Exploratory Data Analysis

(Using R language)

SUBMITTED TO: Prof. Vasudha Bhatnagar

SUBMITTED BY:
- ➔ Akanksha Yadav (03)
- ➔ Bhavyaa Garg (16)
- ➔ Priyal Mittal (41)

(M.SC. COMPUTER SCIENCE DEPARTMENT OF COMPUTER SCIENCE, DELHI UNIVERSITY)

ABOUT THE DATASET

- Source -Dataset taken from https://data.gov.in/

- Name of dataset - "State/UT-wise Total Missing and traced Persons form 2017-2021".

- It's the integrated dataset consists of 180 rows and 28 columns which we formed from combining 5 different Datasets of missing, traced and untraced person from 2017,2018,2019,2020,2021 in which the information relates to the gender-wise distribution of person.

Basic Statistics
Raw Counts

Name	Value
Rows	180
Columns	28
Discrete columns	2
Continuous columns	26
All missing columns	0
Missing observations	0
Complete Rows	180
Total observations	5,040
Memory allocation	35.5 Kb

- Quality parameters like gender-wise Recovery, Untraced and missing person's etc by which we can predict the different cases state wise and year wise.

- There are some rows with NA values in the data too.

PURPOSE

- The purpose of choosing the dataset is to analyze is the recovery rate, unrecovery rate of a person and visualize them using different plots. Visualization is used to highlight the useful information.
- To compare the state-wise and year-wise increase and decrease in number of missing, unrecovery and recovered cases.

PLOT USED FOR VISUALIZATION

Bar Plot

Line Plot

Choropleth (India) Map

R tables

READING THE DATASET

```
df <- read.csv("Missing Cases Complied (2017-2021).csv")
```

VIEW

	S..No	Year	Category	State.UT	Unrecovered.Untraced.Persons.from.Previous.years...Male	Unrecovered.Untraced.Persons.from.Previous.years...Female	Unrecovered.Untraced.Persons.from.Previous.ye
	<int>	<int>	<chr>	<chr>	<int>	<int>	
1	1	2017	State	Andhra Pradesh	4173	2990	
2	2	2017	State	Arunachal Pradesh	2	93	
3	3	2017	State	Assam	530	1223	
4	4	2017	State	Bihar	1523	2935	
5	5	2017	State	Chhattisgarh	4366	5836	
6	6	2017	State	Goa	475	230	

Unrecovered.Untraced.Persons.from.Previous.years...Total	Persons.Missing.this.year...Male	Persons.Missing.this.year...Female	⋯	Total.Recovered.Traced.this.year...Trans	Total.Recovered.Traced.thi
<int>	<int>	<int>	⋯	<int>	
7168	3114	5225	⋯	7	
95	9	90	⋯	0	
1753	997	2302	⋯	0	
4544	1932	6020	⋯	104	
10202	3449	7383	⋯	0	
705	304	274	⋯	0	

DIMENSIONS OF THE DATASET

Dimension of Rows and Column

```
dim(df)
```

180 · 28

REPLACING THE "NA" VALUES WITH "0"

```
df[is.na(df)]=0
```

The dataset generally comprises of "NA" value in the columns related to transgender.

DESCRIPTION OF THE DATA

```
View(summary(df))
```

	Var1	Var2	Freq
1		S..No	Min. : 1.00
2		S..No	1st Qu.: 45.75
3		S..No	Median : 90.50
4		S..No	Mean : 90.50
5		S..No	3rd Qu.:135.25
6		S..No	Max. :180.00
7		S..No	NA
8		Year	Min. :2017
9		Year	1st Qu.:2018
10		Year	Median :2019
11		Year	Mean :2019
12		Year	3rd Qu.:2020
13		Year	Max. :2021
14		Year	NA
15		Category	Length:180
16		Category	Class :character
17		Category	Mode :character
18		Category	NA
19		Category	NA
20		Category	NA
21		Category	NA
22		State.UT	Length:180
23		State.UT	Class :character
24		State.UT	Mode :character
25		State.UT	NA
26		State.UT	NA
27		State.UT	NA
28		State.UT	NA
29		Unrecovered.Untraced.Persons.from.Previous.years...Male	Min. : 0
30		Unrecovered.Untraced.Persons.from.Previous.years...Male	1st Qu.: 56
31		Unrecovered.Untraced.Persons.from.Previous.years...Male	Median : 1258
32		Unrecovered.Untraced.Persons.from.Previous.years...Male	Mean : 3893
33		Unrecovered.Untraced.Persons.from.Previous.years...Male	3rd Qu.: 5185

	Var1	Var2	Freq
33		Unrecovered.Untraced.Persons.from.Previous.years...Male	3rd Qu.: 5185
34		Unrecovered.Untraced.Persons.from.Previous.years...Male	Max. :28778
35		Unrecovered.Untraced.Persons.from.Previous.years...Male	NA
36		Unrecovered.Untraced.Persons.from.Previous.years...Female	Min. : 0.00
37		Unrecovered.Untraced.Persons.from.Previous.years...Female	1st Qu.: 66.25
38		Unrecovered.Untraced.Persons.from.Previous.years...Female	Median : 1217.00
39		Unrecovered.Untraced.Persons.from.Previous.years...Female	Mean : 5047.92
40		Unrecovered.Untraced.Persons.from.Previous.years...Female	3rd Qu.: 4869.25
41		Unrecovered.Untraced.Persons.from.Previous.years...Female	Max. :39124.00
42		Unrecovered.Untraced.Persons.from.Previous.years...Female	NA
43		Unrecovered.Untraced.Persons.from.Previous.years...Trans	Min. : 0.000
44		Unrecovered.Untraced.Persons.from.Previous.years...Trans	1st Qu.: 0.000
45		Unrecovered.Untraced.Persons.from.Previous.years...Trans	Median : 0.000
46		Unrecovered.Untraced.Persons.from.Previous.years...Trans	Mean : 1.839
47		Unrecovered.Untraced.Persons.from.Previous.years...Trans	3rd Qu.: 0.000
48		Unrecovered.Untraced.Persons.from.Previous.years...Trans	Max. :100.000
49		Unrecovered.Untraced.Persons.from.Previous.years...Trans	NA
50		Unrecovered.Untraced.Persons.from.Previous.years...Total	Min. : 0.0
51		Unrecovered.Untraced.Persons.from.Previous.years...Total	1st Qu.: 127.5
52		Unrecovered.Untraced.Persons.from.Previous.years...Total	Median : 2779.5
53		Unrecovered.Untraced.Persons.from.Previous.years...Total	Mean : 8942.5
54		Unrecovered.Untraced.Persons.from.Previous.years...Total	3rd Qu.:10094.8
55		Unrecovered.Untraced.Persons.from.Previous.years...Total	Max. :62231.0
56		Unrecovered.Untraced.Persons.from.Previous.years...Total	NA
57		Persons.Missing.this.year...Male	Min. : 0.00
58		Persons.Missing.this.year...Male	1st Qu.: 91.25
59		Persons.Missing.this.year...Male	Median : 1191.50
60		Persons.Missing.this.year...Male	Mean : 3315.67
61		Persons.Missing.this.year...Male	3rd Qu.: 4560.75
62		Persons.Missing.this.year...Male	Max. :27972.00
63		Persons.Missing.this.year...Male	NA
64		Persons.Missing.this.year...Female	Min. : 0.0
65		Persons.Missing.this.year...Female	1st Qu.: 138.8

