

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_punjab.csv")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	1472	PUNJAB	1901	55.7	50.1	25.2	2.1	25.2	10.4	178.2	145.0	24.4	3.7
1	1473	PUNJAB	1902	0.0	0.8	9.9	10.9	29.6	49.9	125.6	94.9	67.2	9.0
2	1474	PUNJAB	1903	29.5	0.5	45.0	1.3	9.2	5.2	212.2	119.1	132.5	6.9
3	1475	PUNJAB	1904	24.2	1.7	87.8	1.2	13.8	22.0	59.9	124.0	73.8	7.4
4	1476	PUNJAB	1905	53.0	40.3	24.3	0.5	2.2	19.2	122.6	50.3	111.1	1.2
...
110	1582	PUNJAB	2011	3.5	35.6	8.2	17.8	18.9	162.9	120.9	193.5	140.2	0.0
111	1583	PUNJAB	2012	62.6	3.2	1.9	31.1	1.6	11.9	120.2	135.1	112.3	2.2
112	1584	PUNJAB	2013	9.3	50.1	11.6	3.4	3.6	120.3	117.9	217.1	24.4	16.2
113	1585	PUNJAB	2014	21.8	20.1	30.3	24.5	20.8	20.6	76.3	41.9	105.8	6.0
114	1586	PUNJAB	2015	17.7	31.3	68.5	29.8	16.7	48.3	130.2	88.6	69.2	9.0

