.77	89.76	0.47
##	35	13241	1.15	98.18	0.68
##	36	129	0.19	98.10	1.71

Rename column name State. UTs = X in CovidCases dataset

CovidCases %>% rename(X=State.UTs)

##								Х	Total.Cases	Active	Discharged
##	1				Aı	ndaman a	and	Nicobar	7525	14	7382
##	2					Andl	hra	Pradesh	1952513	22358	1916914
##	3					Arunach	hal	Pradesh	45703	4465	41025
##	4							Assam	557437	15726	536597
##	5							Bihar	724390	530	714223
##	6						Cha	ndigarh	61922	32	61081
##	7					Cl	hhat	tisgarh	1001037	2789	984737
##	8	${\tt Dadra}$	and	Nagar	Haveli	and Dar	man	and Diu	10637	48	10585
##	9							Delhi	1435844	587	1410216
##	10							Goa	170416	1238	166052
##	11							Gujarat	824683	342	814265
##	12							Haryana	769717	740	759360
##	13					Himach	hal	Pradesh	205017	931	200573
##	14					Jammu a	and	Kashmir	320491	1319	314798
##	15						Jh	arkhand	346918	276	341518
##	16						Ka	rnataka	2893556	23928	2833276
##	17							Kerala	3254064	1386262	3099469
##	18							Ladakh	20296	68	20021

##	19			Lakshadweep	10127	81	9997
##	20			Madhya Pradesh	791738	149	781077
##	21			Maharashtra	6258079	96833	6029817
##	22			Manipur	91460	10251	79744
##	23			Meghalaya	60597	4708	54875
##				Mizoram	31145	7772	23238
##				Nagaland	27240	1312	25390
	26			Odisha	965715	17201	943069
##				Puducherry	120227	922	117518
	28			Punjab	598741	771	581712
	29			Rajasthan	953522	328	944242
	30			Sikkim	24823	2849	21644
	31			Tamil Nadu	2546689	24025	2488775
	32			Telengana	640659	9625	627254
	33			Tripura	76315	3934	71642
	34			Uttar Pradesh	1708152	932	1684471
	35			Uttarakhand	341673	611	333703
##	36			West Bengal	1522833	11891	1492878
##			Active.Ratio	Discharge.Ratio			
##	1	129	0.19	98.10)	1.71	
##	2	13241	1.15	98.18	3	0.68	
##	3	213	9.77	89.76	;	0.47	
##	4	5114	2.82	96.26	i	0.92	
##	5	9637	0.07	98.60)	1.33	
##	6	809	0.05	98.64	:	1.31	
##	7	13511	0.28	98.37	•	1.35	
##	8	4	0.45	99.51		0.04	
##	9	25041	0.04	98.22	!	1.74	
##	10	3126	0.73	97.44	:	1.83	
##	11	10076	0.04	98.74	:	1.22	
##	12	9617	0.10	98.65	•	1.25	
##	13	3513	0.45	97.83	}	1.71	
##	14	4374	0.41	98.22	!	1.36	
##	15	5124	0.08	98.44	:	1.48	
##	16	36352	0.83	97.92		1.26	
##	17	15969	4.26	95.25		0.49	
##	18	207	0.34	98.65		1.02	
##		49	0.80	98.72		0.48	
	20	10512	0.02	98.65		1.33	
		131429	1.55	96.35		2.10	
	22	1465	11.21	87.19		1.60	
	23	1014	7.77	90.56		1.67	
	24	135	24.95	74.61		0.43	
##		538	4.82	93.21		1.98	
##		5445	1.78	97.66		0.56	
##		1787	0.77	97.75		1.49	
##		16258	0.13	97.16		2.72	
##		8952	0.03	99.03		0.94	
##		330	11.48	87.19		1.33	
##		33889	0.94	97.73		1.33	
	32	3780	1.50	97.91		0.59	
##		739	5.15	93.88		0.97	
##		22749	0.05	98.61		1.33	
##	35	7359	0.18	97.67	•	2.15	

