```
In [3]: import pandas as pd
import numpy as np
import warnings
warnings.filterwarnings("ignore")# ignore the warnings
```

In [4]: data=pd.read_csv("/home/placement/Desktop/nio/rainfall in india 1901-2015.csv")# read thed data

In [15]: data # describing the total data

Out[15]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC	ANNUAL	Jan- Feb	Mar- May	Jun- Sep	(
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	558.2	33.6	3373.2	136.3	560.3	1696.3	9:
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	359.0	160.5	3520.7	159.8	458.3	2185.9	7
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	284.4	225.0	2957.4	156.7	236.1	1874.0	6
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	308.7	40.1	3079.6	24.1	506.9	1977.6	5
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	25.4	344.7	2566.7	1.3	309.7	1624.9	6:
															•••				
4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4	184.3	14.9	1533.7	7.9	196.2	1013.0	3
4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9	12.4	8.8	1405.5	19.3	99.6	1119.5	1
4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8	78.1	26.7	1426.3	60.6	131.1	1057.0	1
4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2	59.0	62.3	1395.0	69.3	76.7	958.5	2
4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4	231.0	159.0	1642.9	2.7	223.9	860.9	5

4116 rows × 19 columns

In [16]: data.describe()# describing the count and VALUES

Out[16]:

	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
count	4116.000000	4112.000000	4113.000000	4110.000000	4112.000000	4113.000000	4111.000000	4109.000000	4112.000000	4110.000000	4109.0
mean	1958.218659	18.957320	21.805325	27.359197	43.127432	85.745417	230.234444	347.214334	290.263497	197.361922	95.!
std	33.140898	33.585371	35.909488	46.959424	67.831168	123.234904	234.710758	269.539667	188.770477	135.408345	99.!
min	1901.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.400000	0.000000	0.000000	0.100000	0.0
25%	1930.000000	0.600000	0.600000	1.000000	3.000000	8.600000	70.350000	175.600000	155.975000	100.525000	14.0
50%	1958.000000	6.000000	6.700000	7.800000	15.700000	36.600000	138.700000	284.800000	259.400000	173.900000	65.1
75%	1987.000000	22.200000	26.800000	31.300000	49.950000	97.200000	305.150000	418.400000	377.800000	265.800000	148.4
max	2015.000000	583.700000	403.500000	605.600000	595.100000	1168.600000	1609.900000	2362.800000	1664.600000	1222.000000	948.

In []:

In [17]: data.head()# PRINTING THE FIRST 5 VALUES

Out[17]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC	ANNUAL	Jan- Feb	Mar- May	Jun- Sep	Oct- Dec
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	558.2	33.6	3373.2	136.3	560.3	1696.3	980.3
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	359.0	160.5	3520.7	159.8	458.3	2185.9	716.7
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	284.4	225.0	2957.4	156.7	236.1	1874.0	690.6
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	308.7	40.1	3079.6	24.1	506.9	1977.6	571.0
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	25.4	344.7	2566.7	1.3	309.7	1624.9	630.8



data.groupby(['SUBDIVISION']).count() # it tells us about the count of the years the data is being taken In [19]: Out[19]: Jan-Mar-Jun-Oct-YEAR JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC ANNUAL Sep Feb Mav Dec **SUBDIVISION ANDAMAN & NICOBAR ISLANDS** ARUNACHAL PRADESH **ASSAM & MEGHALAYA BIHAR CHHATTISGARH COASTAL ANDHRA PRADESH COASTAL KARNATAKA EAST MADHYA PRADESH EAST RAJASTHAN EAST UTTAR PRADESH GANGETIC WEST BENGAL GUJARAT REGION** HARYANA DELHI & **CHANDIGARH** HIMACHAL PRADESH **JAMMU & KASHMIR JHARKHAND KERALA KONKAN & GOA LAKSHADWEEP MADHYA MAHARASHTRA** MATATHWADA NAGA MANI MIZO TRIPURA

	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC	ANNUAL	Jan- Feb	Mar- May	Jun- Sep	Oct- Dec
SUBDIVISION																		
NORTH INTERIOR KARNATAKA	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
ORISSA	115	115	115	115	115	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	115	115	115	115	115
RAYALSEEMA	115	115	115	115	115	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	115	115	115	115	115
SOUTH INTERIOR KARNATAKA	115	115	115	115	115	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	115	115	115	115	115
TAMIL NADU	115	115	115	115	115	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	115	115	115	115	115
UTTARAKHAND	115	115	115	115	115	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	115	115	115	115	115
WEST MADHYA PRADESH	115	115	114	115	115	115	115	115	115	115	115	115	115	114	114	115	115	115
WEST RAJASTHAN	115	115	115	115	115	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	115	115	115	115	115

In [6]: data1=data.loc[(data.YEAR>=1910)&(data.YEAR<=2010)] # MODIFY THE DTAT ACCORDING TO OUR CONDITION

In [7]: data1

Out[7]:

SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC	ANNUAL	Jan- Feb	Mar- May	Jun- Sep	
ANDAMAN & NICOBAR ISLANDS	1910	26.6	22.7	206.3	89.3	224.5	472.7	264.3	337.4	626.6	208.2	267.3	153.5	2899.4	49.3	520.1	1701.0	6
ANDAMAN & NICOBAR ISLANDS	1911	0.0	8.4	0.0	122.5	327.3	649.0	253.0	187.1	464.5	333.8	94.5	247.1	2687.2	8.4	449.8	1553.6	6
ANDAMAN & NICOBAR ISLANDS	1912	583.7	0.8	0.0	21.9	140.7	549.8	468.9	370.3	386.2	318.7	117.2	2.3	2960.5	584.5	162.6	1775.2	4
ANDAMAN & NICOBAR ISLANDS	1913	84.8	0.5	1.3	2.5	190.7	530.0	280.8	205.8	580.1	288.8	133.0	67.5	2365.8	85.3	194.5	1596.7	4
ANDAMAN & NICOBAR ISLANDS	1914	0.0	0.0	0.0	37.7	298.8	383.3	792.8	520.5	310.8	139.8	184.4	289.7	2957.8	0.0	336.5	2007.4	6
														•••				
LAKSHADWEEP	2006	20.1	0.0	33.0	0.3	327.9	286.9	172.3	150.7	318.5	119.1	158.9	10.9	1598.6	20.1	361.2	928.4	2
LAKSHADWEEP	2007	2.5	4.2	0.2	22.2	166.2	573.4	427.4	294.7	457.5	256.1	47.6	109.6	2361.6	6.7	188.6	1753.0	4
LAKSHADWEEP	2008	5.5	19.8	120.7	15.8	180.4	254.6	363.9	206.6	108.9	252.9	67.6	130.1	1726.8	25.3	316.9	934.0	4
LAKSHADWEEP	2009	4.7	1.5	0.1	18.1	162.1	401.2	266.4	185.0	145.1	87.4	166.2	132.3	1570.1	6.2	180.3	997.7	3
LAKSHADWEEP	2010	18.8	0.0	1.2	35.6	79.0	318.9	336.7	335.1	161.5	155.4	201.5	81.5	1725.2	18.8	115.8	1152.2	4
	ANDAMAN & NICOBAR ISLANDS LAKSHADWEEP LAKSHADWEEP LAKSHADWEEP	NICOBAR 1910 ISLANDS ANDAMAN & NICOBAR 1911 ISLANDS ANDAMAN & NICOBAR 1912 ISLANDS ANDAMAN & NICOBAR 1913 ISLANDS ANDAMAN & NICOBAR 1914 ISLANDS LAKSHADWEEP 2006 LAKSHADWEEP 2008 LAKSHADWEEP 2009	ANDAMAN & NICOBAR 1910 26.6 ISLANDS 1911 0.0 ANDAMAN & NICOBAR 1911 0.0 ISLANDS 1912 583.7 ISLANDS 1913 84.8 NICOBAR 1913 84.8 ISLANDS 1914 0.0 ISLANDS LAKSHADWEEP 2006 20.1 LAKSHADWEEP 2007 2.5 LAKSHADWEEP 2008 5.5 LAKSHADWEEP 2009 4.7	ANDAMAN & NICOBAR I910 26.6 22.7 ISLANDS ANDAMAN & NICOBAR I911 0.0 8.4 ISLANDS ANDAMAN & NICOBAR ISLANDS LAKSHADWEEP 2006 20.1 0.0 LAKSHADWEEP 2007 2.5 4.2 LAKSHADWEEP 2009 4.7 1.5	ANDAMAN & NICOBAR I910 26.6 22.7 206.3 ISLANDS 1911 0.0 8.4 0.0 ISLANDS 1912 583.7 0.8 0.0 ISLANDS 1913 84.8 0.5 1.3 ISLANDS 1914 0.0 0.0 0.0 ISLANDS 1914 0.0 0.0 0.0 ISLANDS 1914 0.0 0.0 33.0 LAKSHADWEEP 2006 20.1 0.0 33.0 LAKSHADWEEP 2008 5.5 19.8 120.7 LAKSHADWEEP 2009 4.7 1.5 0.1	ANDAMAN & NICOBAR I910 26.6 22.7 206.3 89.3 ISLANDS 1911 0.0 8.4 0.0 122.5 ISLANDS 1912 583.7 0.8 0.0 21.9 ISLANDS 1913 84.8 0.5 1.3 2.5 ISLANDS 1914 0.0 0.0 0.0 37.7 ISLANDS 1914 0.0 0.0 33.0 0.3 LAKSHADWEEP 2006 20.1 0.0 33.0 0.3 LAKSHADWEEP 2008 5.5 19.8 120.7 15.8 LAKSHADWEEP 2009 4.7 1.5 0.1 18.1	ANDAMAN & NICOBAR ISLANDS 1910 26.6 22.7 206.3 89.3 224.5 ANDAMAN & NICOBAR ISLANDS 1911 0.0 8.4 0.0 122.5 327.3 ANDAMAN & NICOBAR ISLANDS 1912 583.7 0.8 0.0 21.9 140.7 ANDAMAN & NICOBAR ISLANDS 1913 84.8 0.5 1.3 2.5 190.7 ANDAMAN & NICOBAR ISLANDS 1914 0.0 0.0 0.0 37.7 298.8 NICOBAR ISLANDS 1914 0.0 0.0 33.0 0.3 327.9 LAKSHADWEEP 2006 20.1 0.0 33.0 0.3 327.9 LAKSHADWEEP 2007 2.5 4.2 0.2 22.2 166.2 LAKSHADWEEP 2008 5.5 19.8 120.7 15.8 180.4 LAKSHADWEEP 2009 4.7 1.5 0.1 18.1 162.1	ANDAMAN & NICOBAR ISLANDS ANDAMAN & NICOBAR ISL	ANDAMAN & NICOBAR ISLANDS	ANDAMAN & NICOBAR I910 26.6 22.7 206.3 89.3 224.5 472.7 264.3 337.4 ISLANDS 1911 0.0 8.4 0.0 122.5 327.3 649.0 253.0 187.1 ISLANDS 1912 583.7 0.8 0.0 21.9 140.7 549.8 468.9 370.3 ISLANDS 1913 84.8 0.5 1.3 2.5 190.7 530.0 280.8 205.8 ISLANDS 1914 0.0 0.0 0.0 37.7 298.8 383.3 792.8 520.5 ISLANDS 1914 0.0 0.0 33.0 0.3 327.9 286.9 172.3 150.7 LAKSHADWEEP 2006 20.1 0.0 33.0 0.3 327.9 286.9 172.3 150.7 LAKSHADWEEP 2008 5.5 19.8 120.7 15.8 180.4 254.6 363.9 206.6 LAKSHADWEEP 2009 4.7 1.5 0.1 181.1 162.1 401.2 266.4 185.0	ANDAMAN & NICOBAR ISLANDS	ANDAMAN & 1910 26.6 22.7 206.3 89.3 224.5 472.7 264.3 337.4 626.6 208.2 ISLANDS 1911 0.0 8.4 0.0 122.5 327.3 649.0 253.0 187.1 464.5 333.8 ISLANDS 1912 583.7 0.8 0.0 21.9 140.7 549.8 468.9 370.3 386.2 318.7 ISLANDS 1913 84.8 0.5 13.3 2.5 190.7 530.0 280.8 205.8 580.1 288.8 NICOBAR 1914 0.0 0.0 0.0 37.7 298.8 383.3 792.8 520.5 310.8 139.8 ISLANDS 1914 0.0 0.0 33.0 0.3 327.9 286.9 172.3 150.7 318.5 119.1 LAKSHADWEEP 2007 2.5 4.2 0.2 22.2 166.2 573.4 427.4 294.7 457.5 256.1 LAKSHADWEEP 2008 5.5 19.8 120.7 15.8 180.4 254.6 363.9 206.6 108.9 252.9 LAKSHADWEEP 2009 4.7 1.5 0.1 18.1 162.1 401.2 266.4 185.0 145.1 87.4	ANDAMAN & NICOBAR 1911 0.0 8.4 0.0 122.5 327.3 649.0 253.0 187.1 464.5 333.8 94.5 ISLANDS ANDAMAN & NICOBAR 1911 0.0 8.4 0.0 122.5 327.3 649.0 253.0 187.1 464.5 333.8 94.5 ISLANDS ANDAMAN & NICOBAR 1912 583.7 0.8 0.0 21.9 140.7 549.8 468.9 370.3 386.2 318.7 117.2 117.	ANDAMAN & NICOBAR 1910 26.6 22.7 206.3 89.3 224.5 472.7 264.3 337.4 626.6 208.2 267.3 153.5 181.4 NICOBAR 1911 0.0 8.4 0.0 122.5 327.3 649.0 253.0 187.1 464.5 333.8 94.5 247.1 247.1 181.4 NICOBAR 1912 583.7 0.8 0.0 21.9 140.7 549.8 468.9 370.3 386.2 318.7 117.2 2.3 181.4 NICOBAR 1913 84.8 0.5 1.3 2.5 190.7 530.0 280.8 205.8 580.1 288.8 133.0 67.5 181.4 NICOBAR 1914 0.0 0.0 0.0 37.7 298.8 383.3 792.8 520.5 310.8 139.8 184.4 289.7 181.4 NICOBAR 1914 0.0 0.0 33.0 0.3 327.9 286.9 172.3 150.7 318.5 119.1 158.9 10.9 14KSHADWEEP 2006 20.1 0.0 33.0 0.3 327.9 286.9 172.3 150.7 318.5 119.1 158.9 10.9 14KSHADWEEP 2008 5.5 19.8 120.7 15.8 180.4 254.6 363.9 206.6 108.9 252.9 67.6 130.1 14KSHADWEEP 2008 5.5 19.8 120.7 15.8 180.4 254.6 363.9 206.6 108.9 252.9 67.6 130.1 14KSHADWEEP 2009 4.7 1.5 0.1 18.1 162.1 401.2 266.4 185.0 145.1 87.4 166.2 132.3	ANDAMAN & NICOBAR ISLANDS ANDAMAN & NICOBAR ISL	ANDAMAN & NICOBAR 1911 1912 26.8 22.7 206.3 89.3 224.5 472.7 264.3 337.4 626.6 208.2 267.3 153.5 2899.4 49.3 ANDAMAN & NICOBAR 1911 19.0 8.4 19.0 122.5 327.3 649.0 253.0 187.1 464.5 333.8 94.5 247.1 2687.2 8.4 ANDAMAN & NICOBAR 1912 583.7 19.8 19.0 21.9 140.7 549.8 468.9 370.3 386.2 318.7 117.2 2.3 2960.5 584.5 ANDAMAN & NICOBAR 1913 84.8 0.5 1.3 2.5 190.7 530.0 280.8 205.8 580.1 288.8 133.0 67.5 2365.8 85.3 ANDAMAN & NICOBAR 1914 19.0 19.0 19.0 19.0 37.7 298.8 383.3 792.8 520.5 310.8 139.8 184.4 289.7 2957.8 19.0 ANDAMAN & NICOBAR 1914 19.0 19.0 19.0 19.0 37.7 298.8 383.3 792.8 520.5 310.8 139.8 184.4 289.7 2957.8 19.0 LAKSHADWEEP 2006 20.1 20.3 33.0 0.3 327.9 286.9 172.3 150.7 318.5 19.1 158.9 10.9 1598.6 20.1 LAKSHADWEEP 2007 2.5 4.2 2.2 22.2 166.2 573.4 427.4 294.7 457.5 256.1 47.6 190.6 2361.6 6.7 LAKSHADWEEP 2008 5.5 19.8 120.7 15.8 180.4 254.6 363.9 206.6 108.9 252.9 67.6 130.1 1726.8 253.8 LAKSHADWEEP 2008 4.7 1.5 0.1 18.1 16.1 40.2 26.6 363.9 206.6 108.9 252.9 67.6 130.1 1726.8 253.8 LAKSHADWEEP 2008 4.7 1.5 0.1 18.1 16.1 40.2 26.6 363.9 206.6 108.9 252.9 67.6 130.1 1726.8 253.8 LAKSHADWEEP 2008 4.7 1.5 0.1 18.1 16.1 40.2 26.6 363.9 206.6 108.9 252.9 67.6 130.1 1726.8 253.8 LAKSHADWEEP 2009 4.7 1.5 0.1 18.1 16.1 10.1 20.2 26.6 363.9 206.6 108.9 252.9 67.6 130.1 1726.8 253.8 LAKSHADWEEP 2009 4.7 1.5 0.1 18.1 16.1 10.1 20.2 26.6 363.9 206.6 108.9 252.9 67.6 130.1 1726.8 253.8 LAKSHADWEEP 2009 4.7 1.5 0.1 18.1 16.1 10.1 20.0 266.4 18.5 18.5 18.5 18.5 266.1 18.5 18.5 266.1 20.5 20	ANDAMAN & NICOBAR ISLANDS 1910 26.6 2.7. 26.3 27.3 28.3 28.5 28.7. 26.4 37.7	ANDAMAN & 1910 26.6 27.7 206.3 89.3 224.5 472.7 264.3 374. 266.6 270. 267.5 271. 2687.2 289.4 49.8 271. 271. 271. 271. 271. 271. 271. 271.