115 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')
```

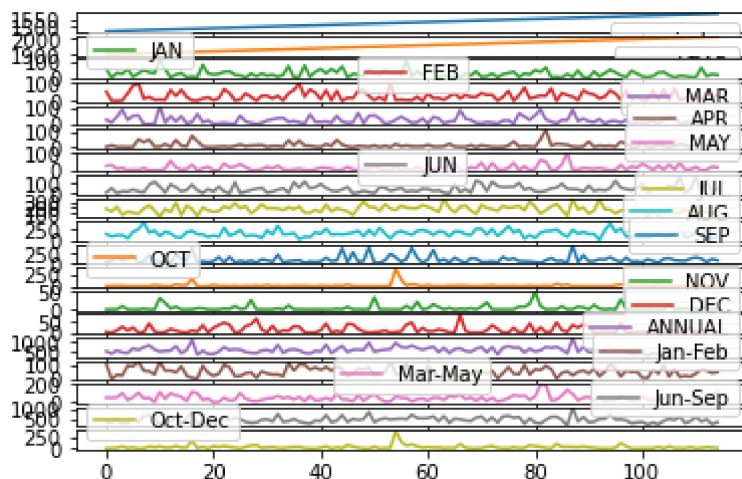
```
In [5]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 115 entries, 0 to 114
Data columns (total 20 columns):
#   Column                Non-Null Count  Dtype
---  -
0   index                 115 non-null   int64
1   SUBDIVISION           115 non-null   object
2   YEAR                  115 non-null   int64
3   JAN                   115 non-null   float64
4   FEB                   115 non-null   float64
5   MAR                   115 non-null   float64
6   APR                   115 non-null   float64
7   MAY                   115 non-null   float64
8   JUN                   115 non-null   float64
9   JUL                   115 non-null   float64
10  AUG                   115 non-null   float64