36 18064 0.78 98.03 1.19

Add new variables/column in dataset by using a mathematical function

CovidCases\$Active_Per = (CovidCases\$Active.Ratio)*100
CovidCases

##				St	tate.UTs	Total.Cases	Active	Discharged
	1		An	daman and		7525	14	7382
##	2				Pradesh	1952513	22358	1916914
##	3			Arunachal		45703	4465	41025
	4				Assam	557437	15726	536597
##	5				Bihar	724390	530	714223
##	6			Cha	andigarh	61922	32	61081
##	7				ttisgarh	1001037	2789	984737
##	8	Dadra a	and Nagar Haveli		_	10637	48	10585
##	9		J		Delhi	1435844	587	1410216
##	10				Goa	170416	1238	166052
##	11				Gujarat	824683	342	814265
##	12				Haryana	769717	740	759360
##	13			Himachal	Pradesh	205017	931	200573
##	14			Jammu and	Kashmir	320491	1319	314798
##	15	Jharkhand				346918	276	341518
##	16			Ka	arnataka	2893556	23928	2833276
##	17				Kerala	3254064	1386262	3099469
##	18				Ladakh	20296	68	20021
##	19			Laks	shadweep	10127	81	9997
##	20			Madhya	${\tt Pradesh}$	791738	149	781077
##	21			Maha	arashtra	6258079	96833	6029817
	22				${\tt Manipur}$	91460	10251	79744
##	23			Me	eghalaya	60597	4708	54875
##	24				${\tt Mizoram}$	31145	7772	23238
##	25			I	Wagaland	27240	1312	25390
##	26		Odisha		Odisha	965715	17201	943069
##	27			Puducherry		120227	922	117518
##	28			Punjab		598741	771	581712
##	29	Rajasthan		953522	328	944242		
##	30	Sikkim		24823	2849	21644		
	31	Tamil Nadu		2546689	24025	2488775		
##	32	Telengana		640659	9625	627254		
##	33				Tripura	76315	3934	71642
##	34				Pradesh	1708152	932	1684471
##	35				arakhand	341673	611	333703
	36	5			t Bengal	1522833	11891	1492878
##			Active.Ratio	_				
##		129	0.19			.10	1.71	19
	2	13241	1.15			. 18	0.68	115
##		213	9.77			.76	0.47	977
##		5114	2.82			. 26	0.92	282
##		9637	0.07			.60	1.33	7
##		809	0.05			. 64	1.31	5
##	1	13511	0.28		98.	. 37	1.35	28

##	8	4	0.45	99.51	0.04	45
##	9	25041	0.04	98.22	1.74	4
##	10	3126	0.73	97.44	1.83	73
##	11	10076	0.04	98.74	1.22	4
##	12	9617	0.10	98.65	1.25	10
##	13	3513	0.45	97.83	1.71	45
##	14	4374	0.41	98.22	1.36	41
##	15	5124	0.08	98.44	1.48	8
##	16	36352	0.83	97.92	1.26	83
##	17	15969	4.26	95.25	0.49	426
##	18	207	0.34	98.65	1.02	34
##	19	49	0.80	98.72	0.48	80
##	20	10512	0.02	98.65	1.33	2
##	21	131429	1.55	96.35	2.10	155
##	22	1465	11.21	87.19	1.60	1121
##	23	1014	7.77	90.56	1.67	777
##	24	135	24.95	74.61	0.43	2495
##	25	538	4.82	93.21	1.98	482
##	26	5445	1.78	97.66	0.56	178
##	27	1787	0.77	97.75	1.49	77
##	28	16258	0.13	97.16	2.72	13
##	29	8952	0.03	99.03	0.94	3
##	30	330	11.48	87.19	1.33	1148
##	31	33889	0.94	97.73	1.33	94
##	32	3780	1.50	97.91	0.59	150
##	33	739	5.15	93.88	0.97	515
##	34	22749	0.05	98.61	1.33	5
##	35	7359	0.18	97.67	2.15	18
##	36	18064	0.78	98.03	1.19	78

Add new variables/column in dataset by using a mathematical function

CovidCases\$Active_DBL = data.frame(CovidCases\$Active.Ratio)*2
CovidCases\$Active_DBL

```
##
      CovidCases.Active.Ratio
## 1
                         0.38
## 2
                         2.30
## 3
                         19.54
## 4
                         5.64
## 5
                         0.14
## 6
                         0.10
## 7
                         0.56
## 8
                         0.90
## 9
                         0.08
## 10
                         1.46
                         0.08
## 11
## 12
                         0.20
## 13
                         0.90
                         0.82
## 14
## 15
                         0.16
## 16
                         1.66
```

```
## 17
                           8.52
## 18
                           0.68
## 19
                           1.60
## 20
                           0.04
## 21
                           3.10
## 22
                          22.42
## 23
                          15.54
## 24
                          49.90
## 25
                           9.64
## 26
                           3.56
## 27
                           1.54
## 28
                           0.26
## 29
                           0.06
## 30
                          22.96
## 31
                           1.88
## 32
                           3.00
## 33
                          10.30
## 34
                           0.10
## 35
                           0.36
## 36
                           1.56
```

Extract 5 random rows without replacement using random number generator engine

```
set.seed(1234)
CovidCases %>% sample_n(5, replace = FALSE)
     State.UTs Total.Cases Active Discharged Deaths Active.Ratio....
##
                                       581712 16258
## 1
        Punjab
                    598741
                               771
                                                                  0.13
## 2 Karnataka
                   2893556 23928
                                      2833276
                                               36352
                                                                  0.83
                     91460 10251
## 3
       Manipur
                                        79744
                                                 1465
                                                                 11.21
## 4
         Delhi
                   1435844
                               587
                                      1410216
                                               25041
                                                                  0.04
## 5
         Bihar
                    724390
                               530
                                       714223
                                                9637
                                                                  0.07
##
     Discharge.Ratio.... Death.Ratio.... Active_Per CovidCases.Active.Ratio
## 1
                                                                          0.26
                   97.16
                                     2.72
                                                   13
## 2
                   97.92
                                     1.26
                                                   83
                                                                          1.66
## 3
                   87.19
                                                                         22.42
                                     1.60
                                                 1121
## 4
                   98.22
                                     1.74
                                                    4
                                                                          0.08
## 5
                   98.60
                                     1.33
                                                    7
                                                                          0.14
```

