In [1]:

```
import pandas as pd
```

In [37]:

```
data=pd.read_csv("/home/placement/Downloads//rainfall in india 1901-2015.csv")
```

In [3]:

```
data.describe()
```

Out[3]:

| | YEAR | JAN | FEB | MAR | APR | MAY | J |
|---|---|---|---|---|---|---|---|
| **count** | 4116.000000 | 4112.000000 | 4113.000000 | 4110.000000 | 4112.000000 | 4113.000000 | 4111.000 |
| **mean** | 1958.218659 | 18.957320 | 21.805325 | 27.359197 | 43.127432 | 85.745417 | 230.234 |
| **std** | 33.140898 | 33.585371 | 35.909488 | 46.959424 | 67.831168 | 123.234904 | 234.710 |
| **min** | 1901.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.400 |
| **25%** | 1930.000000 | 0.600000 | 0.600000 | 1.000000 | 3.000000 | 8.600000 | 70.350 |
| **50%** | 1958.000000 | 6.000000 | 6.700000 | 7.800000 | 15.700000 | 36.600000 | 138.700 |
| **75%** | 1987.000000 | 22.200000 | 26.800000 | 31.300000 | 49.950000 | 97.200000 | 305.150 |
| **max** | 2015.000000 | 583.700000 | 403.500000 | 605.600000 | 595.100000 | 1168.600000 | 1609.900 |

In [4]:

```
data.head()
```

Out[4]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | ANDAMAN & NICOBAR ISLANDS | 1901 | 49.2 | 87.1 | 29.2 | 2.3 | 528.8 | 517.5 | 365.1 | 481.1 | 332.6 | 388.5 | 55 |
| **1** | ANDAMAN & NICOBAR ISLANDS | 1902 | 0.0 | 159.8 | 12.2 | 0.0 | 446.1 | 537.1 | 228.9 | 753.7 | 666.2 | 197.2 | 35 |
| **2** | ANDAMAN & NICOBAR ISLANDS | 1903 | 12.7 | 144.0 | 0.0 | 1.0 | 235.1 | 479.9 | 728.4 | 326.7 | 339.0 | 181.2 | 28 |
| **3** | ANDAMAN & NICOBAR ISLANDS | 1904 | 9.4 | 14.7 | 0.0 | 202.4 | 304.5 | 495.1 | 502.0 | 160.1 | 820.4 | 222.2 | 30 |
| **4** | ANDAMAN & NICOBAR ISLANDS | 1905 | 1.3 | 0.0 | 3.3 | 26.9 | 279.5 | 628.7 | 368.7 | 330.5 | 297.0 | 260.7 | 2 |

In [5]:

```
data.tail()
```

Out[5]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **4111** | LAKSHADWEEP | 2011 | 5.1 | 2.8 | 3.1 | 85.9 | 107.2 | 153.6 | 350.2 | 254.0 | 255.2 | 117.4 |
| **4112** | LAKSHADWEEP | 2012 | 19.2 | 0.1 | 1.6 | 76.8 | 21.2 | 327.0 | 231.5 | 381.2 | 179.8 | 145.9 |
| **4113** | LAKSHADWEEP | 2013 | 26.2 | 34.4 | 37.5 | 5.3 | 88.3 | 426.2 | 296.4 | 154.4 | 180.0 | 72.8 |
| **4114** | LAKSHADWEEP | 2014 | 53.2 | 16.1 | 4.4 | 14.9 | 57.4 | 244.1 | 116.1 | 466.1 | 132.2 | 169.2 |
| **4115** | LAKSHADWEEP | 2015 | 2.2 | 0.5 | 3.7 | 87.1 | 133.1 | 296.6 | 257.5 | 146.4 | 160.4 | 165.4 |

