In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:
```
data=pd.read_csv(r"C:\Users\user\Desktop\vicky\rainfall\rainfall in india 1901-2015.csv")[1934:204
```

In [3]:
```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 114 entries, 1934 to 2047
Data columns (total 20 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   index        114 non-null    int64  
 1   SUBDIVISION  114 non-null    object 
 2   YEAR         114 non-null    int64  
 3   JAN          114 non-null    float64
 4   FEB          114 non-null    float64
 5   MAR          114 non-null    float64
 6   APR          114 non-null    float64
 7   MAY          114 non-null    float64
 8   JUN          114 non-null    float64
 9   JUL          114 non-null    float64
 10  AUG          114 non-null    float64
 11  SEP          114 non-null    float64
 12  OCT          114 non-null    float64
 13  NOV          114 non-null    float64
 14  DEC          114 non-null    float64
 15  ANNUAL       114 non-null    float64
 16  Jan-Feb      114 non-null    float64
 17  Mar-May      114 non-null    float64
 18  Jun-Sep      114 non-null    float64
 19  Oct-Dec      114 non-null    float64
dtypes: float64(17), int64(2), object(1)
memory usage: 17.9+ KB
```

In [4]:
```
data.head()
```

Out[4]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	Ja F
1934	1934	EAST RAJASTHAN	1903	1.9	0.7	1.3	0.1	12.9	15.6	238.2	229.1	168.5	17.8	0.0	0.0	686.1	
1935	1935	EAST RAJASTHAN	1904	4.3	5.5	21.7	0.2	27.5	49.9	289.7	223.5	50.2	1.5	5.8	14.7	694.5	
1936	1936	EAST RAJASTHAN	1905	4.1	8.8	3.2	1.6	2.0	14.4	130.5	30.9	83.8	0.0	0.0	0.6	279.8	1
1937	1937	EAST RAJASTHAN	1906	0.2	23.1	6.2	0.0	1.6	61.9	262.5	95.5	191.4	1.9	0.0	3.0	647.4	2
1938	1938	EAST RAJASTHAN	1907	6.3	35.7	7.0	14.3	12.7	18.5	134.1	319.8	3.3	0.0	0.0	0.0	551.8	4

In [5]:
```
data.shape
```

Out[5]:
```
(114, 20)
```

In [6]:
```
new_data=data.fillna(value=1)
new_data
```

Out[6]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	Ja F
1934	1934	EAST RAJASTHAN	1903	1.9	0.7	1.3	0.1	12.9	15.6	238.2	229.1	168.5	17.8	0.0	0.0	686.1	
1935	1935	EAST RAJASTHAN	1904	4.3	5.5	21.7	0.2	27.5	49.9	289.7	223.5	50.2	1.5	5.8	14.7	694.5	
1936	1936	EAST RAJASTHAN	1905	4.1	8.8	3.2	1.6	2.0	14.4	130.5	30.9	83.8	0.0	0.0	0.6	279.8	1
1937	1937	EAST RAJASTHAN	1906	0.2	23.1	6.2	0.0	1.6	61.9	262.5	95.5	191.4	1.9	0.0	3.0	647.4	2
1938	1938	EAST RAJASTHAN	1907	6.3	35.7	7.0	14.3	12.7	18.5	134.1	319.8	3.3	0.0	0.0	0.0	551.8	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2043	2043	EAST RAJASTHAN	2012	1.9	0.0	0.0	3.6	9.5	11.2	170.5	365.0	131.3	0.5	0.0	0.1	693.6	
2044	2044	EAST RAJASTHAN	2013	1.4	21.7	0.4	3.2	1.0	90.6	319.0	278.5	88.0	30.6	1.3	0.3	836.1	2
2045	2045	EAST RAJASTHAN	2014	28.4	10.0	6.4	7.3	8.4	23.5	197.1	261.0	136.9	3.2	0.0	1.1	683.3	3
2046	2046	EAST RAJASTHAN	2015	12.1	0.1	55.9	15.9	3.5	96.4	297.6	142.8	20.1	5.0	0.5	0.8	650.7	1
2047	2047	WEST MADHYA PRADESH	1901	25.8	5.8	5.8	2.8	2.1	41.2	228.9	349.9	47.9	5.6	0.0	2.4	718.2	3

114 rows × 20 columns

In [7]:
```
new_data.index
```

Out[7]:
```
RangeIndex(start=1934, stop=2048, step=1)
```

In [8]:
```
new_data.columns
```

Out[8]:
```
Index(['index', 'SUBDIVISION', 'YEAR', 'JAN', 'FEB', 'MAR', 'APR', 'MAY',
       'JUN', 'JUL', 'AUG', 'SEP', 'OCT', 'NOV', 'DEC', 'ANNUAL', 'Jan-Feb',
       'Mar-May', 'Jun-Sep', 'Oct-Dec'],
      dtype='object')
```

In [9]:
```
new_data.plot.line()
```

Out[9]: <AxesSubplot:>

In [10]:
```
new_data.plot.bar()
```

Out[10]: <AxesSubplot:>

In [11]:
```
new_data.plot.area()
```

Out[11]:
```
<AxesSubplot:>
```

In [12]:
```
new_data.plot.hist()
```

Out[12]:
```
<AxesSubplot:ylabel='Frequency'>
```

In [13]:
```
new_data.plot.pie(y='ANNUAL')
```

Out[13]:
```
<AxesSubplot:ylabel='ANNUAL'>
```

In [14]:
```
new_data.plot.scatter(x='YEAR',y='ANNUAL')
```

Out[14]:
```
<AxesSubplot:xlabel='YEAR', ylabel='ANNUAL'>
```

In [15]:
```
sns.pairplot(new_data)
```

Out[15]:
```
<seaborn.axisgrid.PairGrid at 0x223c4fc17f0>
```

In [16]:
```
sns.distplot(data['YEAR'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplo
t` is a deprecated function and will be removed in a future version. Please adapt your code to us
e either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-leve
l function for histograms).
  warnings.warn(msg, FutureWarning)
```

Out[16]:
```
<AxesSubplot:xlabel='YEAR', ylabel='Density'>
```

In [17]:
```
sns.heatmap(new_data.corr())
```

Out[17]:
```
<AxesSubplot:>
```