Summary Statistics Dataset

Mode : character

##

summary(CovidCases) State.UTs Total.Cases ## Active Discharged ## Length:36 Min. : 7525 Min. 14 7382 Min. Class : character 1st Qu.: 61591 1st Qu.: 483 1st Qu.: 59530

1275

Median: 439058

Median :

Median : 452178

```
##
                     3rd Qu.: 974546 3rd Qu.:
                                               9782
                                                      3rd Qu.: 954366
##
                     Max.
                           :6258079 Max.
                                           :1386262
                                                            :6029817
                                                    Max.
##
       Deaths
                     Active.Ratio.... Discharge.Ratio.... Death.Ratio....
   Min. :
                    Min. : 0.0200
##
               4.0
                                     Min. :74.61
                                                        Min.
                                                              :0.040
##
   1st Qu.:
            791.5
                    1st Qu.: 0.1225
                                     1st Qu.:96.33
                                                        1st Qu.:0.935
##
  Median: 5119.0 Median: 0.7500
                                    Median :97.92
                                                        Median :1.330
   Mean : 11682.0 Mean : 2.6658
                                     Mean :96.07
                                                        Mean :1.260
   3rd Qu.: 13308.5 3rd Qu.: 2.0400
                                     3rd Qu.:98.60
                                                        3rd Qu.:1.617
##
         :131429.0 Max.
##
   Max.
                           :24.9500
                                     Max.
                                            :99.51
                                                        Max.
                                                             :2.720
##
     Active_Per
                    Active_DBL.CovidCases.Active.Ratio
                    Min. : 0.04000
  Min. : 2.00
  1st Qu.: 12.25
                    1st Qu.: 0.24500
##
                    Median: 1.50000
## Median : 75.00
## Mean : 266.58
                    Mean : 5.33167
## 3rd Qu.: 204.00
                    3rd Qu.: 4.08000
## Max.
         :2495.00
                    Max. :49.90000
```

Mean

```
mean(CovidCases$Total.Cases)
```

[1] 871441.7

Median

```
median(CovidCases$Total.Cases)
```

[1] 452177.5

Mode

```
mode(CovidCases$Total.Cases)
```

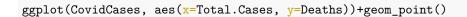
[1] "numeric"

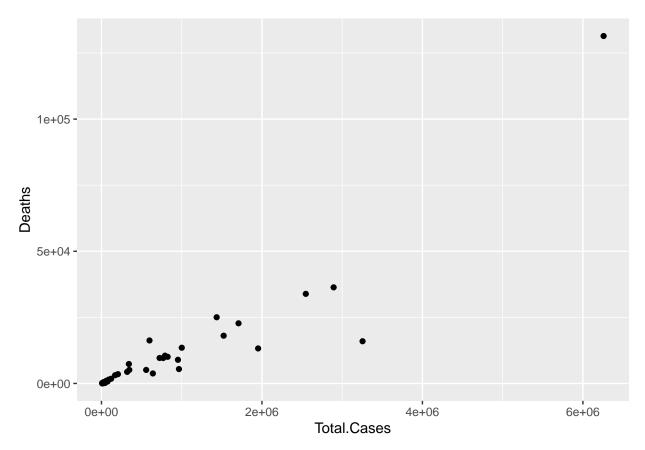
Range

```
range(CovidCases$Total.Cases)
```

[1] 7525 6258079

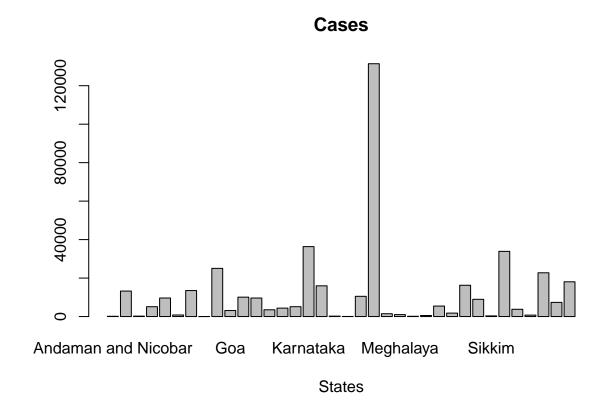
Scatter Plot for Total and Death Ratio





##Bar Plot

barplot(CovidCases\$Deaths, main="Cases", xlab="States",names.arg = CovidCases\$State.UTs)



GIT Repository

https://github.com/mallikashakya/R-prog-assignment-group 7