Var1	Var2	Freq
66	Persons.Missing.this.year...Female	Median : 1727.0
67	Persons.Missing.this.year...Female	Mean : 6379.3
68	Persons.Missing.this.year...Female	3rd Qu.: 9444.5
69	Persons.Missing.this.year...Female	Max. :38506.0
70	Persons.Missing.this.year...Female	NA
71	Persons.Missing.this.year...Trans	Min. : 0.000
72	Persons.Missing.this.year...Trans	1st Qu.: 0.000
73	Persons.Missing.this.year...Trans	Median : 0.000
74	Persons.Missing.this.year...Trans	Mean : 6.861
75	Persons.Missing.this.year...Trans	3rd Qu.: 0.000
76	Persons.Missing.this.year...Trans	Max. :488.000
77	Persons.Missing.this.year...Trans	NA
78	Persons.Missing.this.year...Total	Min. : 0.0
79	Persons.Missing.this.year...Total	1st Qu.: 215.8
80	Persons.Missing.this.year...Total	Median : 2854.0
81	Persons.Missing.this.year...Total	Mean : 9701.8
82	Persons.Missing.this.year...Total	3rd Qu.:14193.0
83	Persons.Missing.this.year...Total	Max. :66478.0
84	Persons.Missing.this.year...Total	NA
85	Total.Persons.Missing...Male	Min. : 0
86	Total.Persons.Missing...Male	1st Qu.: 170
87	Total.Persons.Missing...Male	Median : 2930
88	Total.Persons.Missing...Male	Mean : 7208
89	Total.Persons.Missing...Male	3rd Qu.: 9064
90	Total.Persons.Missing...Male	Max. :56750
91	Total.Persons.Missing...Male	NA
92	Total.Persons.Missing...Female	Min. : 0.0
93	Total.Persons.Missing...Female	1st Qu.: 180.5
94	Total.Persons.Missing...Female	Median : 3573.0
95	Total.Persons.Missing...Female	Mean :11427.2
96	Total.Persons.Missing...Female	3rd Qu.:13638.5
97	Total.Persons.Missing...Female	Max. :68738.0
98	Total.Persons.Missing...Female	NA

Var1	Var2	Freq
99	Total.Persons.Missing...Trans	Min. : 0.0
100	Total.Persons.Missing...Trans	1st Qu.: 0.0
101	Total.Persons.Missing...Trans	Median : 0.0
102	Total.Persons.Missing...Trans	Mean : 8.7
103	Total.Persons.Missing...Trans	3rd Qu.: 0.0
104	Total.Persons.Missing...Trans	Max. :493.0
105	Total.Persons.Missing...Trans	NA
106	Total.Persons.Missing...Total	Min. : 0.0
107	Total.Persons.Missing...Total	1st Qu.: 342.5
108	Total.Persons.Missing...Total	Median : 6543.5
109	Total.Persons.Missing...Total	Mean : 18644.3
110	Total.Persons.Missing...Total	3rd Qu.: 23330.5
111	Total.Persons.Missing...Total	Max. :124515.0
112	Total.Persons.Missing...Total	NA
113	Total.Recovered.Traced.this.year...Male	Min. : 0.00
114	Total.Recovered.Traced.this.year...Male	1st Qu.: 91.75
115	Total.Recovered.Traced.this.year...Male	Median : 1012.50
116	Total.Recovered.Traced.this.year...Male	Mean : 3335.51
117	Total.Recovered.Traced.this.year...Male	3rd Qu.: 4335.75
118	Total.Recovered.Traced.this.year...Male	Max. :30235.00
119	Total.Recovered.Traced.this.year...Male	NA
120	Total.Recovered.Traced.this.year...Female	Min. : 0
121	Total.Recovered.Traced.this.year...Female	1st Qu.: 134
122	Total.Recovered.Traced.this.year...Female	Median : 1464
123	Total.Recovered.Traced.this.year...Female	Mean : 6214
124	Total.Recovered.Traced.this.year...Female	3rd Qu.: 8773
125	Total.Recovered.Traced.this.year...Female	Max. :40095
126	Total.Recovered.Traced.this.year...Female	NA
127	Total.Recovered.Traced.this.year...Trans	Min. : 0.000
128	Total.Recovered.Traced.this.year...Trans	1st Qu.: 0.000
129	Total.Recovered.Traced.this.year...Trans	Median : 0.000
130	Total.Recovered.Traced.this.year...Trans	Mean : 6.872
131	Total.Recovered.Traced.this.year...Trans	3rd Qu.: 0.000

Var1	Var2	Freq
132	Total.Recovered.Traced.this.year...Trans	Max. :434.000
133	Total.Recovered.Traced.this.year...Trans	NA
134	Total.Recovered.Traced.this.year...Total	Min. : 0.0
135	Total.Recovered.Traced.this.year...Total	1st Qu.: 223.5
136	Total.Recovered.Traced.this.year...Total	Median : 2417.0
137	Total.Recovered.Traced.this.year...Total	Mean : 9556.1
138	Total.Recovered.Traced.this.year...Total	3rd Qu.:13195.0
139	Total.Recovered.Traced.this.year...Total	Max. :67018.0
140	Total.Recovered.Traced.this.year...Total	NA
141	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Min. : 0.00
142	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	1st Qu.: 34.15
143	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Median : 47.00
144	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Mean : 48.11
145	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	3rd Qu.: 63.20
146	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Max. :100.00
147	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	NA's :5
148	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Min. :18.70
149	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	1st Qu.: 45.65
150	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Median : 61.90
151	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Mean : 59.82
152	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	3rd Qu.: 75.50
153	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Max. :100.00
154	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	NA's :9
155	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Min. : 0.00
156	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	1st Qu.: 50.00
157	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Median :100.00
158	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Mean : 78.54
159	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	3rd Qu.:100.00
160	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Max. :100.00
161	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	NA's :135
162	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Min. : 0.00
163	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	1st Qu.: 39.95
164	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Median : 53.35