In [6]:

```
data.groupby(['SUBDIVISION']).count()
```

Out[6]:

| SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANDAMAN & NICOBAR ISLANDS | 110 | 110 | 110 | 108 | 108 | 109 | 108 | 108 | 108 | 107 | 108 | 108 | 107 |
| ARUNACHAL PRADESH | 97 | 96 | 96 | 95 | 97 | 97 | 96 | 96 | 97 | 97 | 95 | 95 | 95 |
| ASSAM & MEGHALAYA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| BIHAR | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| CHHATTISGARH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| COASTAL ANDHRA PRADESH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| COASTAL KARNATAKA | 115 | 114 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| EAST MADHYA PRADESH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| EAST RAJASTHAN | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| EAST UTTAR PRADESH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| GANGETIC WEST BENGAL | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| GUJARAT REGION | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| HARYANA DELHI & CHANDIGARH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| HIMACHAL PRADESH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| JAMMU & KASHMIR | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 114 | 115 | 115 | 115 | 114 | 114 |
| JHARKHAND | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| KERALA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| KONKAN & GOA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| LAKSHADWEEP | 114 | 112 | 113 | 112 | 112 | 112 | 112 | 111 | 112 | 111 | 111 | 108 | 110 |
| MADHYA MAHARASHTRA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| MATATHWADA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| NAGA MANI MIZO TRIPURA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| NORTH INTERIOR KARNATAKA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |

| SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ORISSA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| PUNJAB | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| RAYALSEEMA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| SAURASHTRA & KUTCH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| SOUTH INTERIOR KARNATAKA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| SUB HIMALAYAN WEST BENGAL & SIKKIM | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| TAMIL NADU | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| TELANGANA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| UTTARAKHAND | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| VIDARBHA | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| WEST MADHYA PRADESH | 115 | 115 | 114 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| WEST RAJASTHAN | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |
| WEST UTTAR PRADESH | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 |

In [38]:

```
data1=data.loc[(data.YEAR<=2010)&(data.YEAR>=1910)]
```

In [20]:

```
data1
```

Out[20]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **8** | ANDAMAN & NICOBAR ISLANDS | 1910 | 26.6 | 22.7 | 206.3 | 89.3 | 224.5 | 472.7 | 264.3 | 337.4 | 626.6 | 208 |
| **9** | ANDAMAN & NICOBAR ISLANDS | 1911 | 0.0 | 8.4 | 0.0 | 122.5 | 327.3 | 649.0 | 253.0 | 187.1 | 464.5 | 333 |
| **10** | ANDAMAN & NICOBAR ISLANDS | 1912 | 583.7 | 0.8 | 0.0 | 21.9 | 140.7 | 549.8 | 468.9 | 370.3 | 386.2 | 318 |
| **11** | ANDAMAN & NICOBAR ISLANDS | 1913 | 84.8 | 0.5 | 1.3 | 2.5 | 190.7 | 530.0 | 280.8 | 205.8 | 580.1 | 288 |
| **12** | ANDAMAN & NICOBAR ISLANDS | 1914 | 0.0 | 0.0 | 0.0 | 37.7 | 298.8 | 383.3 | 792.8 | 520.5 | 310.8 | 139 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| **4106** | LAKSHADWEEP | 2006 | 20.1 | 0.0 | 33.0 | 0.3 | 327.9 | 286.9 | 172.3 | 150.7 | 318.5 | 119 |
| **4107** | LAKSHADWEEP | 2007 | 2.5 | 4.2 | 0.2 | 22.2 | 166.2 | 573.4 | 427.4 | 294.7 | 457.5 | 256 |
| **4108** | LAKSHADWEEP | 2008 | 5.5 | 19.8 | 120.7 | 15.8 | 180.4 | 254.6 | 363.9 | 206.6 | 108.9 | 252 |
| **4109** | LAKSHADWEEP | 2009 | 4.7 | 1.5 | 0.1 | 18.1 | 162.1 | 401.2 | 266.4 | 185.0 | 145.1 | 87 |
| **4110** | LAKSHADWEEP | 2010 | 18.8 | 0.0 | 1.2 | 35.6 | 79.0 | 318.9 | 336.7 | 335.1 | 161.5 | 155 |

3622 rows × 19 columns

In [21]:

```
list(data1)
```

Out[21]:

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

In [27]:

```
#data1=data1.drop(['ANNUAL','Jan-Feb','Mar-May','Jun-Sep','Oct-Dec'],axis=1)
```

In [26]:

```
data1
```

Out[26]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **8** | ANDAMAN & NICOBAR ISLANDS | 1910 | 26.6 | 22.7 | 206.3 | 89.3 | 224.5 | 472.7 | 264.3 | 337.4 | 626.6 | 208 |
| **9** | ANDAMAN & NICOBAR ISLANDS | 1911 | 0.0 | 8.4 | 0.0 | 122.5 | 327.3 | 649.0 | 253.0 | 187.1 | 464.5 | 333 |
| **10** | ANDAMAN & NICOBAR ISLANDS | 1912 | 583.7 | 0.8 | 0.0 | 21.9 | 140.7 | 549.8 | 468.9 | 370.3 | 386.2 | 318 |
| **11** | ANDAMAN & NICOBAR ISLANDS | 1913 | 84.8 | 0.5 | 1.3 | 2.5 | 190.7 | 530.0 | 280.8 | 205.8 | 580.1 | 288 |
| **12** | ANDAMAN & NICOBAR ISLANDS | 1914 | 0.0 | 0.0 | 0.0 | 37.7 | 298.8 | 383.3 | 792.8 | 520.5 | 310.8 | 139 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **4106** | LAKSHADWEEP | 2006 | 20.1 | 0.0 | 33.0 | 0.3 | 327.9 | 286.9 | 172.3 | 150.7 | 318.5 | 119 |
| **4107** | LAKSHADWEEP | 2007 | 2.5 | 4.2 | 0.2 | 22.2 | 166.2 | 573.4 | 427.4 | 294.7 | 457.5 | 256 |
| **4108** | LAKSHADWEEP | 2008 | 5.5 | 19.8 | 120.7 | 15.8 | 180.4 | 254.6 | 363.9 | 206.6 | 108.9 | 252 |
| **4109** | LAKSHADWEEP | 2009 | 4.7 | 1.5 | 0.1 | 18.1 | 162.1 | 401.2 | 266.4 | 185.0 | 145.1 | 87 |
| **4110** | LAKSHADWEEP | 2010 | 18.8 | 0.0 | 1.2 | 35.6 | 79.0 | 318.9 | 336.7 | 335.1 | 161.5 | 155 |

3622 rows × 14 columns

In [28]:

```
data1['SUBDIVISION'].unique()
```

Out[28]:

```
array(['ANDAMAN & NICOBAR ISLANDS', 'ARUNACHAL PRADESH',
       'ASSAM & MEGHALAYA', 'NAGA MANI MIZO TRIPURA',
       'SUB HIMALAYAN WEST BENGAL & SIKKIM', 'GANGETIC WEST BENGAL',
       'ORISSA', 'JHARKHAND', 'BIHAR', 'EAST UTTAR PRADESH',
       'WEST UTTAR PRADESH', 'UTTARAKHAND', 'HARYANA DELHI & CHANDIGAR
H',
       'PUNJAB', 'HIMACHAL PRADESH', 'JAMMU & KASHMIR', 'WEST RAJASTHA
N',
       'EAST RAJASTHAN', 'WEST MADHYA PRADESH', 'EAST MADHYA PRADESH',
       'GUJARAT REGION', 'SAURASHTRA & KUTCH', 'KONKAN & GOA',
       'MADHYA MAHARASHTRA', 'MATATHWADA', 'VIDARBHA', 'CHHATTISGARH',
       'COASTAL ANDHRA PRADESH', 'TELANGANA', 'RAYALSEEMA', 'TAMIL NAD
U',
       'COASTAL KARNATAKA', 'NORTH INTERIOR KARNATAKA',
       'SOUTH INTERIOR KARNATAKA', 'KERALA', 'LAKSHADWEEP'], dtype=obj
ect)
```

In [40]:

```
#data=data.drop(['ANNUAL','Jan-Feb','Mar-May','Jun-Sep','Oct-Dec'],axis=1)
```

In [41]:

```
data
```

Out[41]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | ANDAMAN & NICOBAR ISLANDS | 1901 | 49.2 | 87.1 | 29.2 | 2.3 | 528.8 | 517.5 | 365.1 | 481.1 | 332.6 | 388. |
| **1** | ANDAMAN & NICOBAR ISLANDS | 1902 | 0.0 | 159.8 | 12.2 | 0.0 | 446.1 | 537.1 | 228.9 | 753.7 | 666.2 | 197. |
| **2** | ANDAMAN & NICOBAR ISLANDS | 1903 | 12.7 | 144.0 | 0.0 | 1.0 | 235.1 | 479.9 | 728.4 | 326.7 | 339.0 | 181. |
| **3** | ANDAMAN & NICOBAR ISLANDS | 1904 | 9.4 | 14.7 | 0.0 | 202.4 | 304.5 | 495.1 | 502.0 | 160.1 | 820.4 | 222. |
| **4** | ANDAMAN & NICOBAR ISLANDS | 1905 | 1.3 | 0.0 | 3.3 | 26.9 | 279.5 | 628.7 | 368.7 | 330.5 | 297.0 | 260. |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **4111** | LAKSHADWEEP | 2011 | 5.1 | 2.8 | 3.1 | 85.9 | 107.2 | 153.6 | 350.2 | 254.0 | 255.2 | 117. |
| **4112** | LAKSHADWEEP | 2012 | 19.2 | 0.1 | 1.6 | 76.8 | 21.2 | 327.0 | 231.5 | 381.2 | 179.8 | 145. |
| **4113** | LAKSHADWEEP | 2013 | 26.2 | 34.4 | 37.5 | 5.3 | 88.3 | 426.2 | 296.4 | 154.4 | 180.0 | 72. |
| **4114** | LAKSHADWEEP | 2014 | 53.2 | 16.1 | 4.4 | 14.9 | 57.4 | 244.1 | 116.1 | 466.1 | 132.2 | 169. |
| **4115** | LAKSHADWEEP | 2015 | 2.2 | 0.5 | 3.7 | 87.1 | 133.1 | 296.6 | 257.5 | 146.4 | 160.4 | 165. |

4116 rows × 14 columns

In [68]:

```
data2=data.loc[(data.SUBDIVISION=="COASTAL ANDHRA PRADESH")]
```

In [34]:

```
data2.isna().sum()
```

Out[34]:

```
SUBDIVISION    0
YEAR           0
JAN            0
FEB            0
MAR            0
APR            0
MAY            0
JUN            0
JUL            0
AUG            0
SEP            0
OCT            0
NOV            0
DEC            0
dtype: int64
```

In [35]:

```
data3=data.loc[(data.SUBDIVISION=="ARUNACHAL PRADESH")]
```

In [42]:

```
data3.isna().sum()
```

Out[42]:

```
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
dtype: int64
```

In [48]:

```
data['ANNUAL RAIN']=data.apply(lambda row: row.JAN + row.FEB+row.MAR+row.APR+row.MA
```

In [49]:

```
data
```

Out[49]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | ANDAMAN & NICOBAR ISLANDS | 1901 | 49.2 | 87.1 | 29.2 | 2.3 | 528.8 | 517.5 | 365.1 | 481.1 | 332.6 | 388. |
| **1** | ANDAMAN & NICOBAR ISLANDS | 1902 | 0.0 | 159.8 | 12.2 | 0.0 | 446.1 | 537.1 | 228.9 | 753.7 | 666.2 | 197. |
| **2** | ANDAMAN & NICOBAR ISLANDS | 1903 | 12.7 | 144.0 | 0.0 | 1.0 | 235.1 | 479.9 | 728.4 | 326.7 | 339.0 | 181. |
| **3** | ANDAMAN & NICOBAR ISLANDS | 1904 | 9.4 | 14.7 | 0.0 | 202.4 | 304.5 | 495.1 | 502.0 | 160.1 | 820.4 | 222. |
| **4** | ANDAMAN & NICOBAR ISLANDS | 1905 | 1.3 | 0.0 | 3.3 | 26.9 | 279.5 | 628.7 | 368.7 | 330.5 | 297.0 | 260. |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | . |
| **4111** | LAKSHADWEEP | 2011 | 5.1 | 2.8 | 3.1 | 85.9 | 107.2 | 153.6 | 350.2 | 254.0 | 255.2 | 117. |
| **4112** | LAKSHADWEEP | 2012 | 19.2 | 0.1 | 1.6 | 76.8 | 21.2 | 327.0 | 231.5 | 381.2 | 179.8 | 145. |
| **4113** | LAKSHADWEEP | 2013 | 26.2 | 34.4 | 37.5 | 5.3 | 88.3 | 426.2 | 296.4 | 154.4 | 180.0 | 72. |
| **4114** | LAKSHADWEEP | 2014 | 53.2 | 16.1 | 4.4 | 14.9 | 57.4 | 244.1 | 116.1 | 466.1 | 132.2 | 169. |
| **4115** | LAKSHADWEEP | 2015 | 2.2 | 0.5 | 3.7 | 87.1 | 133.1 | 296.6 | 257.5 | 146.4 | 160.4 | 165. |

4116 rows × 15 columns

In [66]:

```
import seaborn as sns
import matplotlib.pyplot as plt
cor=data.corr()
```

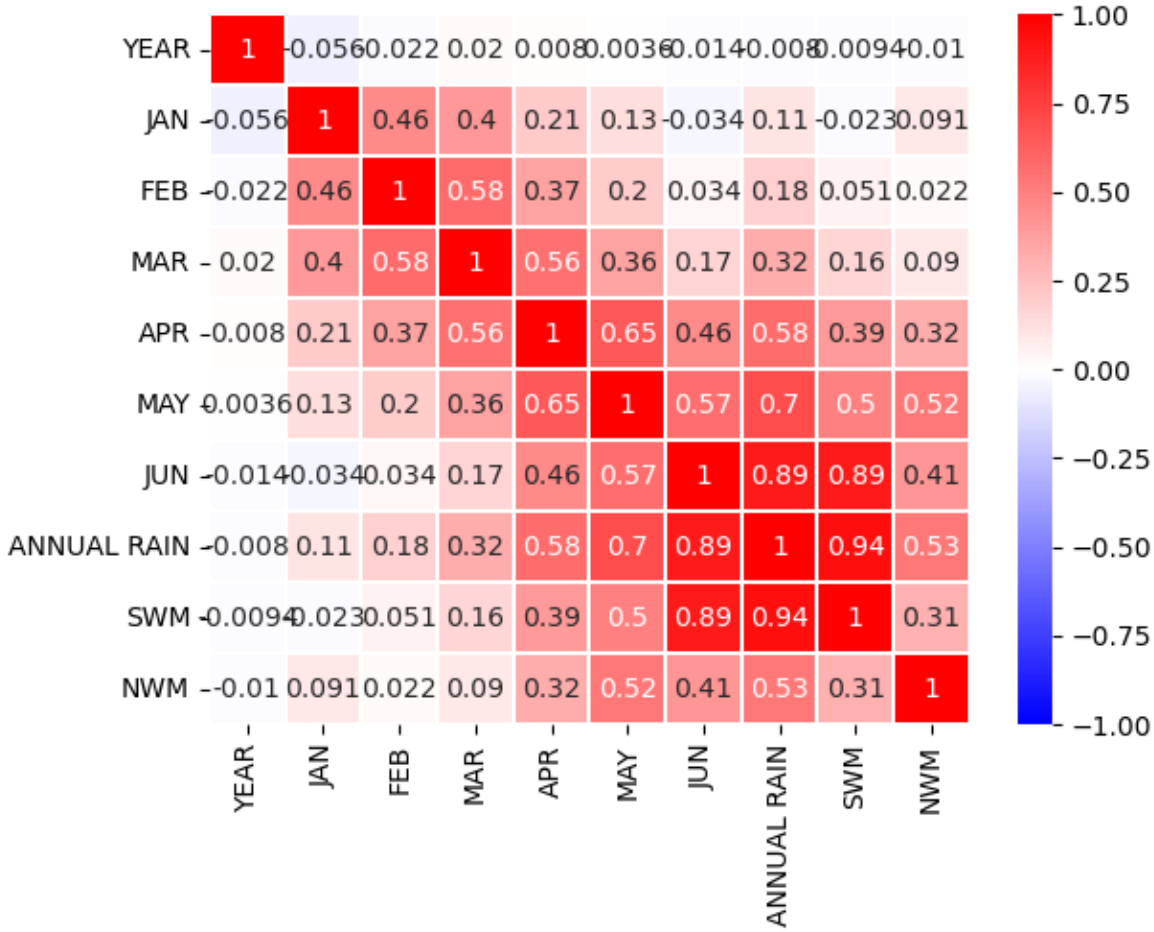
```
/tmp/ipykernel_4759/3687192550.py:3: FutureWarning: The default value
of numeric_only in DataFrame.corr is deprecated. In a future version,
it will default to False. Select only valid columns or specify the val
ue of numeric_only to silence this warning.
  cor=data.corr()
```

In [67]:

```
sns.heatmap(cor,vmax=1,vmin=-1,annot=True,linewidth=.1,cmap='bwr')
```

Out[67]:

<Axes: >




In [56]:

```
data['SWM']=data.apply(lambda row: row.JUN+row.JUL+row.AUG+row.SEP,axis=1)
data['NWM']=data.apply(lambda row:row.OCT+row.NOV+row.DEC,axis=1)
```

In [57]:

```
data
```

Out[57]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | ANDAMAN & NICOBAR ISLANDS | 1901 | 49.2 | 87.1 | 29.2 | 2.3 | 528.8 | 517.5 | 365.1 | 481.1 | 332.6 | 388. |
| **1** | ANDAMAN & NICOBAR ISLANDS | 1902 | 0.0 | 159.8 | 12.2 | 0.0 | 446.1 | 537.1 | 228.9 | 753.7 | 666.2 | 197. |
| **2** | ANDAMAN & NICOBAR ISLANDS | 1903 | 12.7 | 144.0 | 0.0 | 1.0 | 235.1 | 479.9 | 728.4 | 326.7 | 339.0 | 181. |
| **3** | ANDAMAN & NICOBAR ISLANDS | 1904 | 9.4 | 14.7 | 0.0 | 202.4 | 304.5 | 495.1 | 502.0 | 160.1 | 820.4 | 222. |
| **4** | ANDAMAN & NICOBAR ISLANDS | 1905 | 1.3 | 0.0 | 3.3 | 26.9 | 279.5 | 628.7 | 368.7 | 330.5 | 297.0 | 260. |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **4111** | LAKSHADWEEP | 2011 | 5.1 | 2.8 | 3.1 | 85.9 | 107.2 | 153.6 | 350.2 | 254.0 | 255.2 | 117. |
| **4112** | LAKSHADWEEP | 2012 | 19.2 | 0.1 | 1.6 | 76.8 | 21.2 | 327.0 | 231.5 | 381.2 | 179.8 | 145. |
| **4113** | LAKSHADWEEP | 2013 | 26.2 | 34.4 | 37.5 | 5.3 | 88.3 | 426.2 | 296.4 | 154.4 | 180.0 | 72. |
| **4114** | LAKSHADWEEP | 2014 | 53.2 | 16.1 | 4.4 | 14.9 | 57.4 | 244.1 | 116.1 | 466.1 | 132.2 | 169. |
| **4115** | LAKSHADWEEP | 2015 | 2.2 | 0.5 | 3.7 | 87.1 | 133.1 | 296.6 | 257.5 | 146.4 | 160.4 | 165. |

4116 rows × 17 columns

In [65]:

```
data=data.drop(['JUL',
 'AUG',
 'SEP',
 'OCT',
 'NOV',
 'DEC'],axis=1)
```

In [69]:

```
data2
```

Out[69]:

| | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | ANNUAL RAIN | SWM | NWM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **3082** | COASTAL ANDHRA PRADESH | 1901 | 18.8 | 80.9 | 7.2 | 28.7 | 68.7 | 77.7 | 993.7 | 449.7 | 339.7 |
| **3083** | COASTAL ANDHRA PRADESH | 1902 | 2.0 | 0.0 | 2.8 | 23.9 | 37.6 | 72.6 | 1063.5 | 657.7 | 339.5 |
| **3084** | COASTAL ANDHRA PRADESH | 1903 | 0.8 | 13.3 | 0.2 | 6.2 | 73.4 | 154.0 | 1316.1 | 877.1 | 345.1 |
| **3085** | COASTAL ANDHRA PRADESH | 1904 | 1.3 | 0.0 | 5.4 | 3.0 | 136.3 | 107.8 | 860.1 | 462.5 | 251.6 |
| **3086** | COASTAL ANDHRA PRADESH | 1905 | 1.1 | 16.7 | 68.0 | 37.0 | 68.8 | 84.4 | 795.0 | 530.0 | 73.4 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **3192** | COASTAL ANDHRA PRADESH | 2011 | 0.0 | 17.9 | 0.9 | 62.3 | 67.9 | 86.8 | 861.8 | 628.3 | 84.5 |
| **3193** | COASTAL ANDHRA PRADESH | 2012 | 37.6 | 0.0 | 2.7 | 24.0 | 39.3 | 95.4 | 1318.3 | 785.0 | 429.7 |
| **3194** | COASTAL ANDHRA PRADESH | 2013 | 2.0 | 29.6 | 0.2 | 48.0 | 28.2 | 127.5 | 1120.4 | 545.0 | 467.4 |
| **3195** | COASTAL ANDHRA PRADESH | 2014 | 0.4 | 1.2 | 9.1 | 6.0 | 112.9 | 45.7 | 875.1 | 519.8 | 225.7 |
| **3196** | COASTAL ANDHRA PRADESH | 2015 | 2.0 | 0.6 | 5.5 | 32.3 | 34.1 | 283.8 | 1011.0 | 793.6 | 142.9 |

115 rows × 11 columns

In [70]:

```
go=data2.corr()
```

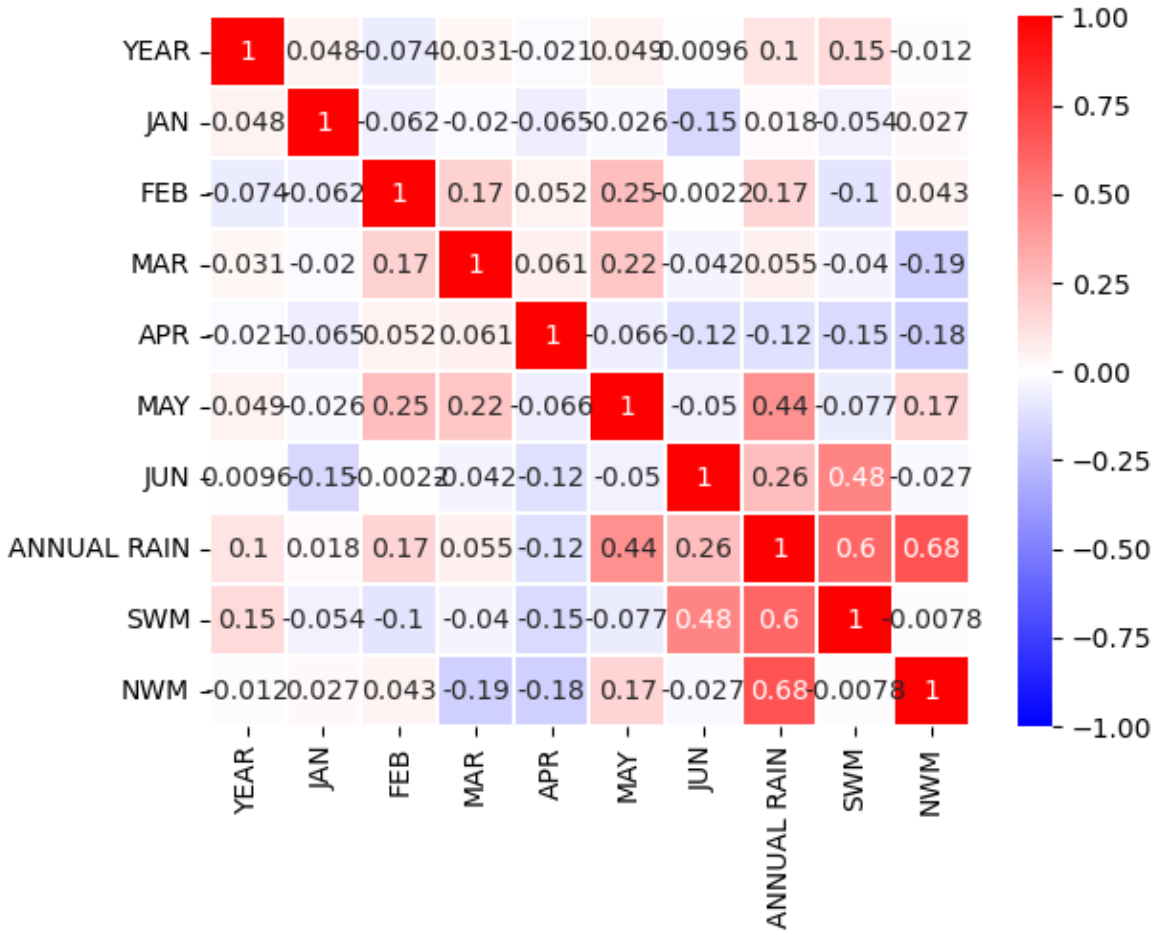
```
/tmp/ipykernel_4759/3082324180.py:1: FutureWarning: The default value
of numeric_only in DataFrame.corr is deprecated. In a future version,
it will default to False. Select only valid columns or specify the val
ue of numeric_only to silence this warning.
  go=data2.corr()
```

In [71]:

```
sns.heatmap(go,vmax=1,vmin=-1,annot=True,linewidth=.1,cmap='bwr')
```

Out[71]:

<Axes: >




In [ ]: