20104016

DEENA

Importing Libraries

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

Importing Datasets

In [2]:
```
df=pd.read_csv("rainfall_lakshadweep.csv")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
0	4002	LAKSHADWEEP	1901	22.6	86.4	114.8	263.8	37.3	459.0	0.0	0.0	46.7	1
1	4003	LAKSHADWEEP	1902	99.3	9.6	32.6	40.4	179.1	374.2	413.3	170.0	214.3	3
2	4004	LAKSHADWEEP	1903	63.5	95.0	0.0	29.5	144.1	212.4	261.8	202.0	292.1	
3	4005	LAKSHADWEEP	1904	0.0	0.0	13.5	13.2	143.3	261.3	256.0	38.9	219.9	1
4	4006	LAKSHADWEEP	1905	62.4	0.0	0.0	0.0	166.7	400.7	68.7	377.5	107.5	2
...	...	...	...	...	...	...	...	...	...	...	...	...	
109	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	1
110	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	1
111	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	
112	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	1
113	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	1

114 rows × 20 columns

Data Cleaning and Data Preprocessing

In [3]:
```
df=df.dropna()
```

In [4]:
```
df.columns
```

Out[4]:
```
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')
```

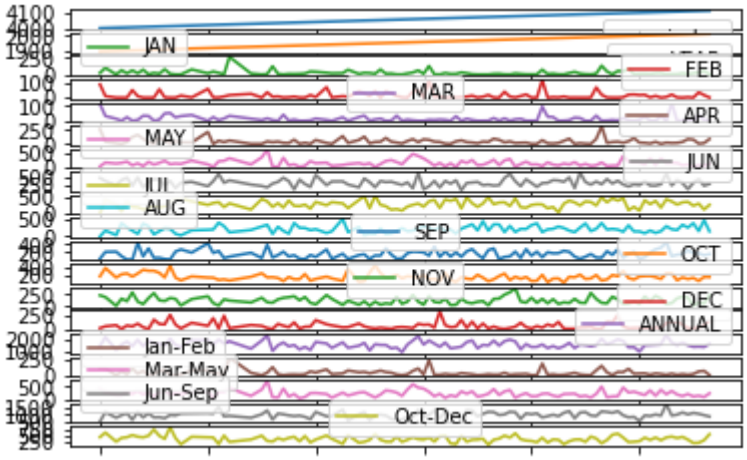
In [5]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 103 entries, 0 to 113
Data columns (total 20 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   index        103 non-null    int64  
 1   SUBDIVISION  103 non-null    object 
 2   YEAR         103 non-null    int64  
 3   JAN          103 non-null    float64
 4   FEB          103 non-null    float64
 5   MAR          103 non-null    float64
 6   APR          103 non-null    float64
 7   MAY          103 non-null    float64
 8   JUN          103 non-null    float64
 9   JUL          103 non-null    float64
 10  AUG          103 non-null    float64
 11  SEP          103 non-null    float64
 12  OCT          103 non-null    float64
 13  NOV          103 non-null    float64
 14  DEC          103 non-null    float64
 15  ANNUAL       103 non-null    float64
 16  Jan-Feb      103 non-null    float64
 17  Mar-May      103 non-null    float64
 18  Jun-Sep      103 non-null    float64
 19  Oct-Dec      103 non-null    float64
dtypes: float64(17), int64(2), object(1)
memory usage: 16.9+ KB
```

Line chart

In [6]:
```
df.plot.line(subplots=True)
```

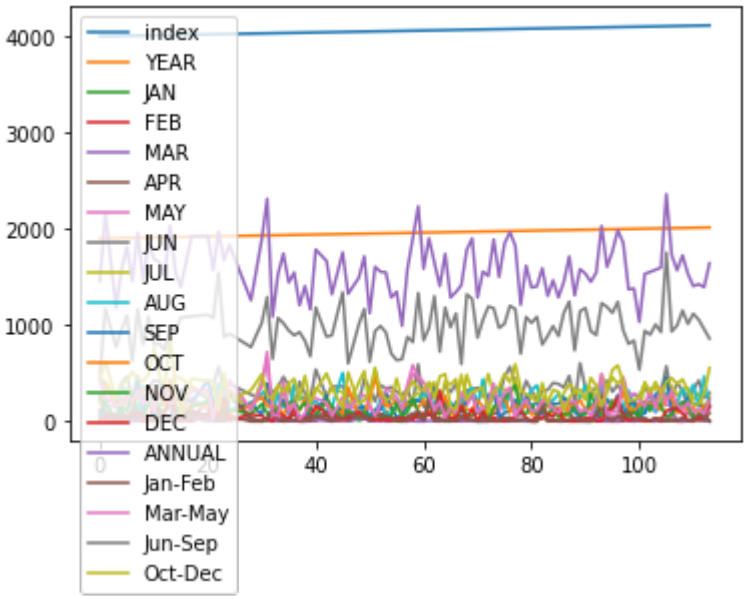
Out[6]:
```
array([<AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>,
       <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>,
       <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>,
       <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>,
       <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>], dtype=object)
```



Line chart

In [7]:
```
df.plot.line()
```

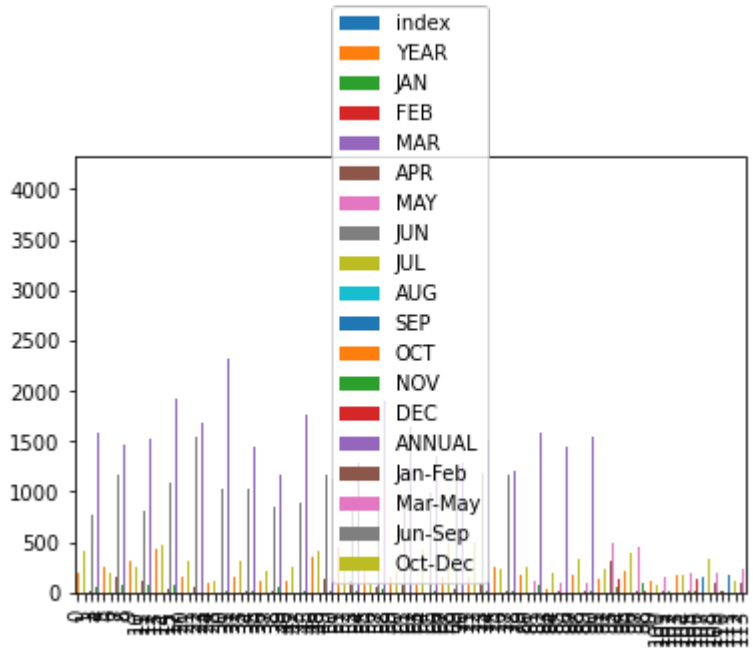
Out[7]:
```
<AxesSubplot:>
```



Bar chart

In [8]:
```
df.plot.bar()
```

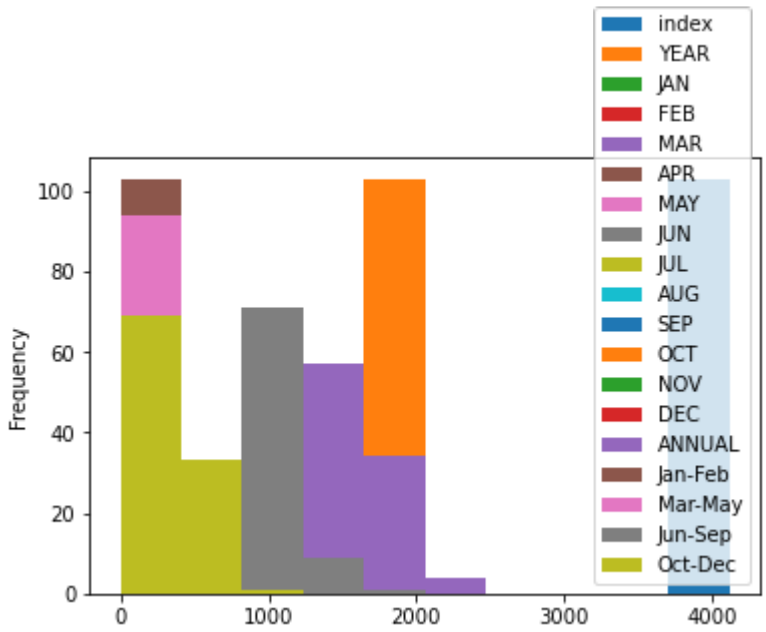
Out[8]: <AxesSubplot:>



Histogram

In [9]:
```
df.plot.hist()
```

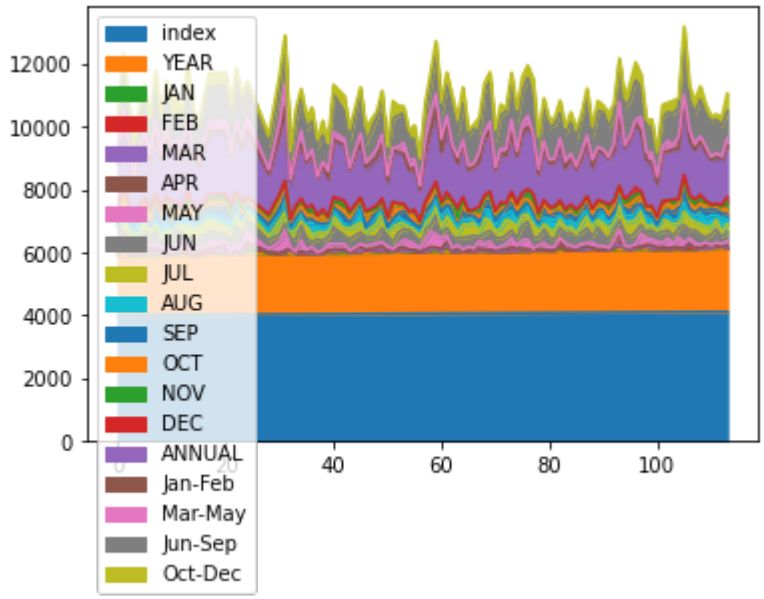
Out[9]: <AxesSubplot:ylabel='Frequency'>