Var1	Var2	Freq
165	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Mean : 54.36
166	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	3rd Qu.: 68.10
167	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	Max. :100.00
168	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missin...	NA's :4
169	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Min. : 0.00
170	Un.Recovered.Untraced.Persons..including.previous.years.Un...	1st Qu.: 52.75
171	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Median : 1331.00
172	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Mean : 3872.92
173	Un.Recovered.Untraced.Persons..including.previous.years.Un...	3rd Qu.: 5185.00
174	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Max. :28778.00
175	Un.Recovered.Untraced.Persons..including.previous.years.Un...	NA
176	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Min. : 0
177	Un.Recovered.Untraced.Persons..including.previous.years.Un...	1st Qu.: 59
178	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Median : 1185
179	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Mean : 5213
180	Un.Recovered.Untraced.Persons..including.previous.years.Un...	3rd Qu.: 5452
181	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Max. :35110
182	Un.Recovered.Untraced.Persons..including.previous.years.Un...	NA
183	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Min. : 0.000
184	Un.Recovered.Untraced.Persons..including.previous.years.Un...	1st Qu.: 0.000
185	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Median : 0.000
186	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Mean : 1.828
187	Un.Recovered.Untraced.Persons..including.previous.years.Un...	3rd Qu.: 0.000
188	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Max. :128.000
189	Un.Recovered.Untraced.Persons..including.previous.years.Un...	NA
190	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Min. : 0.0
191	Un.Recovered.Untraced.Persons..including.previous.years.Un...	1st Qu.: 109.5
192	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Median : 3071.0
193	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Mean : 9088.2
194	Un.Recovered.Untraced.Persons..including.previous.years.Un...	3rd Qu.:11105.2
195	Un.Recovered.Untraced.Persons..including.previous.years.Un...	Max. :58037.0
196	Un.Recovered.Untraced.Persons..including.previous.years.Un...	NA

STRUCTURE OF THE DATA

```
str(df)
```

```
> str(df)
'data.frame':    180 obs. of  28 variables:
 $ S..No                                                                                 : int  1 2 3 4 5 6 7 8 9 10 ...
 $ Year                                                                                  : int  2017 2017 2017 2017 2017 2017 2017 2017 2017 2017 ...
 $ Category                                                                              : chr  "State" "State" "State" "State" ...
 $ State.UT                                                                              : chr  "Andhra Pradesh" "Arunachal Pradesh" "Assam" "Bihar" ...
 $ Unrecovered.Untraced.Persons.from.Previous.years...Male                               : int  4173 2 530 1523 4366 475 4174 4229 785 1935 ...
 $ Unrecovered.Untraced.Persons.from.Previous.years...Female                             : int  2990 93 1223 2935 5836 230 4240 3641 506 1360 ...
 $ Unrecovered.Untraced.Persons.from.Previous.years...Trans                              : int  5 0 0 86 0 0 0 0 0 0 ...
 $ Unrecovered.Untraced.Persons.from.Previous.years...Total                              : int  7168 95 1753 4544 10202 705 8414 7870 1291 3295 ...
 $ Persons.Missing.this.year...Male                                                      : int  3114 9 997 1932 3449 304 4509 3334 512 849 ...
 $ Persons.Missing.this.year...Female                                                    : int  5225 90 2302 6020 7383 274 7712 4780 852 1044 ...
 $ Persons.Missing.this.year...Trans                                                     : int  7 0 0 146 0 0 1 0 0 0 ...
 $ Persons.Missing.this.year...Total                                                     : int  8346 99 3299 8098 10832 578 12222 8114 1364 1893 ...
 $ Total.Persons.Missing...Male                                                          : int  7287 11 1527 3455 7815 779 8683 7563 1297 2784 ...
 $ Total.Persons.Missing...Female                                                        : int  8215 183 3525 8955 13219 504 11952 8421 1358 2404 ...
 $ Total.Persons.Missing...Trans                                                         : int  12 0 0 232 0 0 1 0 0 0 ...
 $ Total.Persons.Missing...Total                                                         : int  15514 194 5052 12642 21034 1283 20636 15984 2655 5188 ...
 $ Total.Recovered.Traced.this.year...Male                                               : int  3747 7 1015 1045 2945 261 5291 3555 648 904 ...
 $ Total.Recovered.Traced.this.year...Female                                             : int  6423 96 2314 3561 6501 254 8481 5003 881 942 ...
 $ Total.Recovered.Traced.this.year...Trans                                              : int  7 0 0 104 0 0 1 0 0 0 ...
 $ Total.Recovered.Traced.this.year...Total                                              : int  10177 103 3329 4710 9446 515 13773 8558 1529 1846 ...
 $ Percentage.Recovery..Total.Recovered.or.Traced..Total.Missing....100...Male           : num  51.4 63.6 66.5 30.2 37.7 33.5 60.9 47 50 32.5 ...
 $ Percentage.Recovery..Total.Recovered.or.Traced..Total.Missing....100...Female         : num  78.2 52.5 65.6 39.8 49.2 50.4 71 59.4 64.9 39.2 ...
 $ Percentage.Recovery..Total.Recovered.or.Traced..Total.Missing....100...Trans          : num  58.3 NA NA 44.8 NA NA 100 NA NA NA ...
 $ Percentage.Recovery..Total.Recovered.or.Traced..Total.Missing....100...Total          : num  65.6 53.1 65.9 37.3 44.9 40.1 66.7 53.5 57.6 35.6 ...
 $ Un.Recovered.Untraced.Persons..including.previous.years.Untraced.Missing.Persons....Male  : int  3540 4 512 2410 4870 518 3392 4008 649 1880 ...
 $ Un.Recovered.Untraced.Persons..including.previous.years.Untraced.Missing.Persons....Female: int  1792 87 1211 5394 6718 250 3471 3418 477 1462 ...
 $ Un.Recovered.Untraced.Persons..including.previous.years.Untraced.Missing.Persons....Trans : int  5 0 0 128 0 0 0 0 0 0 ...
 $ Un.Recovered.Untraced.Persons..including.previous.years.Untraced.Missing.Persons....Total : int  5337 91 1723 7932 11588 768 6863 7426 1126 3342 ...
```

REPORT OF THE DATA

```
library(DataExplorer)
DataExplorer::create_report(df)
```

*(submitted separately)*

DATA INTERPRETATION

Ques 1: In which year and in which state were total maximum missing cases (male, female and transgender)?