11  SEP                   115 non-null   float64
12  OCT                   115 non-null   float64
13  NOV                   115 non-null   float64
14  DEC                   115 non-null   float64
15  ANNUAL                115 non-null   float64
16  Jan-Feb               115 non-null   float64
17  Mar-May               115 non-null   float64
18  Jun-Sep               115 non-null   float64
19  Oct-Dec               115 non-null   float64
dtypes: float64(17), int64(2), object(1)
memory usage: 18.9+ KB
```

Line chart

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

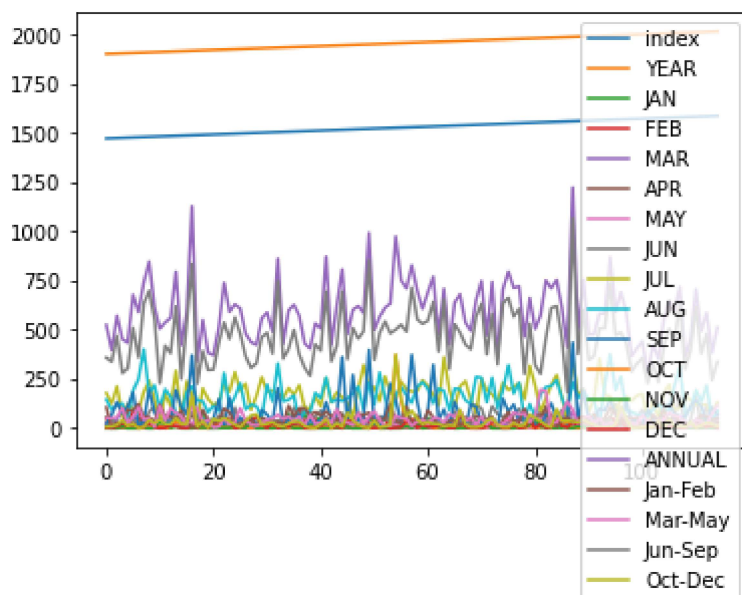
```
Out[6]: array([<AxesSubplot:~>, <AxesSubplot:~>, <AxesSubplot:~>, <AxesSubplot:~>,
<AxesSubplot:~>, <AxesSubplot:~>, <AxesSubplot:~>, <AxesSubplot:~>,
<AxesSubplot:~>, <AxesSubplot:~>, <AxesSubplot:~>, <AxesSubplot:~>,