3622 rows × 19 columns

```
In [8]: data0=data1.drop(['ANNUAL',
          'Jan-Feb',
           'Mar-Mav'.
          'Jun-Sep',
          'Oct-Dec'],axis=1)# REMOVING UNWANTED COLS
In [1]: data0
         NameError
                                                    Traceback (most recent call last)
         Cell In[1], line 1
         ---> 1 data0
         NameError: name 'data0' is not defined
In [ ]:
In [36]: |data['SUBDIVISION'].unique()
Out[36]: 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 & CHANDIGARH',
                 'PUNJAB', 'HIMACHAL PRADESH', 'JAMMU & KASHMIR', 'WEST RAJASTHAN',
                 '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 NADU',
                 'COASTAL KARNATAKA', 'NORTH INTERIOR KARNATAKA',
                 'SOUTH INTERIOR KARNATAKA', 'KERALA', 'LAKSHADWEEP'], dtype=object)
```

```
In [37]: data.isna().count() # COUNTING THE NUMBER OF NULL VALUES
Out[37]: SUBDIVISION
                         3622
         YEAR
                         3622
         JAN
                         3622
         FEB
                         3622
                         3622
         MAR
         APR
                         3622
         MAY
                         3622
         JUN
                         3622
         JUL
                         3622
         AUG
                         3622
         SEP
                         3622
         0CT
                         3622
         NOV
                         3622
         DEC
                         3622
         dtype: int64
In [38]: data.isna().sum() # PRITING THE NULL VA; UES PRENT IN DATA
Out[38]: SUBDIVISION
                          0
         YEAR
                          0
         JAN
                          3
         FEB
                          3
         MAR
         APR
                          4
         MAY
         JUN
         JUL
         AUG
         SEP
                          6
         0CT
                          7
         NOV
                         10
         DEC
                          9
         dtype: int64
In [66]: data2=data.loc[(data.SUBDIVISION=="COASTAL ANDHRA PRADESH")] # MODIFYING THE DATA ACCORDING TO OUR CONDITION
```