Year	total_missing_female	total_missing_male	total_missing_trans
<int>	<int>	<int>	<int>
2017	188382	116467	418
2018	223621	123339	564
2019	248397	132089	40
2020	222395	100748	27
2021	265481	124177	186

Year wise missing persons
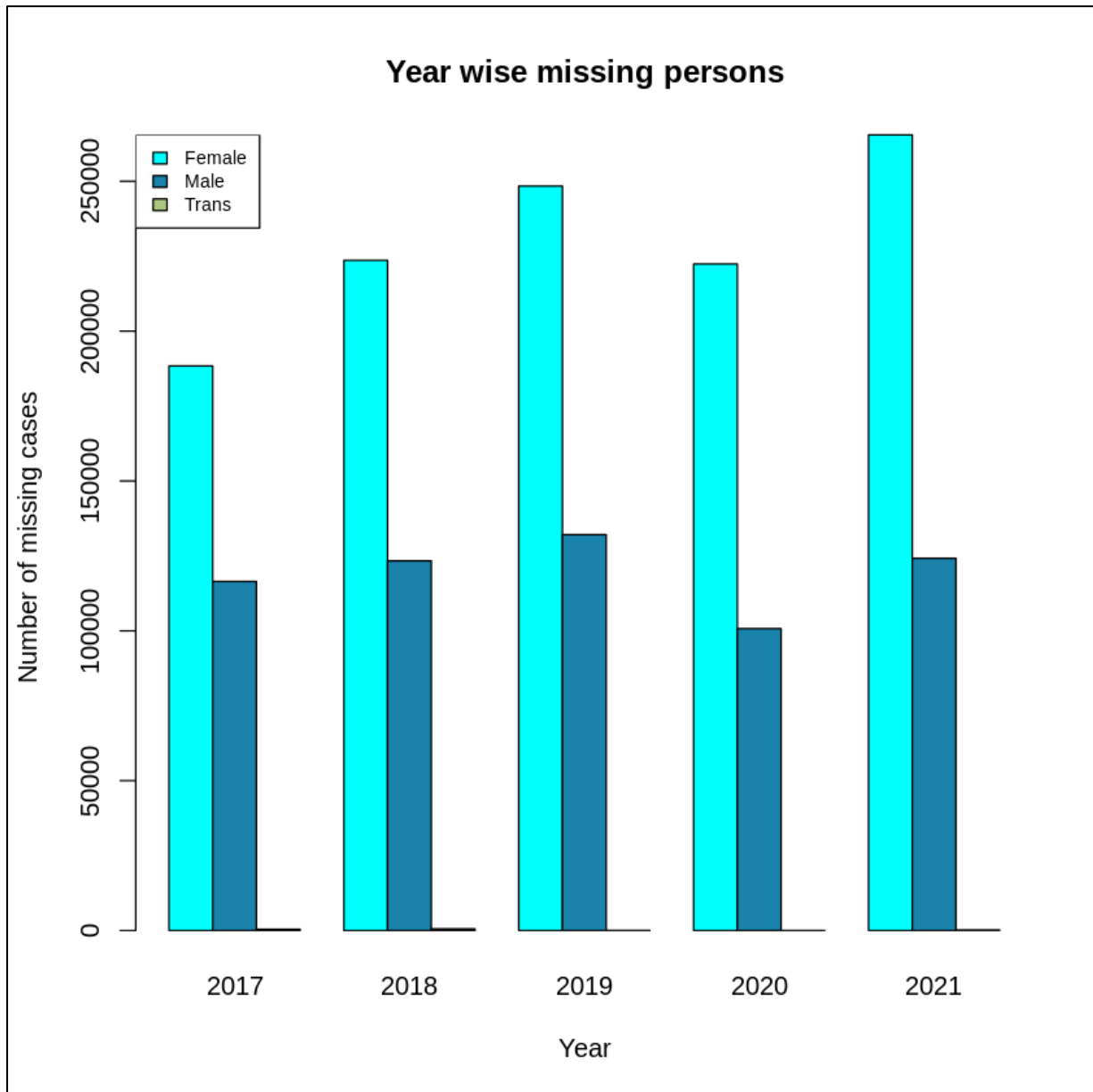
(Year-Wise)

Description: The graph shows the number of missing cases from year 2017-2021 using barplot wherein each year consist of three bars (Male,Female,Transgender).

State wise missing persons for all years

Legend:
- Female (yellow)
- Male (blue)
- Trans (green)
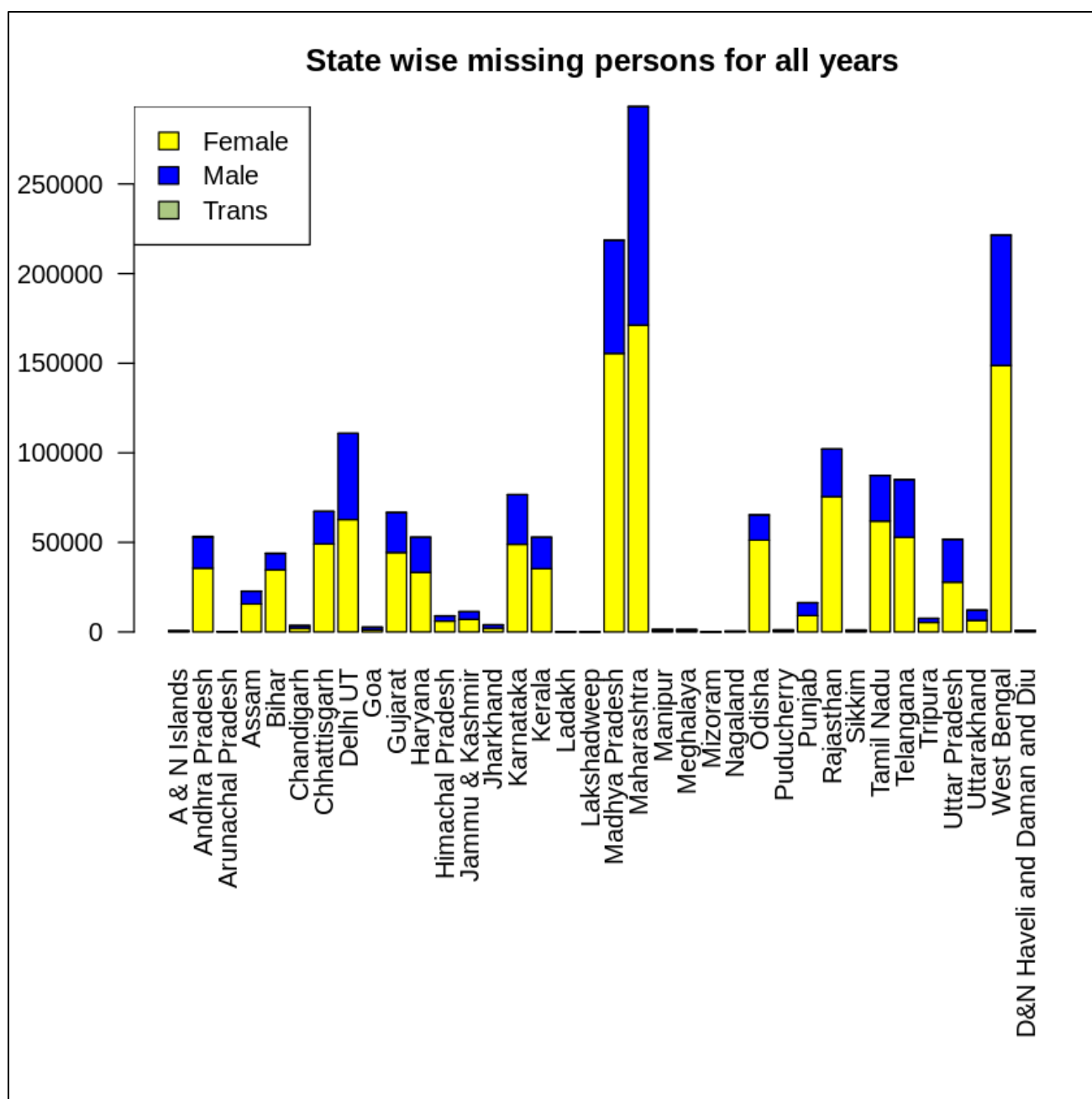
(State-wise)

Description: The graph shows the state-wise /UT-wise number of missing cases using barplot wherein each States/UT consist of bars (Male,Female,Transgender).