Area chart

In [10]:
```
df.plot.area()
```

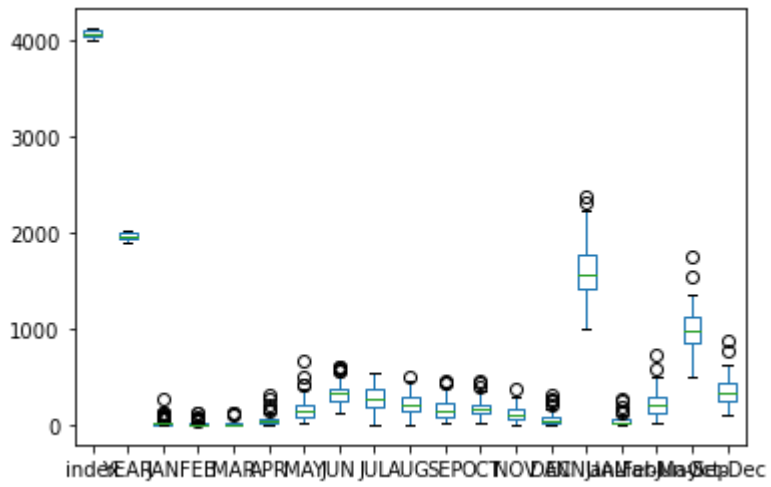
Out[10]: <AxesSubplot:>



Box chart

In [11]:
```
df.plot.box()
```

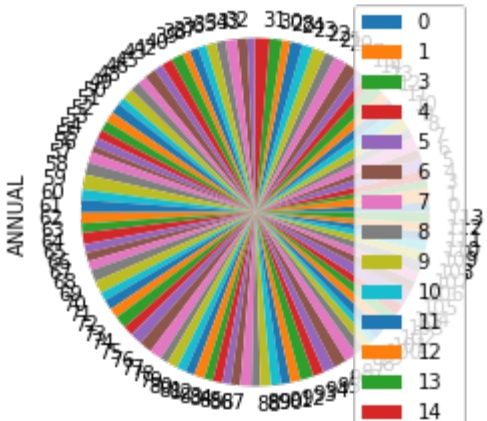
Out[11]: <AxesSubplot:>

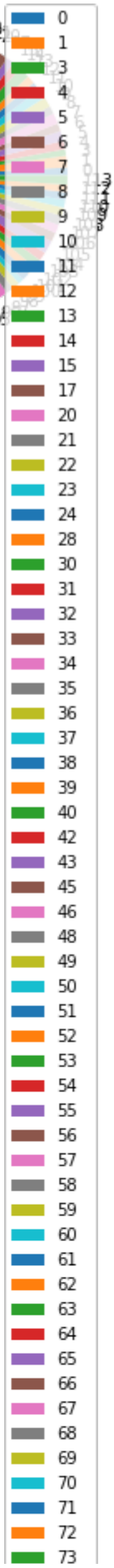


Pie chart

In [12]:
```
df.plot.pie(y='ANNUAL')
```

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

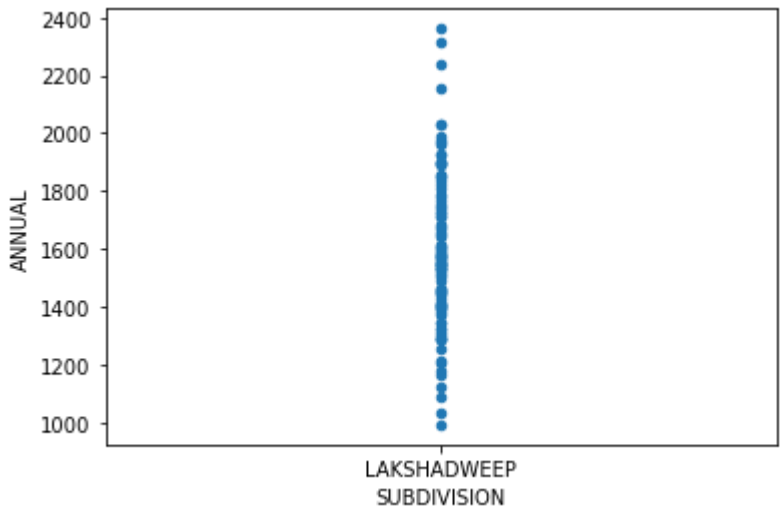




Scatter chart

In [13]:
```
df.plot.scatter(x='SUBDIVISION', y='ANNUAL')
```

Out[13]: <AxesSubplot:xlabel='SUBDIVISION', ylabel='ANNUAL'>



In [14]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 103 entries, 0 to 113
Data columns (total 20 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   index        103 non-null    int64
 1   SUBDIVISION  103 non-null    object
 2   YEAR         103 non-null    int64
 3   JAN          103 non-null    float64
 4   FEB          103 non-null    float64