In [67]: data2

Out[67]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
3091	COASTAL ANDHRA PRADESH	1910	0.9	2.4	0.2	31.9	22.6	179.6	222.2	204.5	216.8	286.4	87.2	0.0
3092	COASTAL ANDHRA PRADESH	1911	0.0	0.0	10.3	14.4	31.2	150.5	158.1	76.2	160.4	119.7	77.6	21.0
3093	COASTAL ANDHRA PRADESH	1912	0.0	9.6	4.8	15.2	33.6	55.9	217.9	230.1	188.7	86.1	61.7	0.0
3094	COASTAL ANDHRA PRADESH	1913	0.0	12.9	0.5	3.3	68.2	129.0	166.9	124.3	119.5	206.7	7.2	2.4
3095	COASTAL ANDHRA PRADESH	1914	0.0	10.9	5.8	73.0	77.7	171.7	157.4	178.5	292.4	22.8	17.8	5.1
3187	COASTAL ANDHRA PRADESH	2006	0.0	0.0	30.7	58.0	67.6	132.0	126.8	279.7	224.1	185.4	55.3	0.0
3188	COASTAL ANDHRA PRADESH	2007	0.0	5.1	0.1	8.5	13.0	300.1	141.0	164.4	287.1	167.7	11.9	0.5
3189	COASTAL ANDHRA PRADESH	2008	3.2	61.6	93.8	18.5	34.9	119.8	208.5	276.2	166.8	51.6	71.4	1.2
3190	COASTAL ANDHRA PRADESH	2009	0.0	0.0	5.7	6.4	53.0	72.6	140.9	163.5	151.9	92.6	102.6	1.3
3191	COASTAL ANDHRA PRADESH	2010	21.8	2.3	4.4	14.8	162.0	156.1	318.9	248.6	230.5	204.0	210.9	138.2