Interpretation:

- Higher number of missing persons can have following possibilities:
  - Young people wanting to become independent.
  - Being a victim of crime-Human trafficking, Kidnapping etc.
  - Mental Health problems.
  - Old age people who couldn't find their way home due to possible loss of memory.
  - Substance Abuse.
- According to the plotted graph the ratio of missing cases of female are much higher as compared to males and the transgender (which has negligible cases).
- There is a steep decline in the no. of missing cases in the year 2020 and a reason for this could be the lockdown due to Covid-19.

Ques 2: ST/UT wise total recovered cases yearly based?

Year	total_recovered_female	total_recovered_male	total_recovered_trans
<int>	<int>	<int>	<int>
2017	200357	120435	346
2018	209852	122384	518
2019	222949	125558	101
2020	224043	108298	142
2021	261278	123716	130
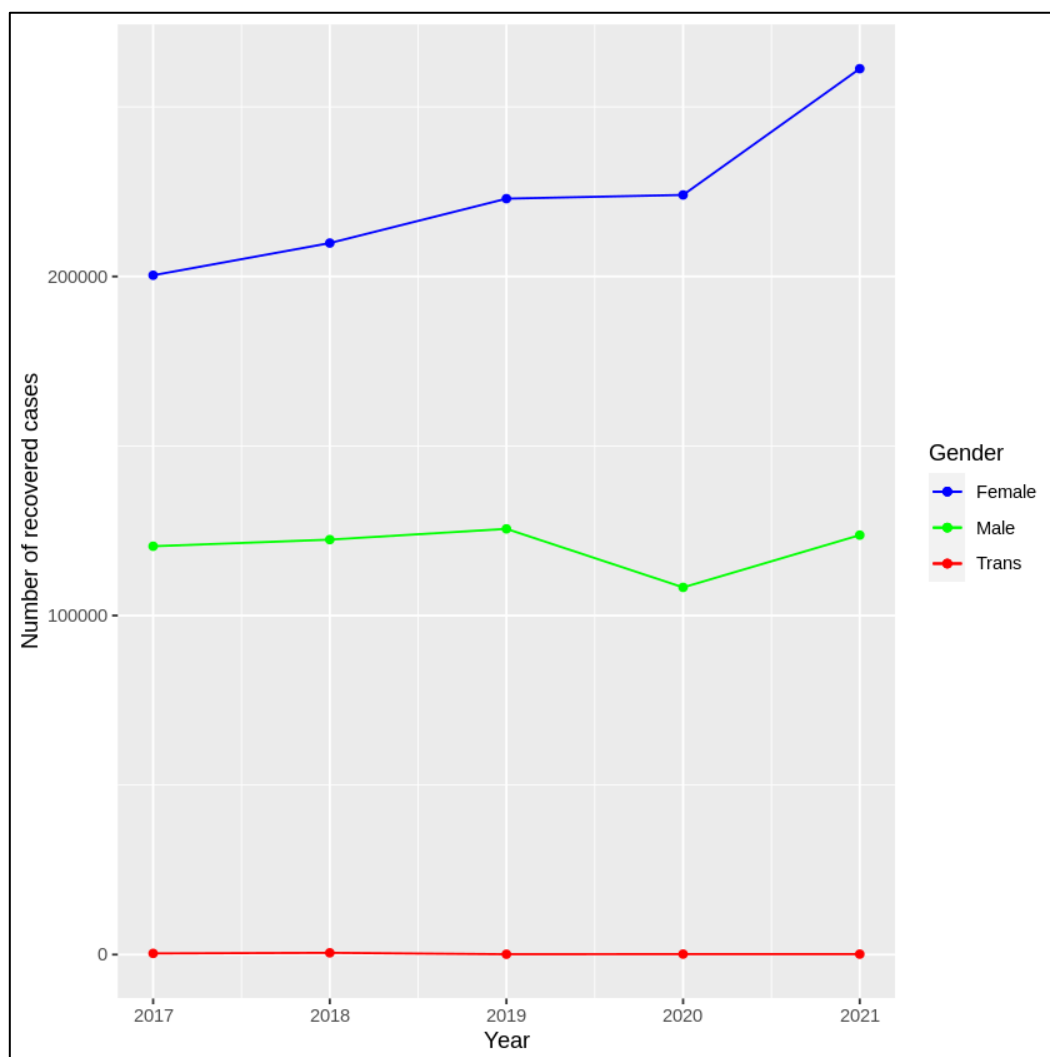
(Year-wise)

Description: The line graph shows the number of recoverd cases from the year 2017-2021 of three bars (Male,Female,Transgender).

