

In [1]:

```
## Import pandas
import pandas as pd
```

In [2]:

```
## Import dataset
data = pd.read_csv("data_gov.csv")
data.head() # Show top five row
```

Out [2]:

Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05	Social Groups - 20
0 Non Special Category States	Andhra Pradesh	17.1	12.8	12.0	8.2	10.1	9.7	7.4	5.6	11.2	Soc Gro
1 Non Special Category States	Assam	9.4	9.5	4.9	7.7	4.3	6.9	7.3	6.4	6.4	
2 Non Special Category States	Bihar	10.6	10.0	11.2	7.7	5.2	7.0	5.9	5.3	6.8	
3 Non Special Category States	Chhattisgarh	12.5	4.3	4.2	5.8	10.2	8.2	8.1	9.0	8.2	
4 Non Special Category States	Delhi	Nan	Nan	Nan	Nan	1.5	4.8	2.6	2.9	1.9	

In [3]:

```
# Show bottom five rows
data.tail()
```

Out [3]:

Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05	Social Groups - 20
31 Union Territories	Dadra & Nagar Haveli	Nan	Nan	7.1	8.4	Nan	Nan	Nan	Nan	6.0	
32 Union Territories	Daman & Diu	Nan	Nan	Nan	Nan	Nan	Nan	Nan	Nan	1.6	
33 Union Territories	Lakshadweep	Nan	Nan	25.1	17.0	Nan	Nan	Nan	Nan	22.5	
34 Union Territories	Puducherry	36.0	28.7	Nan	Nan	22.2	22.8	Nan	Nan	27.4	

In [4]:

```
## shape of dataset  
data.shape
```

Out[4]:

```
(36, 12)
```

**there are 36 no. of rows and 12 no. of columns in our dataset.**

In [5]:

```
## size of data set  
data.size
```

Out[5]:

```
432
```

**there are 432 no. of records in our dataset.**

In [6]:

```
### Checking the data type of columns  
data.dtypes
```

Out[6]:

```
Category of States          object  
Non Special Category States    object  
Scheduled Castes - 2004-05      float64  
Scheduled Castes - 2007-08      float64  
Scheduled Tribes - 2004-05      float64  
Scheduled Tribes - 2007-08      float64  
Other Backward Classes - 2004-05 float64  
Other Backward Classes - 2007-08 float64  
Others - 2004-05                float64  
Others - 2007-08                float64  
All Social Groups - 2004-05     float64  
All Social Groups - 2007-08     float64  
dtype: object
```

In [7]:

```
### Fetch Information from dataset  
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 36 entries, 0 to 35  
Data columns (total 12 columns):  
 #   Column           Non-Null Count  Dtype     
 ---  --  
 0   Category of States    36 non-null    object    
 1   Non Special Category States 36 non-null    object    
 2   Scheduled Castes - 2004-05 26 non-null    float64   
 3   Scheduled Castes - 2007-08 26 non-null    float64   
 4   Scheduled Tribes - 2004-05 27 non-null    float64   
 5   Scheduled Tribes - 2007-08 27 non-null    float64   
 6   Other Backward Classes - 2004-05 27 non-null    float64   
 7   Other Backward Classes - 2007-08 27 non-null    float64   
 8   Others - 2004-05          29 non-null    float64   
 9   Others - 2007-08          29 non-null    float64   
 10  All Social Groups - 2004-05 36 non-null    float64   
 11  All Social Groups - 2007-08 36 non-null    float64  
dtypes: float64(10), object(2)  
memory usage: 3.5+ KB
```

```
data.columns
```

Out[8]:

```
Index(['Category of States', 'Non Special Category States',
       'Scheduled Castes - 2004-05', 'Scheduled Castes - 2007-08',
       'Scheduled Tribes - 2004-05', 'Scheduled Tribes - 2007-08',
       'Other Backward Classes - 2004-05', 'Other Backward Classes - 2007-08',
       'Others - 2004-05', 'Others - 2007-08', 'All Social Groups - 2004-05',
       'All Social Groups - 2007-08'],
      dtype='object')
```

In [9]:

```
## Fetching data for a specific column
data["Category of States"]
```

Out[9]:

```
0    Non Special Category States
1    Non Special Category States
2    Non Special Category States
3    Non Special Category States
4    Non Special Category States
5    Non Special Category States
6    Non Special Category States
7    Non Special Category States
8    Non Special Category States
9    Non Special Category States
10   Non Special Category States
11   Non Special Category States
12   Non Special Category States
13   Non Special Category States
14   Non Special Category States
15   Non Special Category States
16   Non Special Category States
17   Non Special Category States
18   Non Special Category States
19   Special Category States
20   Special Category States
21   Special Category States
22   Special Category States
23   Special Category States
24   Special Category States
25   Special Category States
26   Special Category States
27   Special Category States
28   Special Category States
29   Union Territories
30   Union Territories
31   Union Territories
32   Union Territories
33   Union Territories
34   Union Territories
35   All India
Name: Category of States, dtype: object
```

In [10]:

```
### collecting unique value for a specific column
data["Category of States"].unique()
```