<AxesSubplot:~>, <AxesSubplot:~>, <AxesSubplot:~>], dtype=object)
```



Line chart

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

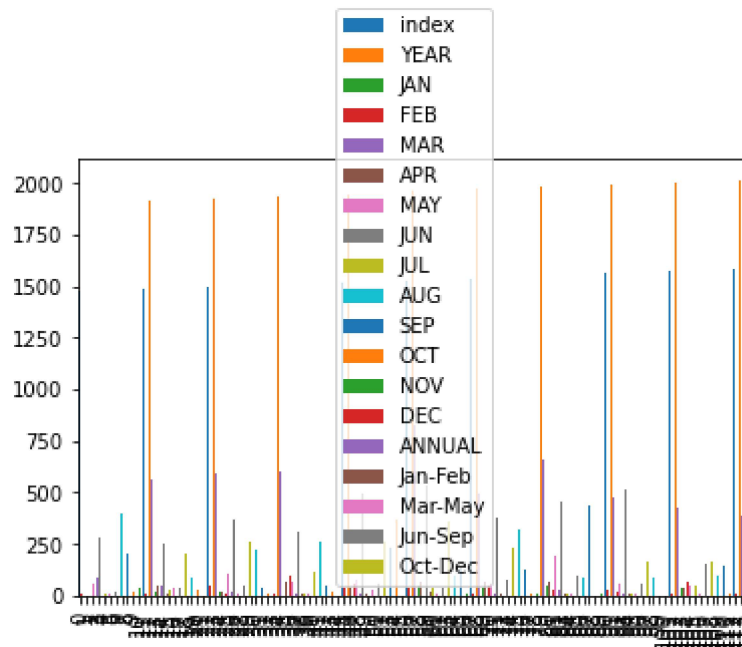
```
Out[7]: <AxesSubplot:~>
```



Bar chart

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

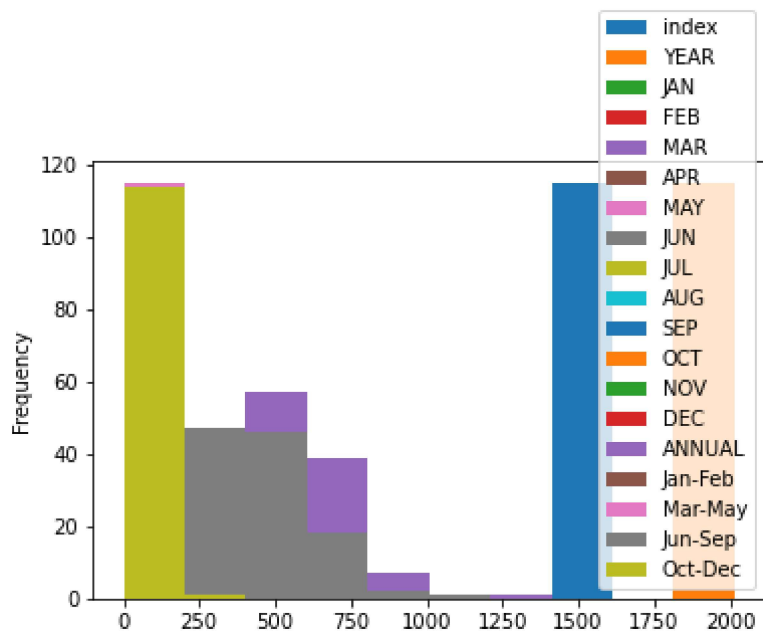
```
Out[8]: <AxesSubplot:>
```



Histogram

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

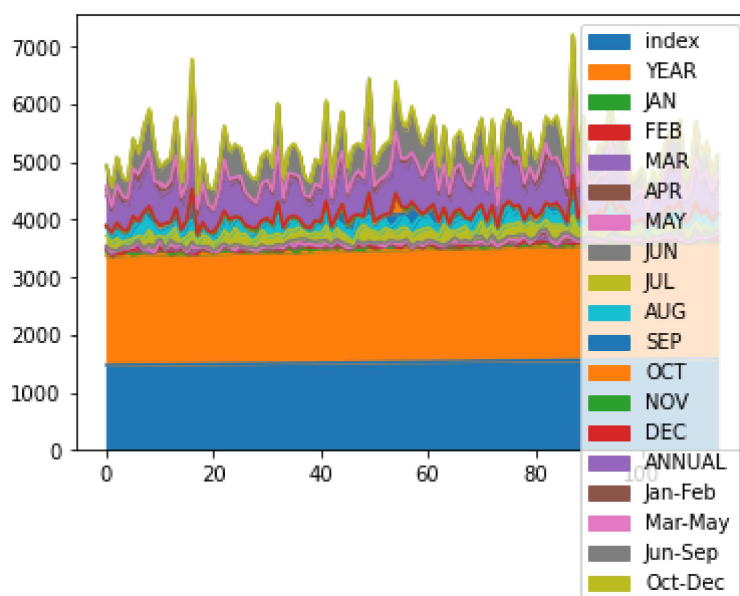
```
Out[9]: <AxesSubplot:ylabel='Frequency'>
```



Area chart

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

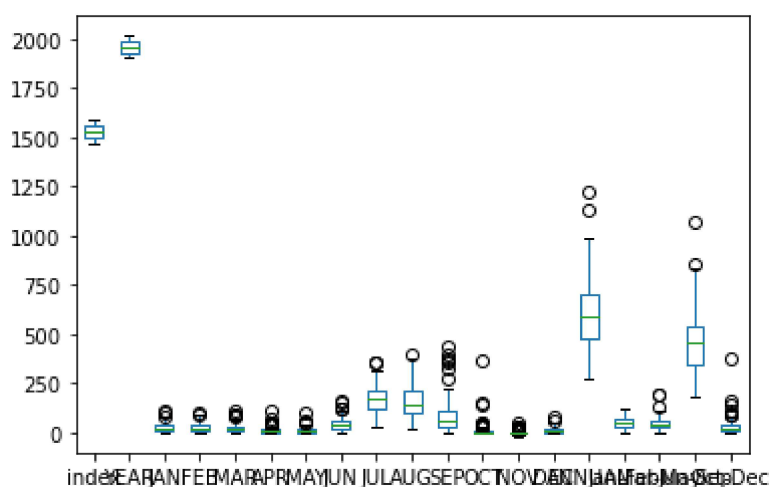
```
Out[10]: <AxesSubplot:>
```



Box chart

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

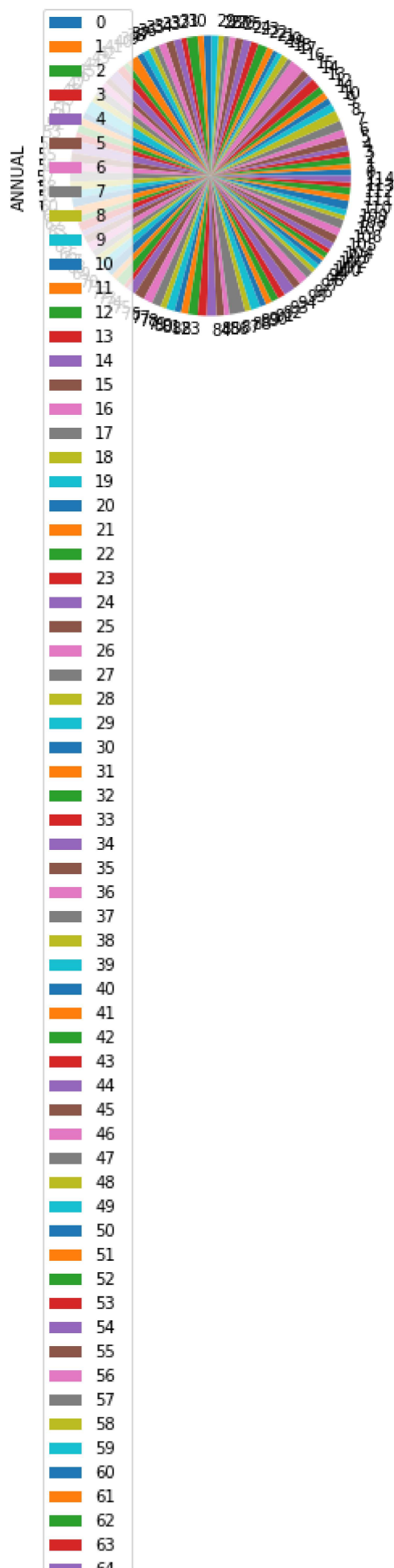
```
Out[11]: <AxesSubplot:>