State wise recovered/traced people in all years
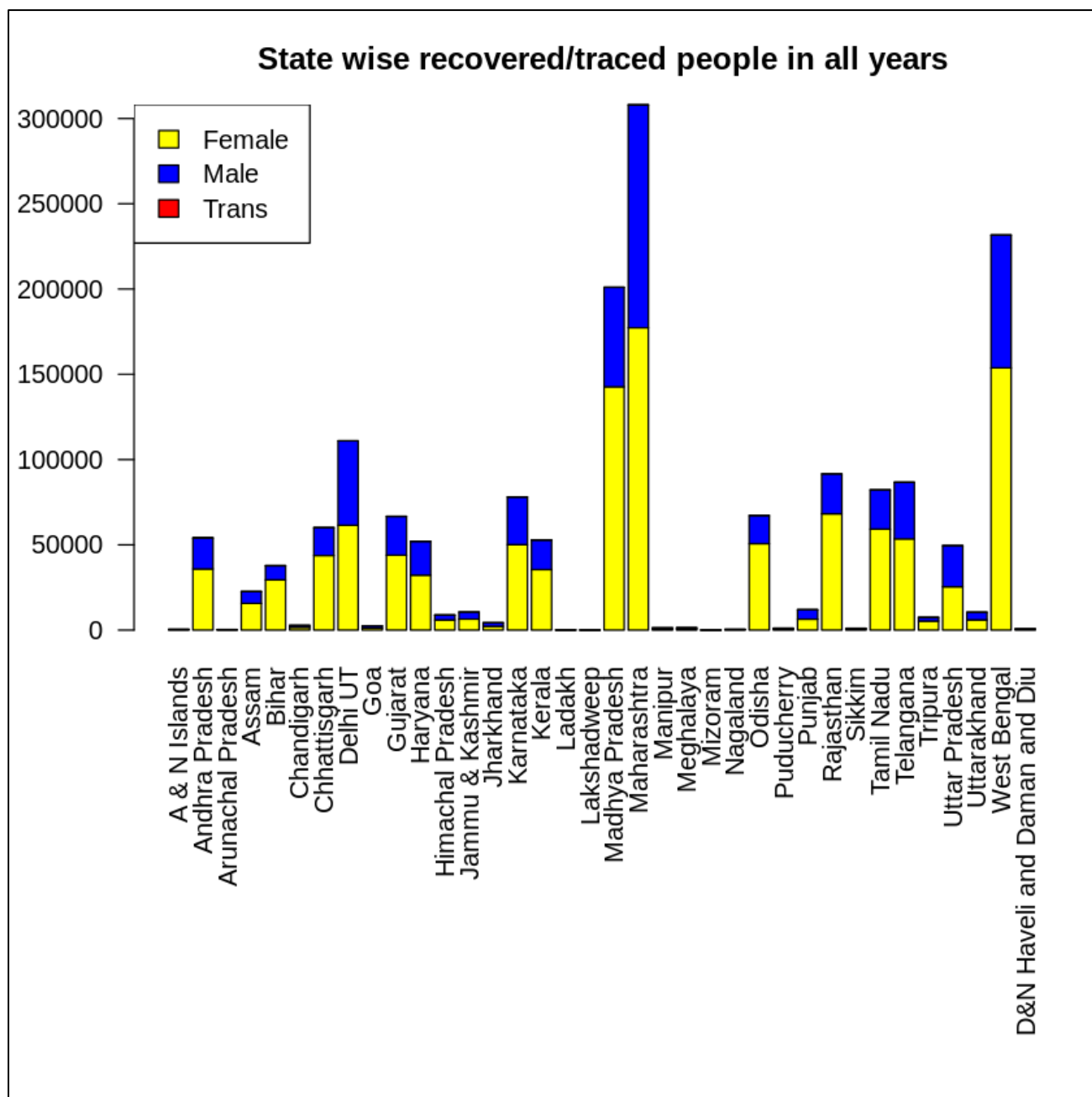
(State-wise)

Description: The graph shows the state-wise /UT-wise number of recovered cases using barplot wherein each States/UT consist of bars (Male,Female,Transgender).

Interpretation: Recovery rate of female are much higher than the other two gender over the years but there was certain decline in the recovery rate of the year 2020 due to possible reason of lockdown but amidst these the transgender rate of recovery increase has still not declined in the year 2020.

Another possible reason for a greater number of recovered female cases is due to the larger number of missing cases for female.

Ques 3: Identify the states with recovery rate less than 60%?

Name	Type	Year	Percentage.Recovery..Total.Recovered.or.Traced..Total.Missing....100...Total
<chr>	<chr>	<int>	<dbl>
Andaman & Nicobar	Union Territory	2021	28.5
Arunachal Pradesh	State	2021	42.1
Bihar	State	2021	43.9
Chandigarh	Union Territory	2021	29.4
Chhattishgarh	State	2021	42.9
Daman and Diu and Dadra and Nagar Haveli	Union Territory	2021	59.7
Delhi	Union Territory	2021	33.5
Goa	State	2021	35.4
Haryana	State	2021	57.8
Jammu and Kashmir	Union Territory	2021	38.9
Jharkhand	State	2021	46.3
Ladakh	Union Territory	2021	22.8
Lakshadweep	Union Territory	2021	0.0
Madhya Pradesh	State	2021	50.0
Mizoram	State	2021	0.0
Odisha	State	2021	49.2
Punjab	State	2021	16.6
Rajasthan	State	2021	55.3
Uttar Pradesh	State	2021	39.5
Uttarakhand	State	2021	50.7
West Bengal	State	2021	44.5

States with recovery less than 60% in 2021


Recovery < 60% in 2021

red
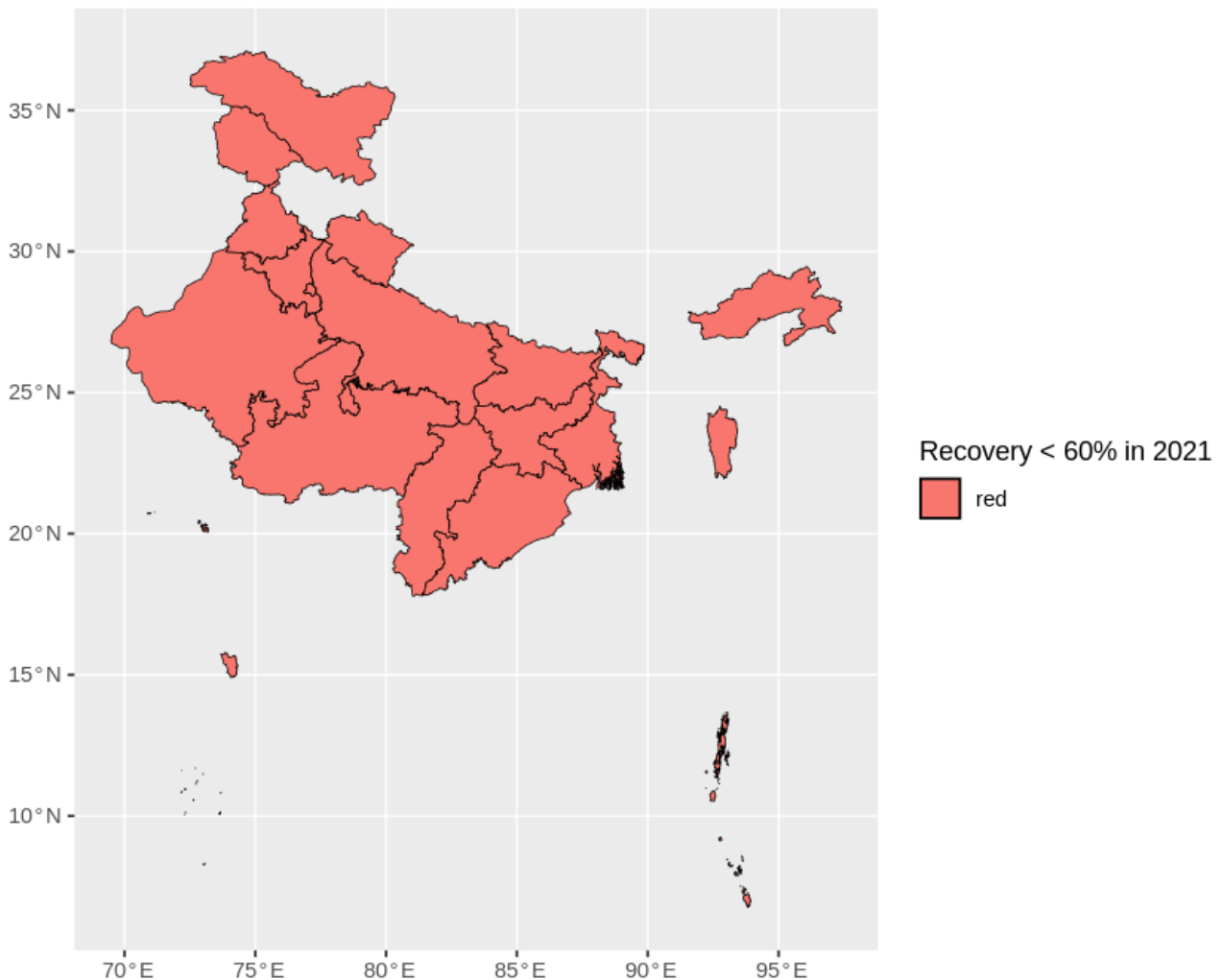
Description: In this Map, the red regions signify the states with recovery rate less than 60% in the year 2021 i.e. [among which the regions with lowest recovery rate are: Punjab, Chandigarh]