101 rows × 14 columns

```
In [41]: data2.isna().sum()
Out[41]: SUBDIVISION
                        0
         YEAR
                        0
         JAN
         FEB
         MAR
         APR
         MAY
         JUN
         JUL
         AUG
         SEP
         0CT
         NOV
         DEC
         dtype: int64
In [52]: data3=data.loc[(data.SUBDIVISION=="ARUNACHAL PRADESH")]
```

In [53]: data3

\sim				$\overline{}$	-	
11		-		. ~	- 1	
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	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
110	ARUNACHAL PRADESH	1916	48.1	69.8	71.1	316.1	424.6	1124.9	NaN	629.7	333.9	NaN	NaN	NaN
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
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
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
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
197	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
198	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
199	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
200	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
201	ARUNACHAL PRADESH	2010	0.6	13.2	237.8	466.9	312.7	509.9	378.0	321.5	444.2	97.7	58.9	14.2

92 rows × 14 columns

```
In [54]: | data3.isna().sum()
```

Out[54]:

SUBDIV	ISION	0
YEAR		0
JAN		1
FEB		1
MAR		2
APR		0
MAY		0
JUN		1
JUL		1
AUG		0
SEP		0
0CT		2
NOV		2
DEC		2
dtype:	int64	

localhost:8888/notebooks/rain details analysis of all.ipynb

```
data3["SUBDIVISION"].unique()
In [55]:
Out[55]: array(['ARUNACHAL PRADESH'], dtype=object)
In [62]: data3['annual rain']=data3.apply(lambda row:row.JAN+row.FEB+row.MAR+row.APR+row.MAY+row.JUN+row.JUL+row.AUG+
In [63]:
           data3
Out[63]:
                         SUBDIVISION YEAR JAN
                                                   FEB
                                                         MAR
                                                               APR
                                                                      MAY
                                                                             JUN
                                                                                    JUL
                                                                                          AUG
                                                                                                SEP
                                                                                                       OCT
                                                                                                            NOV
                                                                                                                 DEC annual rain
            110 ARUNACHAL PRADESH
                                       1916
                                             48.1
                                                   69.8
                                                          71.1
                                                               316.1
                                                                     424.6
                                                                           1124.9
                                                                                         629.7
                                                                                               333.9
                                                                                                            NaN
                                                                                                                  NaN
                                                                                                                             NaN
                                                                                    NaN
                                                                                                       NaN
            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
            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
                                                                            973.6
                                                                                                                           4693.9
                ARUNACHAL PRADESH
                                       1919
                                             34.5
                                                   67.8
                                                          28.5
                                                               256.9
                                                                     420.6
                                                                                   999.0
                                                                                         286.7
                                                                                               628.7
                                                                                                      948.3
                                                                                                            40.7
                                                                                                                   8.6
                ARUNACHAL PRADESH
                                                  196.3
                                                        605.6
                                                               364.7 173.6
                                                                            840.6
                                                                                   535.4
                                                                                         896.5
                                                                                               376.7 103.3
                                                                                                             0.0
                                                                                                                   0.0
                                                                                                                           4106.7
                                       1920
                                             14.0
                ARUNACHAL PRADESH
                                                                                                                           2259.4
                                       2006
                                                  103.7
                                                          63.3
                                                               202.7
                                                                     321.7
                                                                            520.4
                                                                                   382.2
                                                                                         227.6
                                                                                               263.2
                                                                                                       77.2
                                                                                                            69.7
                                                                                                                  21.7
                                              6.0
                ARUNACHAL PRADESH
                                             13.4
                                                   97.4
                                                          48.1
                                                               292.4
                                                                     250.4
                                                                            530.2
                                                                                   761.0
                                                                                         364.6
                                                                                               529.3
                                                                                                     102.6
                                                                                                                   6.9
                                                                                                                           3020.6
            198
                                       2007
                                                                                                            24.3
                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
                                                                                                                           2244.5
                 ARUNACHAL PRADESH
                                             18.0
                                                   92.8
                                                          72.1
                                                               132.7
                                                                     189.9
                                                                            259.1
                                                                                   329.9
                                                                                         370.3
                                                                                               152.5
                                                                                                       82.9
                                                                                                            33.9
                                                                                                                  15.9
                                                                                                                           1750.0
                                       2009
            201 ARUNACHAL PRADESH
                                       2010
                                              0.6
                                                   13.2
                                                        237.8
                                                               466.9
                                                                     312.7
                                                                            509.9
                                                                                   378.0
                                                                                         321.5
                                                                                                       97.7
                                                                                                            58.9
                                                                                                                           2855.6
                                                                                               444.2
           92 rows × 15 columns
In [70]:
           data2['ANNUAL RAIN']=data2.apply(lambda row:row.JAN+row.FEB+row.MAR+row.APR+row.MAY+row.JUN+row.JUL+row.AUG+
```

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ADDING NEW COLUMN

In [71]: data2

Out[71]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC	annual rain	ANNUAL RAIN
3091	COASTAL ANDHRA PRADESH	1910	0.9	2.4	0.2	31.9	22.6	179.6	222.2	204.5	216.8	286.4	87.2	0.0	1254.7	1254.7
3092	COASTAL ANDHRA PRADESH	1911	0.0	0.0	10.3	14.4	31.2	150.5	158.1	76.2	160.4	119.7	77.6	21.0	819.4	819.4
3093	COASTAL ANDHRA PRADESH	1912	0.0	9.6	4.8	15.2	33.6	55.9	217.9	230.1	188.7	86.1	61.7	0.0	903.6	903.6
3094	COASTAL ANDHRA PRADESH	1913	0.0	12.9	0.5	3.3	68.2	129.0	166.9	124.3	119.5	206.7	7.2	2.4	840.9	840.9
3095	COASTAL ANDHRA PRADESH	1914	0.0	10.9	5.8	73.0	77.7	171.7	157.4	178.5	292.4	22.8	17.8	5.1	1013.1	1013.1
3187	COASTAL ANDHRA PRADESH	2006	0.0	0.0	30.7	58.0	67.6	132.0	126.8	279.7	224.1	185.4	55.3	0.0	1159.6	1159.6
3188	COASTAL ANDHRA PRADESH	2007	0.0	5.1	0.1	8.5	13.0	300.1	141.0	164.4	287.1	167.7	11.9	0.5	1099.4	1099.4
3189	COASTAL ANDHRA PRADESH	2008	3.2	61.6	93.8	18.5	34.9	119.8	208.5	276.2	166.8	51.6	71.4	1.2	1107.5	1107.5
3190	COASTAL ANDHRA PRADESH	2009	0.0	0.0	5.7	6.4	53.0	72.6	140.9	163.5	151.9	92.6	102.6	1.3	790.5	790.5
3191	COASTAL ANDHRA PRADESH	2010	21.8	2.3	4.4	14.8	162.0	156.1	318.9	248.6	230.5	204.0	210.9	138.2	1712.5	1712.5

101 rows × 16 columns

In [72]: data2=data2.drop(['annual rain'],axis=1)

In [73]: data2

Out[73]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC	ANNUAL RAIN
3091	COASTAL ANDHRA PRADESH	1910	0.9	2.4	0.2	31.9	22.6	179.6	222.2	204.5	216.8	286.4	87.2	0.0	1254.7
3092	COASTAL ANDHRA PRADESH	1911	0.0	0.0	10.3	14.4	31.2	150.5	158.1	76.2	160.4	119.7	77.6	21.0	819.4
3093	COASTAL ANDHRA PRADESH	1912	0.0	9.6	4.8	15.2	33.6	55.9	217.9	230.1	188.7	86.1	61.7	0.0	903.6
3094	COASTAL ANDHRA PRADESH	1913	0.0	12.9	0.5	3.3	68.2	129.0	166.9	124.3	119.5	206.7	7.2	2.4	840.9
3095	COASTAL ANDHRA PRADESH	1914	0.0	10.9	5.8	73.0	77.7	171.7	157.4	178.5	292.4	22.8	17.8	5.1	1013.1
•••															
3187	COASTAL ANDHRA PRADESH	2006	0.0	0.0	30.7	58.0	67.6	132.0	126.8	279.7	224.1	185.4	55.3	0.0	1159.6
3188	COASTAL ANDHRA PRADESH	2007	0.0	5.1	0.1	8.5	13.0	300.1	141.0	164.4	287.1	167.7	11.9	0.5	1099.4
3189	COASTAL ANDHRA PRADESH	2008	3.2	61.6	93.8	18.5	34.9	119.8	208.5	276.2	166.8	51.6	71.4	1.2	1107.5
3190	COASTAL ANDHRA PRADESH	2009	0.0	0.0	5.7	6.4	53.0	72.6	140.9	163.5	151.9	92.6	102.6	1.3	790.5
3191	COASTAL ANDHRA PRADESH	2010	21.8	2.3	4.4	14.8	162.0	156.1	318.9	248.6	230.5	204.0	210.9	138.2	1712.5

101 rows × 15 columns

In [86]: **import** seaborn **as** sns import matplotlib.pyplot as plt cor=data2.corr()# USING CORRELATION FUNCTION RELATING THE DATA In [90]: sns.heatmap(cor,vmax=1,vmin=-1,annot=True,linewidths=.5,cmap="bwr") # SHOWING THE HEATMAP

```
Out[90]: <Axes: >
                                                                                               1.00
                                0.080.0504096.0103050.010.0770.230.012.0860.120.190.055
                                  1-0.0801.03090901.70099309940261.0140.150.0507.0780.150.004
                                                                                              - 0.75
                       FEB -0.054.0811 0.20.0740.280.0180.120.0360.0-70.020907-9.0810.19
                      MAR 9.096.0190.2 1 0.0520.240.0604020.099.0749.120.1020070.11
                                                                                              - 0.50
                       APR -0.0-D300 D7074.05 2 0.0270.2-0.102.00-B90907.01-70.160.1-70.067
                                                                                              - 0.25
                       MAY 9.050100908280.240.02710.00207.110.130.130.120.110.070.48
                       JUN 9.01-0.099401-8.0640.-20.00271 0.0120.190.0620.07-0.080.030.29
                                                                                              - 0.00
                       JUL 9.070.0230.10.0230.120.10.012 1 0.240.090.0390.050.270.36
                      AUG -0.2 30.014.0365.090900309130.190.24 1-0.0143.0705.070400107.39
                                                                                              - -0.25
                       SEP 9.0120.150.070.074.00-70.10.0602.090.018110.0168.010.00505.29
                       OCT-9.086.0507.0249.1-20.0107.120.010.0349.0706018 1-0.0366.039.53
                                                                                              - -0.50
                      NOV -0.10.078.0730.120.160.11-0.080.050.079.050.03610.0084.33
                                                                                              - -0.75
                       DEC -0.190.150.0800070.120.070.030.20.000.005608900841 0.19
             ANNUAL RAIN 0.055.0040.190.130.067.480.290.360.390.290.5
                                                                                               -1.00
                                                       N
                                                               AUG
                                              APR
                                                  MAY
                                                           耳
                                                                                    ANNUAL RAIN
```

In [88]: data2['SWM']=data2.apply(lambda row:row.JUN+row.JUL+row.AUG+row.SEP,axis=1)
 data2['NSM']=data2.apply(lambda row:row.OCT+row.NOV+row.DEC,axis=1)
#ADDING THE SWM AND NSM COLUMNS

In [89]: data2

Out[89]:

	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC	ANNUAL RAIN	SWM	NSM
3091	COASTAL ANDHRA PRADESH	1910	0.9	2.4	0.2	31.9	22.6	179.6	222.2	204.5	216.8	286.4	87.2	0.0	1254.7	823.1	373.6
3092	COASTAL ANDHRA PRADESH	1911	0.0	0.0	10.3	14.4	31.2	150.5	158.1	76.2	160.4	119.7	77.6	21.0	819.4	545.2	218.3
3093	COASTAL ANDHRA PRADESH	1912	0.0	9.6	4.8	15.2	33.6	55.9	217.9	230.1	188.7	86.1	61.7	0.0	903.6	692.6	147.8
3094	COASTAL ANDHRA PRADESH	1913	0.0	12.9	0.5	3.3	68.2	129.0	166.9	124.3	119.5	206.7	7.2	2.4	840.9	539.7	216.3
3095	COASTAL ANDHRA PRADESH	1914	0.0	10.9	5.8	73.0	77.7	171.7	157.4	178.5	292.4	22.8	17.8	5.1	1013.1	800.0	45.7
3187	COASTAL ANDHRA PRADESH	2006	0.0	0.0	30.7	58.0	67.6	132.0	126.8	279.7	224.1	185.4	55.3	0.0	1159.6	762.6	240.7
3188	COASTAL ANDHRA PRADESH	2007	0.0	5.1	0.1	8.5	13.0	300.1	141.0	164.4	287.1	167.7	11.9	0.5	1099.4	892.6	180.1
3189	COASTAL ANDHRA PRADESH	2008	3.2	61.6	93.8	18.5	34.9	119.8	208.5	276.2	166.8	51.6	71.4	1.2	1107.5	771.3	124.2
3190	COASTAL ANDHRA PRADESH	2009	0.0	0.0	5.7	6.4	53.0	72.6	140.9	163.5	151.9	92.6	102.6	1.3	790.5	528.9	196.5
3191	COASTAL ANDHRA PRADESH	2010	21.8	2.3	4.4	14.8	162.0	156.1	318.9	248.6	230.5	204.0	210.9	138.2	1712.5	954.1	553.1

101 rows × 17 columns

In [104]: data3=data2.drop(["ANNUAL RAIN"],axis=1)

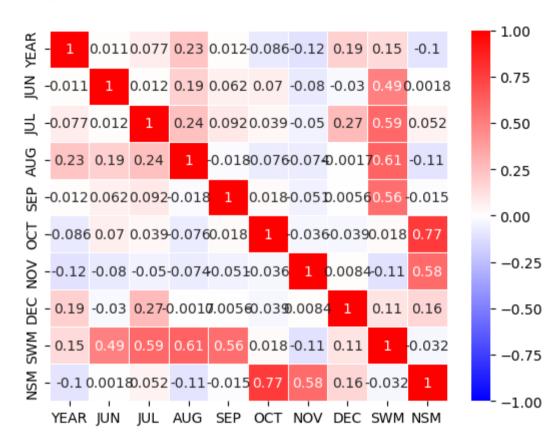
```
In [105]:
            data3
Out[105]:
                                 SUBDIVISION
                                              YEAR
                                                     JAN
                                                          FEB
                                                                MAR APR
                                                                            MAY
                                                                                   JUN
                                                                                         JUL
                                                                                               AUG
                                                                                                      SEP
                                                                                                            OCT
                                                                                                                  NOV
                                                                                                                         DEC
                                                                                                                              SWM
                                                                                                                                     NSM
              3091 COASTAL ANDHRA PRADESH
                                                            2.4
                                                                 0.2
                                                                      31.9
                                                                                 179.6
                                                                                        222.2
                                                                                              204.5
                                                                                                           286.4
                                                                                                                              823.1 373.6
                                               1910
                                                      0.9
                                                                             22.6
                                                                                                     216.8
                                                                                                                   87.2
                                                                                                                          0.0
              3092
                   COASTAL ANDHRA PRADESH
                                               1911
                                                      0.0
                                                           0.0
                                                                10.3
                                                                      14.4
                                                                            31.2
                                                                                  150.5
                                                                                        158.1
                                                                                               76.2 160.4
                                                                                                           119.7
                                                                                                                   77.6
                                                                                                                         21.0
                                                                                                                              545.2 218.3
              3093
                   COASTAL ANDHRA PRADESH
                                               1912
                                                      0.0
                                                           9.6
                                                                 4.8
                                                                      15.2
                                                                             33.6
                                                                                   55.9
                                                                                        217.9
                                                                                              230.1 188.7
                                                                                                            86.1
                                                                                                                   61.7
                                                                                                                          0.0
                                                                                                                              692.6 147.8
              3094
                   COASTAL ANDHRA PRADESH
                                               1913
                                                      0.0
                                                          12.9
                                                                 0.5
                                                                       3.3
                                                                            68.2
                                                                                  129.0
                                                                                        166.9
                                                                                              124.3
                                                                                                     119.5
                                                                                                           206.7
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                                                                                                                              539.7
                                                                                                                                    216.3
              3095
                   COASTAL ANDHRA PRADESH
                                               1914
                                                      0.0 10.9
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                                                                                 171.7 157.4 178.5
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                                                                                                            22.8
                                                                                                                   17.8
                                                                                                                          5.1
                                                                                                                              800.0
                                                                                                                                      45.7
                                               2006
                                                                 30.7
                                                                                  132.0
                                                                                              279.7
                                                                                                     224.1 185.4
              3187
                   COASTAL ANDHRA PRADESH
                                                           0.0
                                                                      58.0
                                                                             67.6
                                                                                        126.8
                                                                                                                          0.0
                                                                                                                              762.6 240.7
                                                      0.0
                                                                                                                   55.3
                                                           5.1
                                                                                  300.1 141.0
                                                                                                                              892.6 180.1
              3188
                   COASTAL ANDHRA PRADESH
                                               2007
                                                      0.0
                                                                 0.1
                                                                       8.5
                                                                            13.0
                                                                                              164.4
                                                                                                     287.1 167.7
                                                                                                                   11.9
                                                                                                                          0.5
              3189
                   COASTAL ANDHRA PRADESH
                                               2008
                                                      3.2 61.6
                                                                93.8
                                                                      18.5
                                                                            34.9
                                                                                  119.8
                                                                                        208.5
                                                                                              276.2 166.8
                                                                                                            51.6
                                                                                                                   71.4
                                                                                                                          1.2
                                                                                                                              771.3 124.2
              3190
                   COASTAL ANDHRA PRADESH
                                               2009
                                                      0.0
                                                           0.0
                                                                 5.7
                                                                       6.4
                                                                            53.0
                                                                                   72.6
                                                                                       140.9
                                                                                              163.5 151.9
                                                                                                            92.6
                                                                                                                 102.6
                                                                                                                          1.3
                                                                                                                              528.9 196.5
              3191 COASTAL ANDHRA PRADESH
                                               2010
                                                     21.8
                                                            2.3
                                                                                  156.1 318.9
                                                                                              248.6
                                                                                                     230.5 204.0
                                                                                                                 210.9
                                                                                                                       138.2
                                                                                                                              954.1 553.1
                                                                 4.4
                                                                      14.8
                                                                           162.0
            101 rows × 16 columns
            data3=data3.drop(['JAN', 'FEB', 'MAR', 'APR', 'MAY'], axis=1)
In [106]:
In [107]:
            import seaborn as sns
            import matplotlib.pyplot as plt
```

cor=data3.corr()

```
In [98]: list(data3)
Out[98]: ['SUBDIVISION',
           'YEAR',
           'JAN',
           'FEB',
           'MAR',
           'APR',
           'MAY',
           'JUN',
           'JUL',
           'AUG',
           'SEP',
           'OCT',
           'NOV',
           'DEC',
           'SWM',
           'NSM']
```

```
In [108]: sns.heatmap(cor,vmax=1,vmin=-1,annot=True,linewidths=.5,cmap="bwr")
```

Out[108]: <Axes: >



```
In [96]: import seaborn as sns
import matplotlib.pyplot as plt
cor=data2.corr()
```

```
Out[97]: <Axes: >
                                                                                                     1.00
                                10.0807.050409060103050101010707.210.03020805.112.119.0505.150.1
                         IAN 0.08
                                    1-0.08010-009000107099.30994020801-0.165.0507078.16.0904093029
                                                                                                    - 0.75
                        FEB-9.0-50408 11 0.20.074.28.01-8.10203-6.007.02/90703080.1-9.005/5063
                        MAR 9.09050190.2 10.050.249.0604020209090704.120.00200701101.00-70516
                                                                                                    - 0.50
                        APR-9.60L300L07040521-0.02-0.20.-02063.90-0701-0.1-0.1-2.0607.1-30.13
                        MAY 0.0510093280.24.02710.0020710.130.130.120.110.070.40.05418
                                                                                                    - 0.25
                         UN 9.0101.09401080640.2.002 10.012.19.062.070.080.08.29 0.0018
                         JUL 9.070702-0.10202-0.1-20.101.01.21 0.24.090203-9.05.270.360.59.052
                                                                                                    - 0.00
                        AUG -0.20.0104030609900309130.190.24 1-0.0-080-7069074001073 $0.610.11
                         SEP 0.01-20.1-50.007.0-7040007.103.06020.902.01.8110.0308.005.00.05062.90.5-0.015
                                                                                                      -0.25
                        OCT-9.0-8060-5070 29.1-2.0107.1-20.007.0309.07060181-0.0-306039.50.019.77
                        NOV -0.1020708076.1-20.160.1-30.0-80.905.0-7040-50103610.00804330.10.58
                                                                                                      -0.50
                        DEC -0.190.1-6.028000701.120.070.018.207.001070-5600390841 0.190.110.16
              ANNUAL RAIN 9.05050004.190.1-10.0607.400.290.360.390.290.5 0.330.19
                                                                                                    - -0.75
                        SWM -0.16.090306500-70516.05
                        NSM -0.10.02.900608160.130.1080001.8050.101.01
                                                                                                      -1.00
                                                          Щ
                                               APR
                                                                                  RAIN
                                                                                  ANNUAL
```

sns.heatmap(cor,vmax=1,vmin=-1,annot=True,linewidths=.5,cmap="bwr")

In []:	
In [] ·	