Out[10]:

```
array(['Non Special Category States', 'Special Category States',
       'Union Territories', 'All India'], dtype=object)
```

In [11]:

Out[11] :

	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08
0	17.1	12.8	12.0	8.2
1	9.4	9.5	4.9	7.7
2	10.6	10.0	11.2	7.7
3	12.5	4.3	4.2	5.8
4	NaN	NaN	NaN	NaN
5	19.2	0.3	NaN	NaN
6	5.4	3.6	4.4	3.5
7	10.4	12.2	NaN	NaN
8	5.9	16.7	6.9	10.5
9	9.8	8.5	4.7	4.9
10	35.0	27.2	36.5	29.0
11	12.8	10.2	3.3	9.0
12	17.6	10.5	11.2	12.2
13	11.1	9.8	6.3	6.4
14	14.1	13.1	NaN	NaN
15	9.1	8.7	2.3	4.5
16	22.9	25.1	26.4	26.9
17	5.3	8.4	8.4	11.1
18	12.5	13.5	14.4	14.3
19	NaN	NaN	1.6	3.4
20	8.4	8.8	3.2	4.1
21	2.9	5.2	3.3	10.1
22	NaN	NaN	0.2	3.4
23	NaN	NaN	0.4	1.4
24	NaN	NaN	0.6	0.6
25	NaN	NaN	3.3	7.1
26	8.0	10.3	2.3	3.1
27	15.3	19.7	16.4	18.2
28	6.0	11.0	NaN	NaN
29	NaN	NaN	NaN	NaN
30	13.4	4.2	NaN	NaN
31	NaN	NaN	7.1	8.4
32	NaN	NaN	NaN	NaN
33	NaN	NaN	25.1	17.0
34	36.0	28.7	NaN	NaN
35	12.0	11.9	6.5	7.5

Statistical Analysis of dataset using pandas

```
Out[12]:
```

```
13.180769230769231
```

```
In [13]:
```

```
## Variance of Scheduled Castes - 2004-05 column  
data["Scheduled Castes - 2004-05"].var()
```

```
Out[13]:
```

```
64.55761538461539
```

```
In [14]:
```

```
## maximum value of Scheduled Castes - 2004-05 column  
data["Scheduled Castes - 2004-05"].max()
```

```
Out[14]:
```

```
36.0
```

```
In [15]:
```

```
## minimum value of Scheduled Castes - 2004-05 column  
data["Scheduled Castes - 2004-05"].min()
```

```
Out[15]:
```

```
2.9
```

### If u want to find Statistical analysis for a complete dataset

The statistics that are generated by the describe() method:

1) count tells us the number of Non-empty rows in a feature.

2) mean tells us the mean value of that feature.

3) std tells us the Standard Deviation Value of that feature.

4) min tells us the minimum value of that feature.

5) 25%, 50%, and 75% are the percentile/quartile of each features. This quartile information helps us to detect Outliers.

6) max tells us the maximum value of that feature.

```
In [16]:
```

```
data.describe()
```

```
Out[16]:
```

	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05	All Social Groups - 2007-08
count	26.000000	26.000000	27.000000	27.000000	27.000000	27.000000	29.000000	29.000000	36.000000	36.000000
mean	13.180769	11.700000	8.411111	9.111111	9.207407	8.481481	6.744828	6.855172	8.219444	8.136111
std	8.034775	6.955171	8.793544	6.959572	7.688049	4.774696	4.885444	3.857792	6.816569	5.350255
min	2.900000	0.300000	0.200000	0.600000	1.500000	3.400000	0.800000	0.900000	0.400000	0.600000
25%	8.575000	8.550000	3.250000	4.300000	4.500000	5.200000	3.800000	4.500000	3.700000	5.050000
50%	11.550000	10.250000	4.900000	7.700000	6.400000	7.300000	5.300000	5.900000	6.300000	6.950000

In [17]:

```
data.describe(include=[ 'O' ])
```

Out [17] :

	Category of States	Non Special Category States
<b>count</b>	36	36
<b>unique</b>	4	36
<b>top</b>	Non Special Category States	Meghalaya
<b>freq</b>	19	1

## **Checking Missing values in DataFrame for a particular column**

In [18]:

```
data.isnull()
```

Out[18]:

五 [10]

```
## count how much NAN value in each column  
data.isnull().sum()
```

Out [191]:

```

Category of States          0
Non Special Category States 0
Scheduled Castes - 2004-05   10
Scheduled Castes - 2007-08   10
Scheduled Tribes - 2004-05    9
Scheduled Tribes - 2007-08    9
Other Backward Classes - 2004-05  9
Other Backward Classes - 2007-08  9
Others - 2004-05            7
Others - 2007-08            7
All Social Groups - 2004-05  0
All Social Groups - 2007-08  0
dtype: int64

```

### **-iloc() function**

`.iloc()` function enables us to select a particular cell of the dataset that is help us select a value that belongs to a particular row or column from a set of values of a data frame or dataset.