```

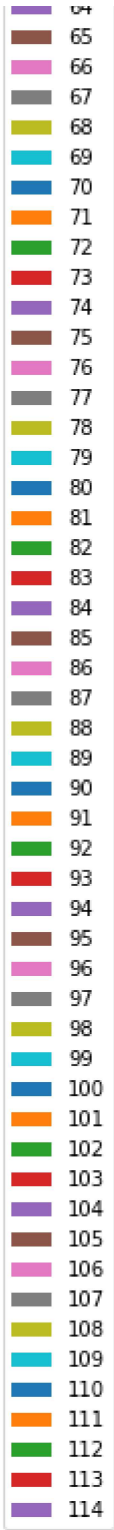


Pie chart

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

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

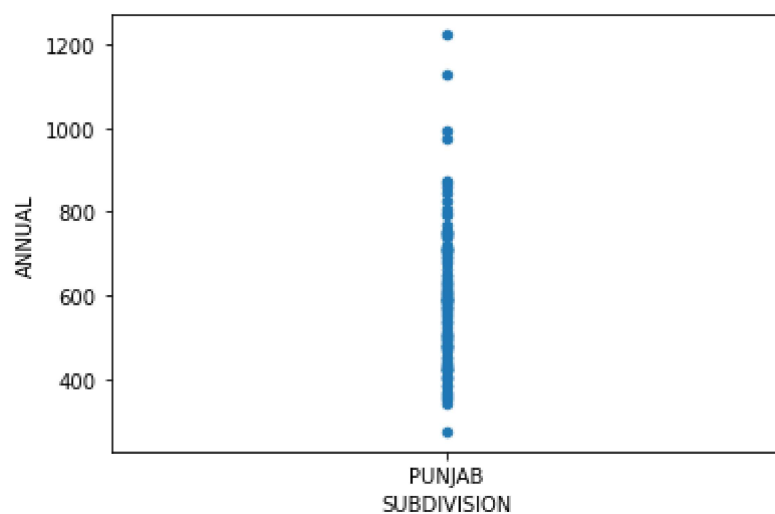





Scatter chart

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

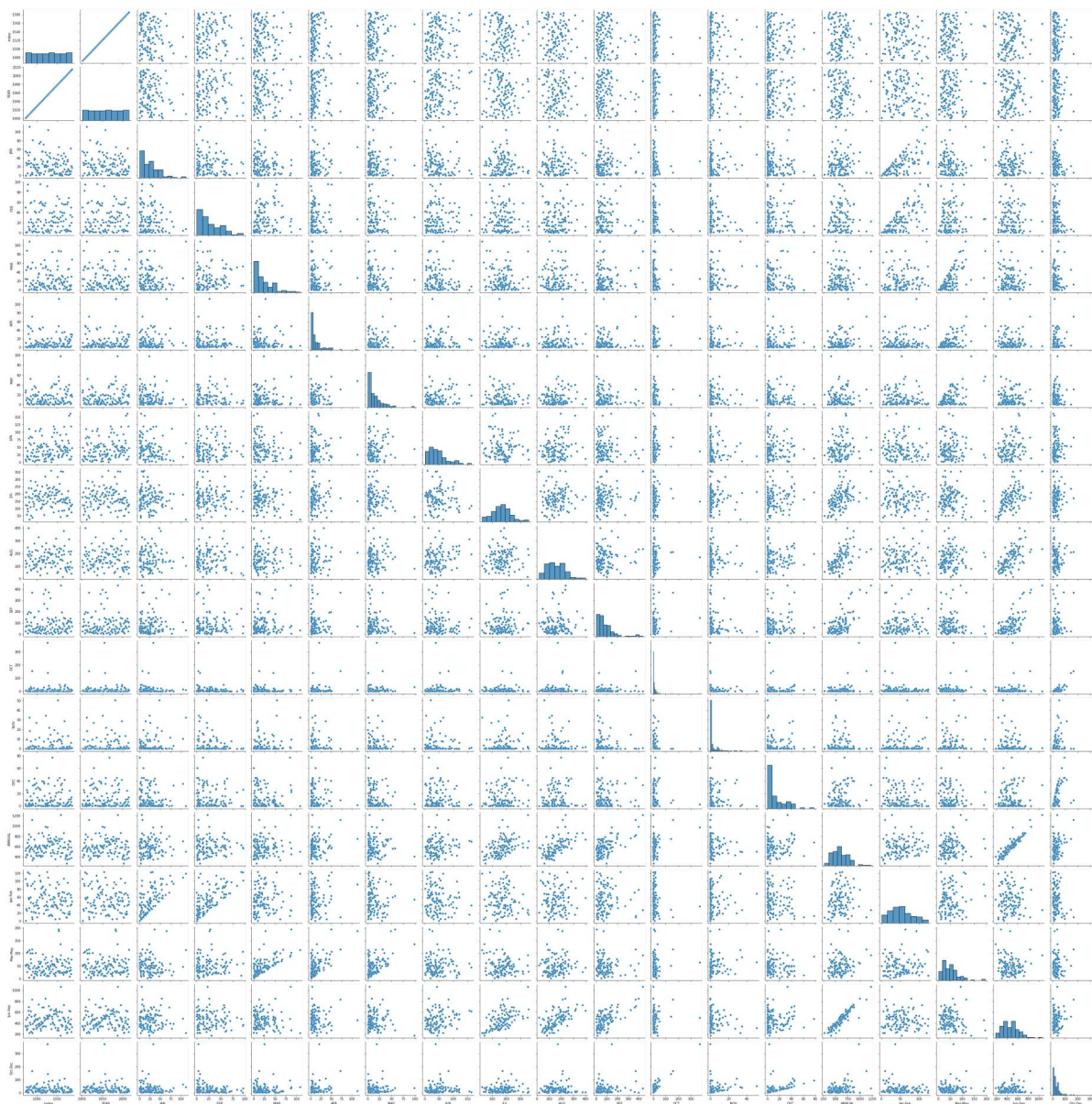
```
Out[13]: <AxesSubplot:xlabel='SUBDIVISION', ylabel='ANNUAL '>
```



Seaborn

```
In [14]: sns.pairplot(df)
```

```
Out[14]: <seaborn.axisgrid.PairGrid at 0x198339fdac0>
```

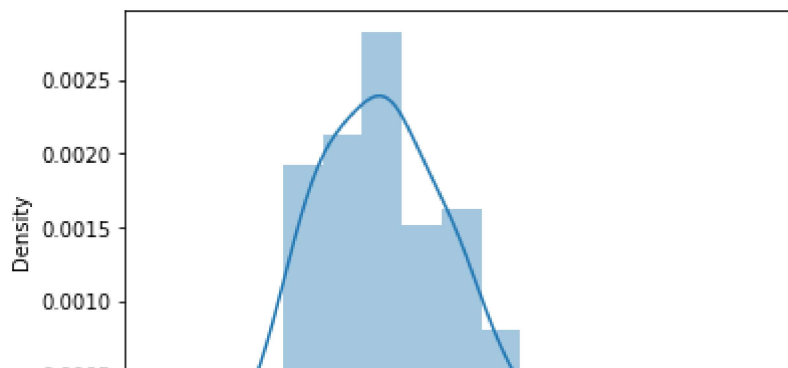


In [15]: `sns.distplot(df['ANNUAL'])`

C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).

warnings.warn(msg, FutureWarning)

Out[15]: `<AxesSubplot:xlabel='ANNUAL', ylabel='Density'>`



In [16]: `sns.heatmap(df.corr())`

Out[16]: `<AxesSubplot:>`