Interpretation: On observation the northern region has less recovery rate than the southern region of India. Few reasons could be:

- Faults in Police management system.
- Comparable less literacy rate in few of these northern state.
- More population density, thus more missing cases (as Lakshadweep and Mizoram being exception i.e., they have very few or tends to "1" missing cases).

Ques 4: Interpret the unrecovered cases till 2021?
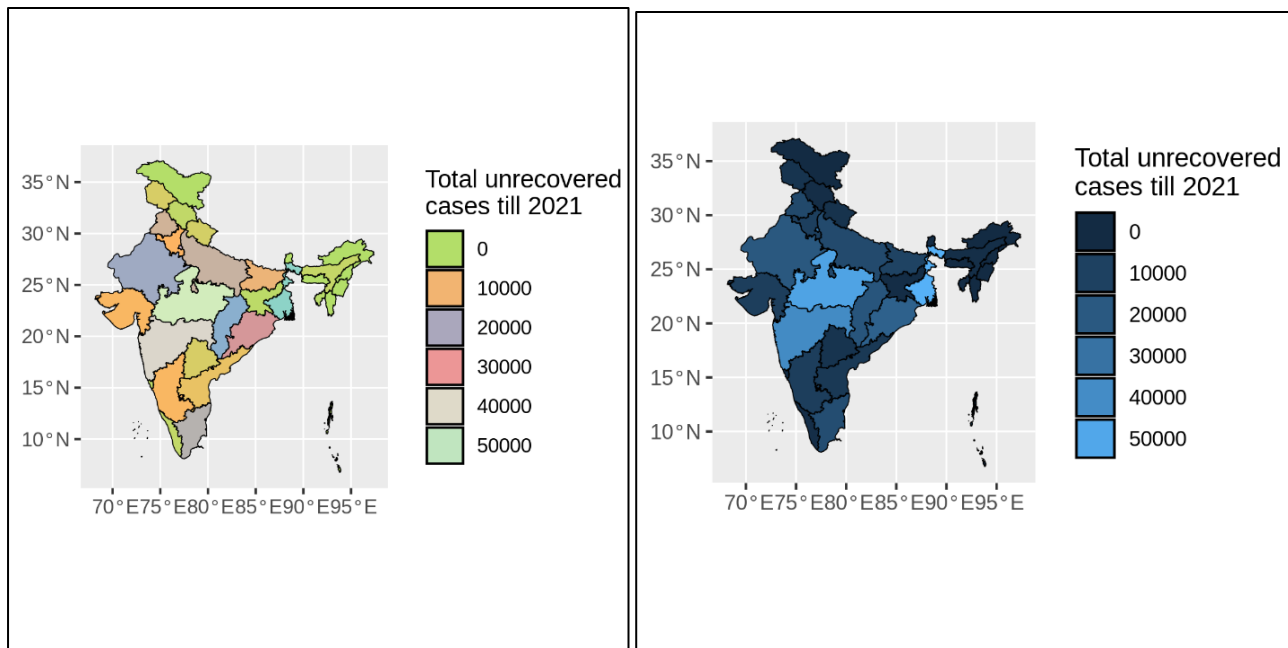
Description: In this Map, we have shown the state-wise total unrecovered cases till 2021.

Interpretation: As we can see from the Map, the states with maximum unrecovered cases are Madhya Pradesh, Maharashtra and West Bengal.

The states with lowest unrecovered cases are Ladakh, Kerela and many of the north-eastern states.

Ques 5: What is the Year-wise and State-wise missing, unrecovered and recovered cases patterns for transgenders?
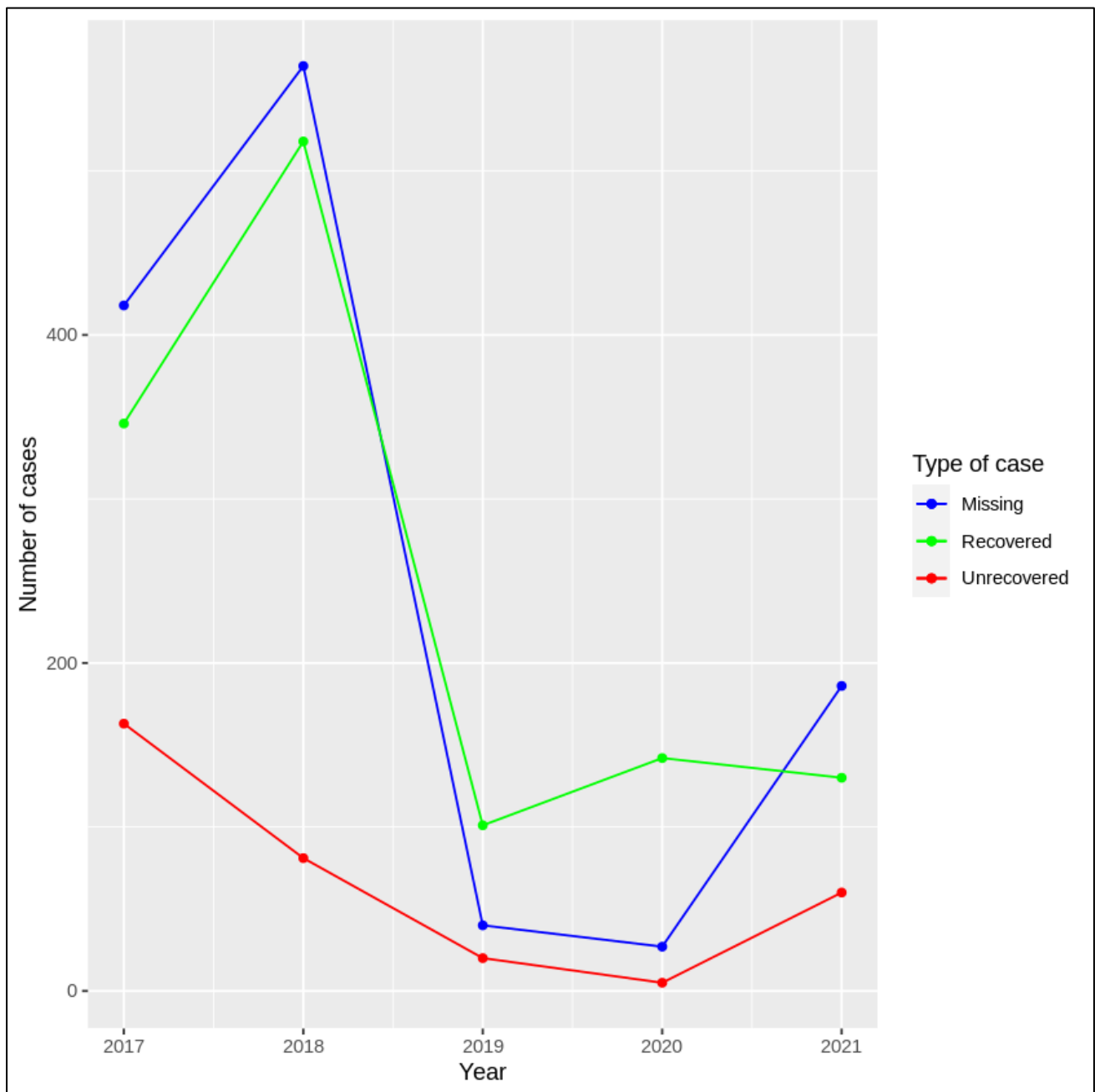
(Year-wise)