 5   MAR          103 non-null    float64
 6   APR          103 non-null    float64
 7   MAY          103 non-null    float64
 8   JUN          103 non-null    float64
 9   JUL          103 non-null    float64
 10  AUG          103 non-null    float64
 11  SEP          103 non-null    float64
 12  OCT          103 non-null    float64
 13  NOV          103 non-null    float64
 14  DEC          103 non-null    float64
```

In [15]:
```
df.describe()
```

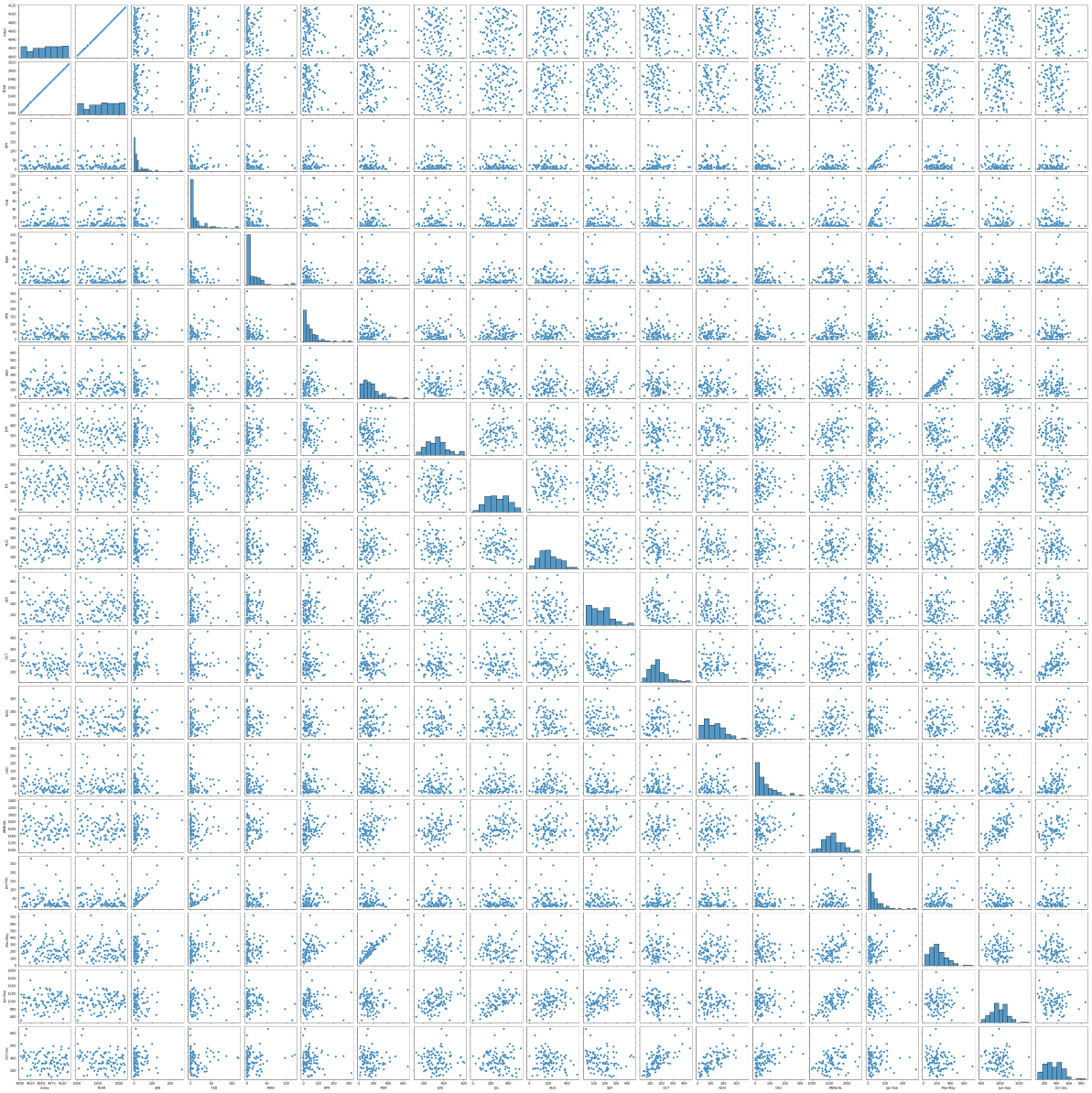
Out[15]:

	index	YEAR	JAN	FEB	MAR	APR	MAY	
count	103.000000	103.000000	103.000000	103.000000	103.000000	103.000000	103.000000	1(
mean	4061.679612	1961.533981	25.324272	13.766019	14.128155	45.643689	159.710680	3:
std	32.970044	33.202237	37.228830	22.446431	21.518731	52.277828	111.277485	1(
min	4002.000000	1901.000000	0.000000	0.000000	0.000000	0.000000	13.500000	1:
25%	4035.500000	1935.500000	3.900000	0.400000	0.450000	14.050000	80.500000	2:
50%	4064.000000	1964.000000	12.300000	3.800000	5.200000	32.600000	142.800000	3:
75%	4089.500000	1989.500000	25.800000	16.800000	22.150000	61.750000	204.600000	3:
max	4115.000000	2015.000000	262.800000	114.900000	120.700000	315.400000	660.800000	6(

EDA AND VISUALIZATION

In [16]:
```
sns.pairplot(df)
```

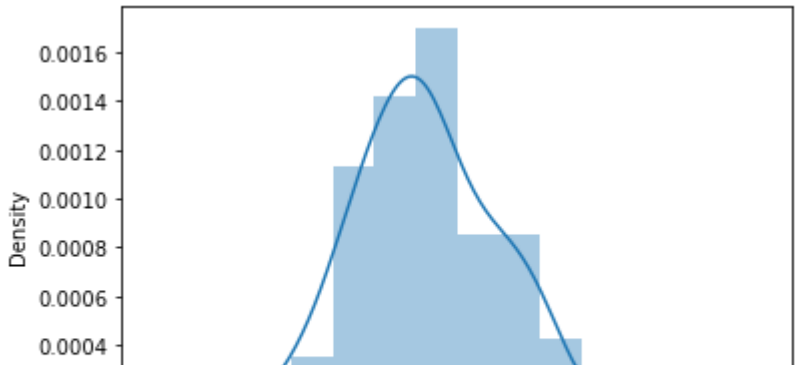
Out[16]:
```
<seaborn.axisgrid.PairGrid at 0x25902638730>
```



In [17]:
```
sns.distplot(df['ANNUAL'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: Fut
ureWarning: `distplot` is a deprecated function and will be removed in a futu
re version. Please adapt your code to use either `displot` (a figure-level fu
nction with similar flexibility) or `histplot` (an axes-level function for hi
stograms).
  warnings.warn(msg, FutureWarning)
```

Out[17]: <AxesSubplot:xlabel='ANNUAL', ylabel='Density'>



In [18]:
```
sns.heatmap(df.corr())
```

Out[18]: <AxesSubplot:>