Tn [201 ·

```
data.iloc[0:10] ## retrieve starting 10 rows
```

Out[201]:

												All Social Groups - 2004-05	Social Groups - 20
3	Special Category of States	Chhattisgarh Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08		8.2	Social Groups - 20
4	Non Special Category States	Delhi	Nan	Nan	Nan	Nan	1.5	4.8	2.6	2.9		1.9	
5	Non Special Category States	Goa	19.2	0.3	Nan	Nan	34.1	4.6	17.1	5.9		19.2	
6	Non Special Category States	Gujarat	5.4	3.6	4.4	3.5	4.7	3.4	3.4	3.0		4.5	
7	Non Special Category States	Haryana	10.4	12.2	Nan	Nan	5.9	9.2	3.9	2.6		6.2	
8	Non Special Category States	Jharkhand	5.9	16.7	6.9	10.5	6.4	8.9	7.2	10.9		6.6	1
9	Non Special Category States	Karnataka	9.8	8.5	4.7	4.9	6.4	6.1	5.3	3.9		6.7	

In [21]:

```
## retrieve first 5 rows and 5th, 6th, 7th columns of data frame
data.iloc[0:5,5:8]
```

Out[21]:

	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08
0	8.2	10.1	9.7
1	7.7	4.3	6.9
2	7.7	5.2	7.0
3	5.8	10.2	8.2
4	Nan	1.5	4.8

In [22]:

```
## retrieve first two columns of data frame with all rows
data.iloc[:,0:2]
```

Out[22]:

	Category of States	Non Special Category States
0	Non Special Category States	Andhra Pradesh
1	Non Special Category States	Assam
2	Non Special Category States	Bihar
3	Non Special Category States	Chhattisgarh
4	Non Special Category States	Delhi

<b>Category of States</b>	<b>Non Special Category States</b>	<b>Jharkhand</b>
<b>8 Non Special Category States</b>	Karnataka	
<b>10 Non Special Category States</b>	Kerala	
<b>11 Non Special Category States</b>	Madhya Pradesh	
<b>12 Non Special Category States</b>	Maharashtra	
<b>13 Non Special Category States</b>	Orissa	
<b>14 Non Special Category States</b>	Punjab	
<b>15 Non Special Category States</b>	Rajasthan	
<b>16 Non Special Category States</b>	Tamil Nadu	
<b>17 Non Special Category States</b>	Uttar Pradesh	
<b>18 Non Special Category States</b>	West Bengal	
<b>19 Special Category States</b>	Arunachal Pradesh	
<b>20 Special Category States</b>	Himachal Pradesh	
<b>21 Special Category States</b>	Jammu & Kashmir	
<b>22 Special Category States</b>	Manipur	
<b>23 Special Category States</b>	Meghalaya	
<b>24 Special Category States</b>	Mizoram	
<b>25 Special Category States</b>	Nagaland	
<b>26 Special Category States</b>	Sikkim	
<b>27 Special Category States</b>	Tripura	
<b>28 Special Category States</b>	Uttarakhand	
<b>29 Union Territories</b>	Andaman & Nicobar	
<b>30 Union Territories</b>	Chandigarh	
<b>31 Union Territories</b>	Dadra & Nagar Haveli	
<b>32 Union Territories</b>	Daman & Diu	
<b>33 Union Territories</b>	Lakshadweep	
<b>34 Union Territories</b>	Puducherry	
<b>35 All India</b>	All India	

**.iloc returns a Pandas Series when one row is selected, and a Pandas DataFrame when multiple rows are selected, or if any column in full is selected.**

### **.loc() function**

**Pandas loc indexer can be used with DataFrames for two different use cases :-**

- a) Selecting rows by label/index
- b) Selecting rows with a boolean / conditional lookup

**The loc indexer is used with the same syntax as iloc: data.loc[ , ]**

In [23]:

```
## retreive first row data
data.loc[0]
```

```

Scheduled Castes - 2004-05          17.1
Scheduled Castes - 2007-08          12.8
Scheduled Tribes - 2004-05           12
Scheduled Tribes - 2007-08          8.2
Other Backward Classes - 2004-05    10.1
Other Backward Classes - 2007-08    9.7
Others - 2004-05                   7.4
Others - 2007-08                   5.6
All Social Groups - 2004-05        11.2
All Social Groups - 2007-08        9.5
Name: 0, dtype: object

```

In [24]:

```

## Retrieve first 5 rows and 'Scheduled Castes - 2007-08', 'Scheduled Castes - 2004-05' column from dataset
data.loc[0:5, ['Scheduled Castes - 2007-08', 'Scheduled Castes - 2004-05']]

```

Out [24]:

	Scheduled Castes - 2007-08	Scheduled Castes - 2004-05
0	12.8	17.1
1	9.5	9.4
2	10.0	10.6
3	4.3	12.5
4	NaN	NaN
5	0.3	19.2

In [25]:

```

## Retrieve data from dataset whose "Category of States" is equal to "Union Territories".
data.loc[data["Category of States"] == "Union Territories"]

```

Out [25]:

	Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05
29	Union Territories	Andaman & Nicobar	NaN	NaN	NaN	NaN	NaN	NaN	13.4	11.0	13.4
30	Union Territories	Chandigarh	13.4	4.2	NaN	NaN	NaN	NaN	NaN	NaN	3.7
31	Union Territories	Dadra & Nagar Haveli	NaN	NaN	7.1	8.4	NaN	NaN	NaN	NaN	6.0
32	Union Territories	Daman & Diu	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	1.6
33	Union Territories	Lakshadweep	NaN	NaN	25.1	17.0	NaN	NaN	NaN	NaN	22.5
34	Union Territories	Puducherry	36.0	28.7	NaN	NaN	22.2	22.8	NaN	NaN	27.4

In [26]:

```

## Retrieve data from dataset whose "Scheduled Castes - 2004-05" is greater than 10.
data.loc[data["Scheduled Castes - 2004-05"] > 10]

```

Category of States	Non Special Category States	Scheduled Castes 2004-05	Scheduled Castes 2007-08	Scheduled Tribes 2004-05	Scheduled Tribes 2007-08	Other Backward Classes 2004-05	Other Backward Classes 2007-08	Others 2004-05	Others 2007-08	Social Groups 2004-05	Social Groups 2007-08
Category of States	Non Special Category States	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08
Non											
0	Special Category States	Andhra Pradesh	17.1	12.8	12.0	8.2	10.1	9.7	7.4	5.6	11.2
2	Non Special Category States	Bihar	10.6	10.0	11.2	7.7	5.2	7.0	5.9	5.3	6.8
3	Non Special Category States	Chhattisgarh	12.5	4.3	4.2	5.8	10.2	8.2	8.1	9.0	8.2
5	Non Special Category States	Goa	19.2	0.3	NaN	NaN	34.1	4.6	17.1	5.9	19.2
7	Non Special Category States	Haryana	10.4	12.2	NaN	NaN	5.9	9.2	3.9	2.6	6.2
10	Non Special Category States	Kerala	35.0	27.2	36.5	29.0	26.3	20.2	18.4	13.1	25.6
11	Non Special Category States	Madhya Pradesh	12.8	10.2	3.3	9.0	5.2	7.2	2.2	5.1	5.6
12	Non Special Category States	Maharashtra	17.6	10.5	11.2	12.2	9.3	6.9	4.4	5.0	8.4
13	Non Special Category States	Orissa	11.1	9.8	6.3	6.4	10.0	8.4	16.3	9.3	10.2
14	Non Special Category States	Punjab	14.1	13.1	NaN	NaN	10.4	9.0	5.0	3.4	9.7
16	Non Special Category States	Tamil Nadu	22.9	25.1	26.4	26.9	12.3	14.1	3.9	7.9	15.1
18	Non Special Category States	West Bengal	12.5	13.5	14.4	14.3	9.4	8.7	10.2	10.3	11.1
27	Special Category States	Tripura	15.3	19.7	16.4	18.2	17.6	16.6	15.5	18.5	16.1
30	Union Territories	Chandigarh	13.4	4.2	NaN	NaN	NaN	NaN	NaN	NaN	3.7
34	Union Territories	Puducherry	36.0	28.7	NaN	NaN	22.2	22.8	NaN	NaN	27.4
35	All India	All India	12.0	11.9	6.5	7.5	7.7	7.9	6.6	6.4	8.2

```
5", "Scheduled Castes - 2007-08", "Scheduled Tribes - 2004-05", "Scheduled Tribes - 2007-08"  
columns
```

```
data.loc[20:30, ["Scheduled Castes - 2004-05", "Scheduled Castes - 2007-08", "Scheduled Tri  
bes - 2004-05", "Scheduled Tribes - 2007-08"]]
```

```
Out[27]:
```

	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08
20	8.4	8.8	3.2	4.1
21	2.9	5.2	3.3	10.1
22	NaN	NaN	0.2	3.4
23	NaN	NaN	0.4	1.4
24	NaN	NaN	0.6	0.6
25	NaN	NaN	3.3	7.1
26	8.0	10.3	2.3	3.1
27	15.3	19.7	16.4	18.2
28	6.0	11.0	NaN	NaN
29	NaN	NaN	NaN	NaN
30	13.4	4.2	NaN	NaN

## Dropping any rows with a DataFrame

```
In [28]:
```

```
import numpy as np
```

```
In [29]:
```

```
df = pd.DataFrame(np.arange(12).reshape(3, 4), columns=[ 'A', 'B', 'C', 'D'])  
df
```

```
Out[29]:
```

	A	B	C	D
0	0	1	2	3
1	4	5	6	7
2	8	9	10	11

```
In [30]:
```

```
### Drop columns  
df.drop(['B', 'C'], axis=1)
```

```
Out[30]:
```

	A	D
0	0	3
1	4	7
2	8	11

```
In [31]:
```

```
### Drop column 'B'and 'C'
```

A	D
0	0
1	4
2	8

In [32]:

```
### Drop a row by index
df.drop([0, 1])
```

Out[32]:

A	B	C	D
2	8	9	10

In [33]:

```
df
```

Out[33]:

A	B	C	D
0	0	1	2
1	4	5	6
2	8	9	10

In [34]:

```
df.drop(columns = ['B'], inplace = True)
```

In [35]:

```
df
```

Out[35]:

A	C	D
0	0	2
1	4	6
2	8	10

### dropna() function for deleting NAN values

using dropna() function we delete NAN values containing rows from the dataframe.

## Some useful Parameters

axis : {0 or 'index', 1 or 'columns'}, default 0

- \* 0, or 'index' : Drop rows which contain missing values.

- \* 1, or 'columns' : Drop columns which contain missing value.

how : {'any', 'all'}, default 'any'

\* 'any' : If any NA values are present, drop that row or column.

\* 'all' : If all values are NA, drop that row or column.

### thresh : int, optional

Require that many non-NA values.

### inplace : bool, default False

If True, do operation inplace and return None.

In [36] :

```
data.head(10)
```

Out [36] :

	Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05	Social Groups - 20
0	Non Special Category States	Andhra Pradesh	17.1	12.8	12.0	8.2	10.1	9.7	7.4	5.6	11.2	11.2
1	Non Special Category States	Assam	9.4	9.5	4.9	7.7	4.3	6.9	7.3	6.4	6.4	6.4
2	Non Special Category States	Bihar	10.6	10.0	11.2	7.7	5.2	7.0	5.9	5.3	6.8	6.8
3	Non Special Category States	Chhattisgarh	12.5	4.3	4.2	5.8	10.2	8.2	8.1	9.0	8.2	8.2
4	Non Special Category States	Delhi	NaN	NaN	NaN	NaN	1.5	4.8	2.6	2.9	1.9	1.9
5	Non Special Category States	Goa	19.2	0.3	NaN	NaN	34.1	4.6	17.1	5.9	19.2	19.2
6	Non Special Category States	Gujarat	5.4	3.6	4.4	3.5	4.7	3.4	3.4	3.0	4.5	4.5
7	Non Special Category States	Haryana	10.4	12.2	NaN	NaN	5.9	9.2	3.9	2.6	6.2	6.2
8	Non Special Category States	Jharkhand	5.9	16.7	6.9	10.5	6.4	8.9	7.2	10.9	6.6	1

In [37]:

```
data.dropna()
```

Out [37] :

Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05	Sc - 2004-05
		2004-05	2007-08	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08
0	Non Special Category States	Andhra Pradesh	17.1	12.8	12.0	8.2	10.1	9.7	7.4	5.6	11.2
1	Non Special Category States	Assam	9.4	9.5	4.9	7.7	4.3	6.9	7.3	6.4	6.4
2	Non Special Category States	Bihar	10.6	10.0	11.2	7.7	5.2	7.0	5.9	5.3	6.8
3	Non Special Category States	Chhattisgarh	12.5	4.3	4.2	5.8	10.2	8.2	8.1	9.0	8.2
6	Non Special Category States	Gujarat	5.4	3.6	4.4	3.5	4.7	3.4	3.4	3.0	4.5
8	Non Special Category States	Jharkhand	5.9	16.7	6.9	10.5	6.4	8.9	7.2	10.9	6.6
9	Non Special Category States	Karnataka	9.8	8.5	4.7	4.9	6.4	6.1	5.3	3.9	6.7
10	Non Special Category States	Kerala	35.0	27.2	36.5	29.0	26.3	20.2	18.4	13.1	25.6
11	Non Special Category States	Madhya Pradesh	12.8	10.2	3.3	9.0	5.2	7.2	2.2	5.1	5.6
12	Non Special Category States	Maharashtra	17.6	10.5	11.2	12.2	9.3	6.9	4.4	5.0	8.4
13	Non Special Category States	Orissa	11.1	9.8	6.3	6.4	10.0	8.4	16.3	9.3	10.2
15	Non Special Category States	Rajasthan	9.1	8.7	2.3	4.5	3.4	4.0	3.8	5.0	4.4

	Special Category States of States	Uttar Non Special Category States	5.3 Scheduled Castes - 2004-05	8.4 Scheduled Castes - 2007-08	8.4 Scheduled Tribes - 2004-05	11.1 Scheduled Tribes - 2007-08	Others Backward Classes - 2004-05	Others Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05	Social Groups - 2007-08
17	Non Special Category States	West Bengal	12.5	13.5	14.4	14.3	9.4	8.7	10.2	10.3	11.1	11.1
18	Non Special Category States	Himachal Pradesh	8.4	8.8	3.2	4.1	5.5	5.8	4.7	6.5	5.7	5.7
20	Special Category States	Jammu & Kashmir	2.9	5.2	3.3	10.1	8.9	5.2	5.4	6.0	5.6	5.6
26	Special Category States	Sikkim	8.0	10.3	2.3	3.1	2.6	4.4	1.7	4.5	2.7	2.7
27	Special Category States	Tripura	15.3	19.7	16.4	18.2	17.6	16.6	15.5	18.5	16.1	16.1
35	All India	All India	12.0	11.9	6.5	7.5	7.7	7.9	6.6	6.4	8.2	8.2

In [38]:

```
data.dropna(axis = 1, how = 'any')
```

Out [38]:

	Category of States	Non Special Category States	All Social Groups - 2004-05	All Social Groups - 2007-08
0	Non Special Category States	Andhra Pradesh	11.2	9.5
1	Non Special Category States	Assam	6.4	7.0
2	Non Special Category States	Bihar	6.8	7.4
3	Non Special Category States	Chhattisgarh	8.2	6.7
4	Non Special Category States	Delhi	1.9	3.8
5	Non Special Category States	Goa	19.2	4.9
6	Non Special Category States	Gujarat	4.5	3.4
7	Non Special Category States	Haryana	6.2	6.9
8	Non Special Category States	Jharkhand	6.6	11.2
9	Non Special Category States	Karnataka	6.7	6.0
10	Non Special Category States	Kerala	25.6	19.3
11	Non Special Category States	Madhya Pradesh	5.6	8.0
12	Non Special Category States	Maharashtra	8.4	7.3
13	Non Special Category States	Orissa	10.2	8.3
14	Non Special Category States	Punjab	9.7	8.2
15	Non Special Category States	Rajasthan	4.4	5.1
16	Non Special Category States	Tamil Nadu	15.1	17.3
17	Non Special Category States	Uttar Pradesh	3.7	5.9
18	Non Special Category States	West Bengal	11.1	11.6
19	Special Category States	Arunachal Pradesh	1.4	2.8
20	Special Category States	Himachal Pradesh	5.7	6.8

24	Special Category States	Non Special Category States	All Social Groups - 2004-05	All Social Groups - 2007-08
25	Special Category States	Nagaland	3.3	7.1
26	Special Category States	Sikkim	2.7	4.2
27	Special Category States	Tripura	16.1	18.3
28	Special Category States	Uttarakhand	4.1	8.9
29	Union Territories	Andaman & Nicobar	13.4	10.7
30	Union Territories	Chandigarh	3.7	5.9
31	Union Territories	Dadra & Nagar Haveli	6.0	6.2
32	Union Territories	Daman & Diu	1.6	1.7
33	Union Territories	Lakshadweep	22.5	16.7
34	Union Territories	Puducherry	27.4	25.2
35	All India	All India	8.2	8.4

In [39]:

```
data.dropna(axis = 1, thresh = 10)
```

Out[39]:

Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05	
0	Non Special Category States	Andhra Pradesh	17.1	12.8	12.0	8.2	10.1	9.7	7.4	5.6	11.2
1	Non Special Category States	Assam	9.4	9.5	4.9	7.7	4.3	6.9	7.3	6.4	6.4
2	Non Special Category States	Bihar	10.6	10.0	11.2	7.7	5.2	7.0	5.9	5.3	6.8
3	Non Special Category States	Chhattisgarh	12.5	4.3	4.2	5.8	10.2	8.2	8.1	9.0	8.2
4	Non Special Category States	Delhi	Nan	Nan	Nan	Nan	1.5	4.8	2.6	2.9	1.9
5	Non Special Category States	Goa	19.2	0.3	Nan	Nan	34.1	4.6	17.1	5.9	19.2
6	Non Special Category States	Gujarat	5.4	3.6	4.4	3.5	4.7	3.4	3.4	3.0	4.5
7	Non Special Category States	Haryana	10.4	12.2	Nan	Nan	5.9	9.2	3.9	2.6	6.2

S.No	Category of States	Non Special Category States	Special Category States	Percentage (%)								All Social Groups - 2004-05
				Karnataka States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others 5.3 2004-05	Others 3.9 2007-08
<b>Non Special Category States</b>												
10	Special Category States	Kerala		35.0	27.2	36.5	29.0	26.3	20.2	18.4	13.1	25.6
11	Non Special Category States	Madhya Pradesh		12.8	10.2	3.3	9.0	5.2	7.2	2.2	5.1	5.6
12	Non Special Category States	Maharashtra		17.6	10.5	11.2	12.2	9.3	6.9	4.4	5.0	8.4
13	Non Special Category States	Orissa		11.1	9.8	6.3	6.4	10.0	8.4	16.3	9.3	10.2
14	Non Special Category States	Punjab		14.1	13.1	NaN	NaN	10.4	9.0	5.0	3.4	9.7
15	Non Special Category States	Rajasthan		9.1	8.7	2.3	4.5	3.4	4.0	3.8	5.0	4.4
16	Non Special Category States	Tamil Nadu		22.9	25.1	26.4	26.9	12.3	14.1	3.9	7.9	15.1
17	Non Special Category States	Uttar Pradesh		5.3	8.4	8.4	11.1	3.2	4.6	2.8	5.1	3.7
18	Non Special Category States	West Bengal		12.5	13.5	14.4	14.3	9.4	8.7	10.2	10.3	11.1
19	Special Category States	Arunachal Pradesh		NaN	NaN	1.6	3.4	NaN	NaN	0.8	0.9	1.4
20	Special Category States	Himachal Pradesh		8.4	8.8	3.2	4.1	5.5	5.8	4.7	6.5	5.7
21	Special Category States	Jammu & Kashmir		2.9	5.2	3.3	10.1	8.9	5.2	5.4	6.0	5.6
22	Special Category States	Manipur		NaN	NaN	0.2	3.4	3.4	5.2	1.9	3.6	1.7
23	Special Category States	Meghalaya		NaN	NaN	0.4	1.4	NaN	NaN	NaN	NaN	0.4
24	Special Category States	Mizoram		NaN	NaN	0.6	0.6	NaN	NaN	NaN	NaN	0.6
25	Special Category States	Nagaland		NaN	NaN	3.3	7.1	NaN	NaN	6.3	13.4	3.3

	Special Category States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Others Backward Classes - 2004-05	Others Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	Others - 2004-05	All Social Groups - 2004-05
27	Category of States	Tripura	15.3	19.7	16.4	18.2	Backward Classes - 2004-05	Backward Classes - 2007-08	2004-05	2007-08	2007-08	16.1
28	Category	Uttarakhand States	6.0	11.0	NaN	NaN	2.4	9.2	4.1	8.3	-	0.5
29	Union Territories	Andaman & Nicobar	NaN	NaN	NaN	NaN	NaN	NaN	13.4	11.0	13.4	
30	Union Territories	Chandigarh	13.4	4.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	3.7
31	Union Territories	Dadra & Nagar Haveli	NaN	NaN	7.1	8.4	NaN	NaN	NaN	NaN	NaN	6.0
32	Union Territories	Daman & Diu	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	1.6
33	Union Territories	Lakshadweep	NaN	NaN	25.1	17.0	NaN	NaN	NaN	NaN	NaN	22.5
34	Union Territories	Puducherry	36.0	28.7	NaN	NaN	22.2	22.8	NaN	NaN	NaN	27.4
35	All India	All India	12.0	11.9	6.5	7.5	7.7	7.9	6.6	6.4	6.4	8.2

1												
---	--	--	--	--	--	--	--	--	--	--	--	--

In [40]:

```
data.dropna(thresh = 10)
```

Out[40]:

	Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	Others - 2004-05	All Social Groups - 2004-05
0	Non Special Category States	Andhra Pradesh	17.1	12.8	12.0	8.2	10.1	9.7	7.4	5.6	11.2	
1	Non Special Category States	Assam	9.4	9.5	4.9	7.7	4.3	6.9	7.3	6.4	6.4	
2	Non Special Category States	Bihar	10.6	10.0	11.2	7.7	5.2	7.0	5.9	5.3	6.8	
3	Non Special Category States	Chhattisgarh	12.5	4.3	4.2	5.8	10.2	8.2	8.1	9.0	8.2	
5	Non Special Category States	Goa	19.2	0.3	NaN	NaN	34.1	4.6	17.1	5.9	19.2	
6	Non Special Category States	Gujarat	5.4	3.6	4.4	3.5	4.7	3.4	3.4	3.0	4.5	
7	Non Special Category States	Haryana	10.4	12.2	NaN	NaN	5.9	9.2	3.9	2.6	6.2	

S.No	Category	State	2004-05				2007-08				2004-05				2007-08				All Social Groups - 2004-05	
			Scheduled Castes	Scheduled Tribes	Other Backward Classes	Others 2004-05	Scheduled Castes	Scheduled Tribes	Other Backward Classes	Others 2007-08	Scheduled Castes	Scheduled Tribes	Other Backward Classes	Others 2004-05	Scheduled Castes	Scheduled Tribes	Other Backward Classes	Others 2007-08	All Social Groups - 2004-05	
9	Non Special Category States	Karnataka	9.8	8.5	7.4	9.3	8.5	7.7	7.4	9.2	8.9	7.7	7.4	8.5	7.7	7.4	7.7	7.4		
10	Non Special Category States	Kerala	35.0	27.2	36.5	29.0	26.3	20.2	18.4	13.1	25.6									
11	Non Special Category States	Madhya Pradesh	12.8	10.2	3.3	9.0	5.2	7.2	2.2	5.1	5.6									
12	Non Special Category States	Maharashtra	17.6	10.5	11.2	12.2	9.3	6.9	4.4	5.0	8.4									
13	Non Special Category States	Orissa	11.1	9.8	6.3	6.4	10.0	8.4	16.3	9.3	10.2									
14	Non Special Category States	Punjab	14.1	13.1	Nan	Nan	10.4	9.0	5.0	3.4	9.7									
15	Non Special Category States	Rajasthan	9.1	8.7	2.3	4.5	3.4	4.0	3.8	5.0	4.4									
16	Non Special Category States	Tamil Nadu	22.9	25.1	26.4	26.9	12.3	14.1	3.9	7.9	15.1									
17	Non Special Category States	Uttar Pradesh	5.3	8.4	8.4	11.1	3.2	4.6	2.8	5.1	3.7									
18	Non Special Category States	West Bengal	12.5	13.5	14.4	14.3	9.4	8.7	10.2	10.3	11.1									
20	Special Category States	Himachal Pradesh	8.4	8.8	3.2	4.1	5.5	5.8	4.7	6.5	5.7									
21	Special Category States	Jammu & Kashmir	2.9	5.2	3.3	10.1	8.9	5.2	5.4	6.0	5.6									
22	Special Category States	Manipur	Nan	Nan	0.2	3.4	3.4	5.2	1.9	3.6	1.7									
26	Special Category States	Sikkim	8.0	10.3	2.3	3.1	2.6	4.4	1.7	4.5	2.7									
27	Special Category States	Tripura	15.3	19.7	16.4	18.2	17.6	16.6	15.5	18.5	16.1									
28	Special Category States	Uttarakhand	6.0	11.0	Nan	Nan	2.4	9.2	4.1	8.3	4.1									
35	All India	All India	12.0	11.9	6.5	7.5	7.7	7.9	6.6	6.4	8.2									

In [41]:

```
data.fillna(value = 'Vikas')
```

Out[41]:

	Category of States	Non Special Category States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes - 2004-05	Other Backward Classes - 2007-08	Others - 2004-05	Others - 2007-08	All Social Groups - 2004-05
0	Non Special Category States	Andhra Pradesh	17.1	12.8	12	8.2	10.1	9.7	7.4	5.6	11.2
1	Non Special Category States	Assam	9.4	9.5	4.9	7.7	4.3	6.9	7.3	6.4	6.4
2	Non Special Category States	Bihar	10.6	10	11.2	7.7	5.2	7	5.9	5.3	6.8
3	Non Special Category States	Chhattisgarh	12.5	4.3	4.2	5.8	10.2	8.2	8.1	9	8.2
4	Non Special Category States	Delhi	Vikas	Vikas	Vikas	Vikas	1.5	4.8	2.6	2.9	1.9
5	Non Special Category States	Goa	19.2	0.3	Vikas	Vikas	34.1	4.6	17.1	5.9	19.2
6	Non Special Category States	Gujarat	5.4	3.6	4.4	3.5	4.7	3.4	3.4	3	4.5
7	Non Special Category States	Haryana	10.4	12.2	Vikas	Vikas	5.9	9.2	3.9	2.6	6.2
8	Non Special Category States	Jharkhand	5.9	16.7	6.9	10.5	6.4	8.9	7.2	10.9	6.6
9	Non Special Category States	Karnataka	9.8	8.5	4.7	4.9	6.4	6.1	5.3	3.9	6.7
10	Non Special Category States	Kerala	35	27.2	36.5	29	26.3	20.2	18.4	13.1	25.6
11	Non Special Category States	Madhya Pradesh	12.8	10.2	3.3	9	5.2	7.2	2.2	5.1	5.6
12	Non Special Category States	Maharashtra	17.6	10.5	11.2	12.2	9.3	6.9	4.4	5	8.4

14	States												All Social Groups - 2004- 05
	Non Special Category States	Non Special Category Punjab States	Scheduled Castes - 2004-05	Scheduled Castes - 2007-08	Scheduled Tribes - 2004-05	Scheduled Tribes - 2007-08	Other Backward Classes 8,4 2004-05	Other Backward Classes 9 2007-08	Others - 20045 05	Others - 20074 08	All Social Groups - 2004- 05		
15	Non Special Category States	Rajasthan	9.1	8.7	2.3	4.5	3.4	4	3.8	5	4.4		
16	Non Special Category States	Tamil Nadu	22.9	25.1	26.4	26.9	12.3	14.1	3.9	7.9	15.1		
17	Non Special Category States	Uttar Pradesh	5.3	8.4	8.4	11.1	3.2	4.6	2.8	5.1	3.7		
18	Non Special Category States	West Bengal	12.5	13.5	14.4	14.3	9.4	8.7	10.2	10.3	11.1		
19	Special Category States	Arunachal Pradesh	Vikas	Vikas	1.6	3.4	Vikas	Vikas	0.8	0.9	1.4		
20	Special Category States	Himachal Pradesh	8.4	8.8	3.2	4.1	5.5	5.8	4.7	6.5	5.7		
21	Special Category States	Jammu & Kashmir	2.9	5.2	3.3	10.1	8.9	5.2	5.4	6	5.6		
22	Special Category States	Manipur	Vikas	Vikas	0.2	3.4	3.4	5.2	1.9	3.6	1.7		
23	Special Category States	Meghalaya	Vikas	Vikas	0.4	1.4	Vikas	Vikas	Vikas	Vikas	0.4		
24	Special Category States	Mizoram	Vikas	Vikas	0.6	0.6	Vikas	Vikas	Vikas	Vikas	0.6		
25	Special Category States	Nagaland	Vikas	Vikas	3.3	7.1	Vikas	Vikas	6.3	13.4	3.3		
26	Special Category States	Sikkim	8	10.3	2.3	3.1	2.6	4.4	1.7	4.5	2.7		
27	Special Category States	Tripura	15.3	19.7	16.4	18.2	17.6	16.6	15.5	18.5	16.1		
28	Special Category States	Uttarakhand	6	11	Vikas	Vikas	2.4	9.2	4.1	8.3	4.1		
29	Union Territories	Andaman & Nicobar	Vikas	Vikas	Vikas	Vikas	Vikas	Vikas	13.4	11	13.4		
30	Union Territories	Chandigarh	13.4	4.2	Vikas	Vikas	Vikas	Vikas	Vikas	Vikas	3.7		
31	Union Territories	Dadra & Nagar Haveli	Vikas	Vikas	7.1	8.4	Vikas	Vikas	Vikas	Vikas	6.0		
32	Union Territories	Daman & Diu	Vikas	Vikas	Vikas	Vikas	Vikas	Vikas	Vikas	Vikas	1.6		