Description: In this Line chart, we have shown the missing, recovered and unrecovered cases for transgender year-wise.

State wise missing trans people for all years
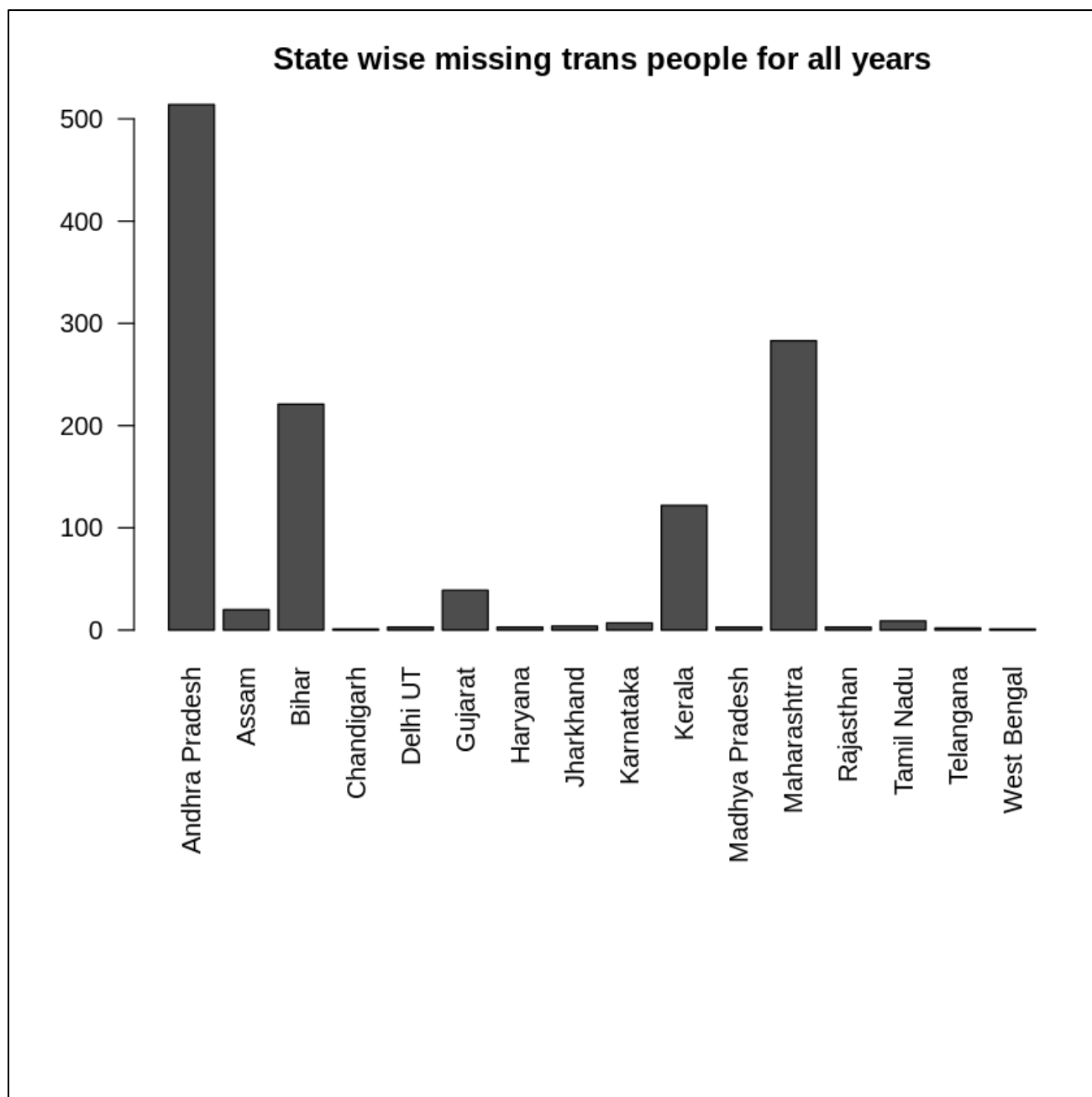
(State-wise)

Description: In this Bar Graph, we have shown the missing cases for transgender state-wise where we have picked the states with no. of cases not equal to zero.

Interpretation:

- There is rise in the no. of missing and recovered cases in 2018.
- In 2019-2020 the no. of recovered cases is much higher than the no. of missing cases which shows the increased responsibility & positivity of the system and society.
- Andhra Pradesh has the maximum missing cases for transgender followed by Maharashtra & Bihar.
- Reasons for the such low no. of total cases for transgender (as compared to male & female) is either because their population percentage is low in society or because identifying themselves is still considered a 'Taboo in India'.
- Bill- <u>Protection of Rights for Transgender person</u> which was passed in 2019 for the empowerment of the Transgender society can be one of the reason for the decline of missing and recovered cases in 2019. As the particular section must be provided with government support.