

```
In [28]: import pandas as pd
import warnings
warnings.filterwarnings("ignore")
```

```
In [29]: #read the data
data=pd.read_csv("/home/placement/Downloads/arunachal.csv")
```

```
In [30]: #describing the data
data.describe()
```

```
Out[30]:
```

	Unnamed: 0	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
count	91.00000	91.000000	90.000000	90.000000	89.000000	91.000000	91.000000	90.000000	90.000000	91.000000	91.000000
mean	155.00000	1962.747253	48.598889	93.966667	154.446067	262.990110	364.651648	659.556667	711.963333	502.163736	433.273626
std	26.41338	27.695003	34.687078	46.258375	87.918484	113.395773	181.095447	311.642230	356.372598	275.716730	204.991358
min	110.00000	1916.000000	1.800000	6.100000	28.500000	94.700000	101.800000	239.400000	233.000000	172.400000	152.500000
25%	132.50000	1938.500000	20.075000	65.625000	101.700000	180.600000	237.150000	425.675000	442.150000	301.100000	282.150000
50%	155.00000	1964.000000	45.400000	87.600000	141.700000	245.400000	314.600000	545.750000	613.000000	411.600000	384.300000
75%	177.50000	1986.500000	65.150000	120.400000	189.600000	335.300000	447.050000	840.400000	922.075000	669.200000	521.150000
max	200.00000	2009.000000	164.500000	208.500000	605.600000	595.100000	1168.600000	1609.900000	2362.800000	1664.600000	1222.000000

```
In [31]: #to show information the data
data.info
```

```
Out[31]: <bound method DataFrame.info of      Unnamed: 0      SUBDIVISION  YEAR  JAN  FEB  MAR  APR  MAY
\
0      110  ARUNACHAL PRADESH  1916  48.1  69.8  71.1  316.1  424.6
1      111  ARUNACHAL PRADESH  1917  21.4  164.5   NaN  269.6  107.9
2      112  ARUNACHAL PRADESH  1918  10.4   11.0  191.2  144.6  861.1
3      113  ARUNACHAL PRADESH  1919  34.5   67.8   28.5  256.9  420.6
4      114  ARUNACHAL PRADESH  1920  14.0  196.3  605.6  364.7  173.6
..      ...      ...      ...      ...      ...      ...      ...
86     196  ARUNACHAL PRADESH  2005  48.4  167.6  229.5  195.3  179.8
87     197  ARUNACHAL PRADESH  2006   6.0  103.7   63.3  202.7  321.7
88     198  ARUNACHAL PRADESH  2007  13.4   97.4   48.1  292.4  250.4
89     199  ARUNACHAL PRADESH  2008  76.7   39.7  122.6  192.4  185.0
90     200  ARUNACHAL PRADESH  2009  18.0   92.8   72.1  132.7  189.9

      JUN      JUL      AUG      SEP      OCT      NOV      DEC  ANNUAL  Jan-Feb  Mar-May  \
0  1124.9      NaN  629.7  333.9      NaN      NaN      NaN      NaN    117.9    811.8
1   823.8   909.1  628.4  411.5  199.3   63.5    0.0      NaN    185.9      NaN
2  1609.9  1303.0  692.6  515.8  125.2    7.8   13.7  5486.3    21.4   1196.9
3   973.6   999.0  286.7  628.7  948.3   40.7    8.6  4693.9   102.3   706.0
4   840.6   535.4  896.5  376.7  103.3    0.0    0.0  4106.7   210.3  1143.9
..      ...      ...      ...      ...      ...      ...      ...      ...      ...
86   269.3   430.8  400.0  243.6  139.3   28.6    3.3  2335.5   216.0   604.6
87   520.4   382.2  227.6  263.2   77.2   69.7   21.7  2259.6   109.7   587.7
88   530.2   761.0  364.6  529.3  102.6   24.3    6.9  3020.7   110.8   590.9
89   423.6   456.1  439.3  189.7  115.1    1.7    2.6  2244.4   116.4   499.9
90   259.1   329.9  370.3  152.5   82.9   33.9   15.9  1749.9   110.8   394.7

      Jun-Sep  Oct-Dec
0          NaN      NaN
1   2772.8    262.8
2   4121.3    146.7
3   2888.0    997.6
4   2649.2    103.3
..      ...      ...
86   1343.7    171.2
87   1393.5    168.7
88   2185.1    133.9
89   1508.7    119.4
```

```
90    1111.8    132.7
```

```
[91 rows x 20 columns]>
```

```
In [32]: #to show rows & columns  
data.shape
```

```
Out[32]: (91, 20)
```

```
In [33]: #list of columns in data  
list(data)
```

```
Out[33]: ['Unnamed: 0',  
          'SUBDIVISION',  
          'YEAR',  
          'JAN',  
          'FEB',  
          'MAR',  
          'APR',  
          'MAY',  
          'JUN',  
          'JUL',  
          'AUG',  
          'SEP',  
          'OCT',  
          'NOV',  
          'DEC',  
          'ANNUAL',  
          'Jan-Feb',  
          'Mar-May',  
          'Jun-Sep',  
          'Oct-Dec']
```

In [34]: *#to print top rows of columns*
`data.head()`

Out[34]:

	Unnamed: 0	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	Jan-Feb	Mar-May
0	110	ARUNACHAL PRADESH	1916	48.1	69.8	71.1	316.1	424.6	1124.9	NaN	629.7	333.9	NaN	NaN	NaN	NaN	117.9	811.8
1	111	ARUNACHAL PRADESH	1917	21.4	164.5	NaN	269.6	107.9	823.8	909.1	628.4	411.5	199.3	63.5	0.0	NaN	185.9	NaN
2	112	ARUNACHAL PRADESH	1918	10.4	11.0	191.2	144.6	861.1	1609.9	1303.0	692.6	515.8	125.2	7.8	13.7	5486.3	21.4	1196.9
3	113	ARUNACHAL PRADESH	1919	34.5	67.8	28.5	256.9	420.6	973.6	999.0	286.7	628.7	948.3	40.7	8.6	4693.9	102.3	706.0
4	114	ARUNACHAL PRADESH	1920	14.0	196.3	605.6	364.7	173.6	840.6	535.4	896.5	376.7	103.3	0.0	0.0	4106.7	210.3	1143.9

In [35]: *#to remove a columns*
`data1=data.drop(['Unnamed: 0'],axis=1)`

In [36]: data1

Out[36]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	Jan-Feb	Mar-May	Jun-Sep	Oct-Dec
0	ARUNACHAL PRADESH	1916	48.1	69.8	71.1	316.1	424.6	1124.9	NaN	629.7	333.9	NaN	NaN	NaN	NaN	117.9	811.8	NaN	NaN
1	ARUNACHAL PRADESH	1917	21.4	164.5	NaN	269.6	107.9	823.8	909.1	628.4	411.5	199.3	63.5	0.0	NaN	185.9	NaN	2772.8	262.
2	ARUNACHAL PRADESH	1918	10.4	11.0	191.2	144.6	861.1	1609.9	1303.0	692.6	515.8	125.2	7.8	13.7	5486.3	21.4	1196.9	4121.3	146.
3	ARUNACHAL PRADESH	1919	34.5	67.8	28.5	256.9	420.6	973.6	999.0	286.7	628.7	948.3	40.7	8.6	4693.9	102.3	706.0	2888.0	997.
4	ARUNACHAL PRADESH	1920	14.0	196.3	605.6	364.7	173.6	840.6	535.4	896.5	376.7	103.3	0.0	0.0	4106.7	210.3	1143.9	2649.2	103.
...
86	ARUNACHAL PRADESH	2005	48.4	167.6	229.5	195.3	179.8	269.3	430.8	400.0	243.6	139.3	28.6	3.3	2335.5	216.0	604.6	1343.7	171.
87	ARUNACHAL PRADESH	2006	6.0	103.7	63.3	202.7	321.7	520.4	382.2	227.6	263.2	77.2	69.7	21.7	2259.6	109.7	587.7	1393.5	168.
88	ARUNACHAL PRADESH	2007	13.4	97.4	48.1	292.4	250.4	530.2	761.0	364.6	529.3	102.6	24.3	6.9	3020.7	110.8	590.9	2185.1	133.
89	ARUNACHAL PRADESH	2008	76.7	39.7	122.6	192.4	185.0	423.6	456.1	439.3	189.7	115.1	1.7	2.6	2244.4	116.4	499.9	1508.7	119.
90	ARUNACHAL PRADESH	2009	18.0	92.8	72.1	132.7	189.9	259.1	329.9	370.3	152.5	82.9	33.9	15.9	1749.9	110.8	394.7	1111.8	132.

91 rows × 19 columns



```
In [37]: data1.isna().sum()
```

```
Out[37]: SUBDIVISION    0  
        YEAR          0  
        JAN           1  
        FEB           1  
        MAR           2  
        APR           0  
        MAY           0  
        JUN           1  
        JUL           1  
        AUG           0  
        SEP           0  
        OCT           2  
        NOV           2  
        DEC           2  
        ANNUAL        6  
        Jan-Feb       1  
        Mar-May       2  
        Jun-Sep       2  
        Oct-Dec       3  
        dtype: int64
```

```
In [38]: #filling up nan value with mean
data2=data1.fillna(data.mean())
data2
```

Out[38]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
0	ARUNACHAL PRADESH	1916	48.1	69.8	71.100000	316.1	424.6	1124.9	711.963333	629.7	333.9	200.37191	36.257303	24.91573	3475.443529
1	ARUNACHAL PRADESH	1917	21.4	164.5	154.446067	269.6	107.9	823.8	909.100000	628.4	411.5	199.30000	63.500000	0.00000	3475.443529
2	ARUNACHAL PRADESH	1918	10.4	11.0	191.200000	144.6	861.1	1609.9	1303.000000	692.6	515.8	125.20000	7.800000	13.70000	5486.300000
3	ARUNACHAL PRADESH	1919	34.5	67.8	28.500000	256.9	420.6	973.6	999.000000	286.7	628.7	948.30000	40.700000	8.60000	4693.900000
4	ARUNACHAL PRADESH	1920	14.0	196.3	605.600000	364.7	173.6	840.6	535.400000	896.5	376.7	103.30000	0.000000	0.00000	4106.700000
...
86	ARUNACHAL PRADESH	2005	48.4	167.6	229.500000	195.3	179.8	269.3	430.800000	400.0	243.6	139.30000	28.600000	3.30000	2335.500000
87	ARUNACHAL PRADESH	2006	6.0	103.7	63.300000	202.7	321.7	520.4	382.200000	227.6	263.2	77.20000	69.700000	21.70000	2259.600000
88	ARUNACHAL PRADESH	2007	13.4	97.4	48.100000	292.4	250.4	530.2	761.000000	364.6	529.3	102.60000	24.300000	6.90000	3020.700000
89	ARUNACHAL PRADESH	2008	76.7	39.7	122.600000	192.4	185.0	423.6	456.100000	439.3	189.7	115.10000	1.700000	2.60000	2244.400000
90	ARUNACHAL PRADESH	2009	18.0	92.8	72.100000	132.7	189.9	259.1	329.900000	370.3	152.5	82.90000	33.900000	15.90000	1749.900000

91 rows × 19 columns



In []: