

Importing Libraries

In [1]:

```
1 import numpy as np
2 import pandas as pd
3 import matplotlib.pyplot as plt
4 import seaborn as sns
```

Importing Datasets

In [2]:

```

1 df=pd.read_csv('NAGA MANI MIZO TRIPURA.csv')
2 df

```

Out[2]:

		index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	Jan-Feb	Mar-May
0	323		NAGA MANI MIZO TRIPURA	1902	4.8	0.5	36.3	297.8	215.5	480.1	392.4	312.8	318.7	102.4	8.9	4.7	2175.0	5.2	549.7
1	324		NAGA MANI MIZO TRIPURA	1903	6.5	40.5	139.8	45.5	159.9	458.6	300.2	470.6	366.1	166.4	76.7	0.1	2230.7	47.0	345.1
2	325		NAGA MANI MIZO TRIPURA	1904	2.3	46.9	47.5	290.3	230.5	455.3	423.5	423.6	375.8	128.9	90.0	5.0	2519.8	49.3	568.3
3	326		NAGA MANI MIZO TRIPURA	1905	9.1	35.3	306.5	161.7	193.6	339.7	450.1	429.9	320.1	246.4	8.0	27.1	2527.6	44.5	661.8
4	327		NAGA MANI MIZO TRIPURA	1906	7.0	71.5	72.5	99.0	302.7	417.4	475.2	439.2	439.1	142.8	44.9	3.2	2514.4	78.5	474.2
...	
109	432		NAGA MANI MIZO TRIPURA	2011	12.6	3.6	51.4	81.1	334.9	374.2	313.3	367.6	258.3	92.6	2.4	0.2	1892.1	16.1	467.4
110	433		NAGA MANI MIZO TRIPURA	2012	24.5	10.2	20.3	243.5	163.5	396.2	280.1	342.7	248.7	160.9	32.0	0.4	1922.9	34.7	427.3
111	434		NAGA MANI MIZO TRIPURA	2013	0.2	5.7	19.7	60.3	348.9	206.6	255.9	291.3	241.4	125.6	0.3	1.2	1557.2	5.9	428.9
112	435		NAGA MANI MIZO TRIPURA	2014	1.2	21.0	25.4	49.6	192.5	268.3	295.7	372.3	300.9	69.6	3.3	0.1	1599.9	22.2	267.5
113	436		NAGA MANI MIZO TRIPURA	2015	14.4	14.2	21.6	253.5	198.3	283.9	413.6	334.2	255.9	118.7	3.9	10.0	1922.4	28.7	473.4

114 rows × 20 columns

Data Cleaning and Data Preprocessing

In [3]:

```

1 df=df.dropna()
2 df

```

Out[3]:

		index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	Jan-Feb	Mar-May
0	323		NAGA MANI MIZO TRIPURA	1902	4.8	0.5	36.3	297.8	215.5	480.1	392.4	312.8	318.7	102.4	8.9	4.7	2175.0	5.2	549.7
1	324		NAGA MANI MIZO TRIPURA	1903	6.5	40.5	139.8	45.5	159.9	458.6	300.2	470.6	366.1	166.4	76.7	0.1	2230.7	47.0	345.1
2	325		NAGA MANI MIZO TRIPURA	1904	2.3	46.9	47.5	290.3	230.5	455.3	423.5	423.6	375.8	128.9	90.0	5.0	2519.8	49.3	568.3
3	326		NAGA MANI MIZO TRIPURA	1905	9.1	35.3	306.5	161.7	193.6	339.7	450.1	429.9	320.1	246.4	8.0	27.1	2527.6	44.5	661.8
4	327		NAGA MANI MIZO TRIPURA	1906	7.0	71.5	72.5	99.0	302.7	417.4	475.2	439.2	439.1	142.8	44.9	3.2	2514.4	78.5	474.2
...	
109	432		NAGA MANI MIZO TRIPURA	2011	12.6	3.6	51.4	81.1	334.9	374.2	313.3	367.6	258.3	92.6	2.4	0.2	1892.1	16.1	467.4
110	433		NAGA MANI MIZO TRIPURA	2012	24.5	10.2	20.3	243.5	163.5	396.2	280.1	342.7	248.7	160.9	32.0	0.4	1922.9	34.7	427.3
111	434		NAGA MANI MIZO TRIPURA	2013	0.2	5.7	19.7	60.3	348.9	206.6	255.9	291.3	241.4	125.6	0.3	1.2	1557.2	5.9	428.9
112	435		NAGA MANI MIZO TRIPURA	2014	1.2	21.0	25.4	49.6	192.5	268.3	295.7	372.3	300.9	69.6	3.3	0.1	1599.9	22.2	267.5
113	436		NAGA MANI MIZO TRIPURA	2015	14.4	14.2	21.6	253.5	198.3	283.9	413.6	334.2	255.9	118.7	3.9	10.0	1922.4	28.7	473.4

114 rows × 20 columns

```
In [4]: 1 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')
```

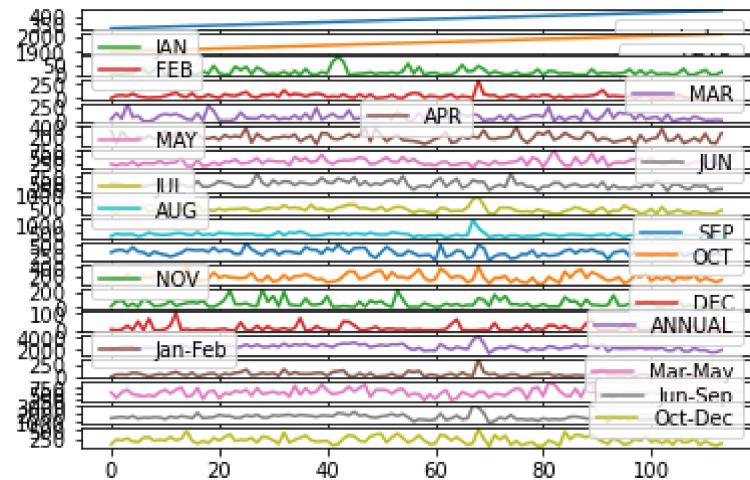
```
In [5]: 1 df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 114 entries, 0 to 113
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: 18.7+ KB
```

Line Chart

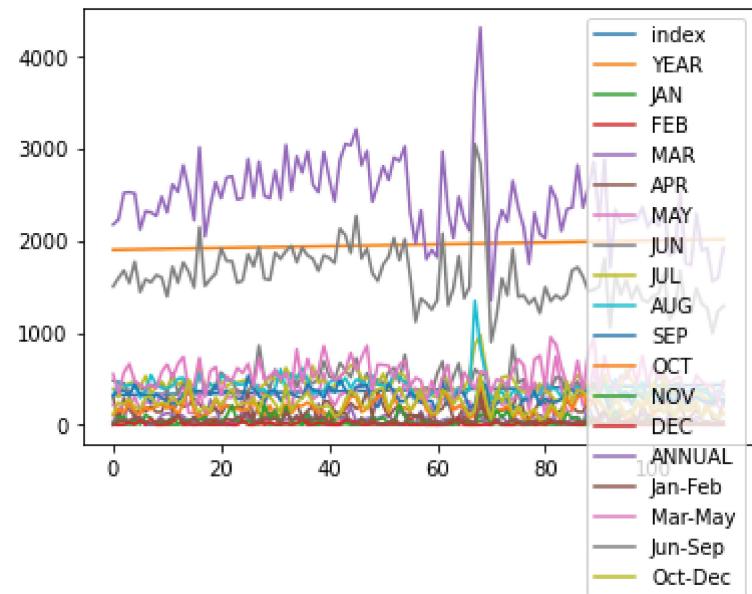
```
In [6]: 1 df.plot.line(subplots=True)
```

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



In [7]: 1 df.plot.line()

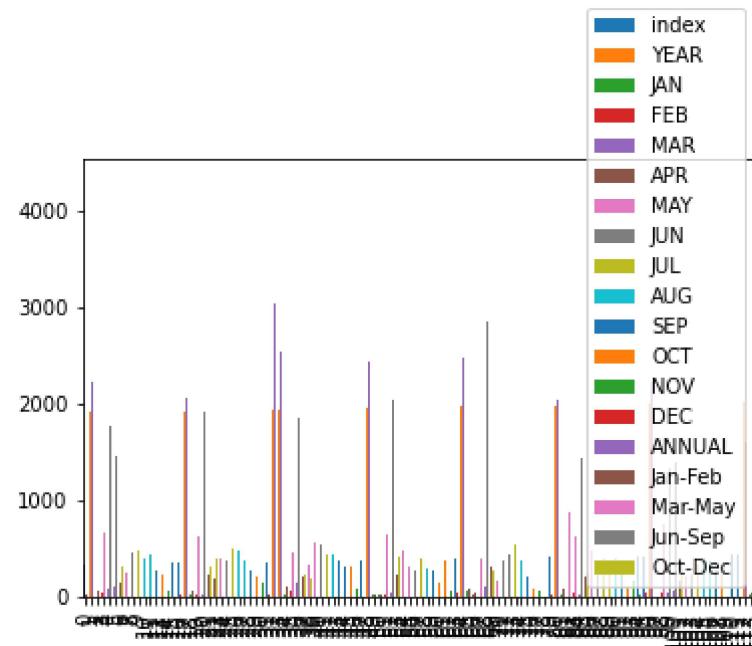
Out[7]: <AxesSubplot:>



Bar Chart

In [8]: 1 df.plot.bar()

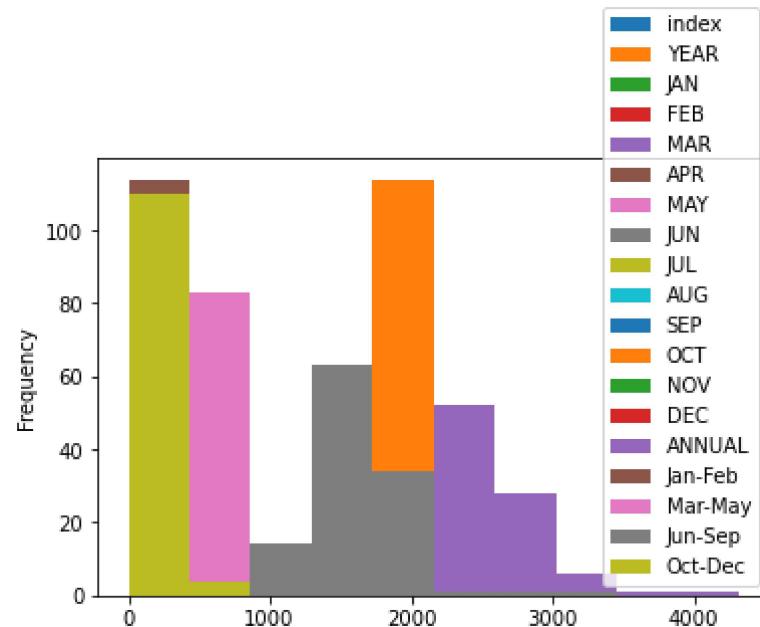
Out[8]: <AxesSubplot:>



Histogram

In [9]: 1 df.plot.hist()

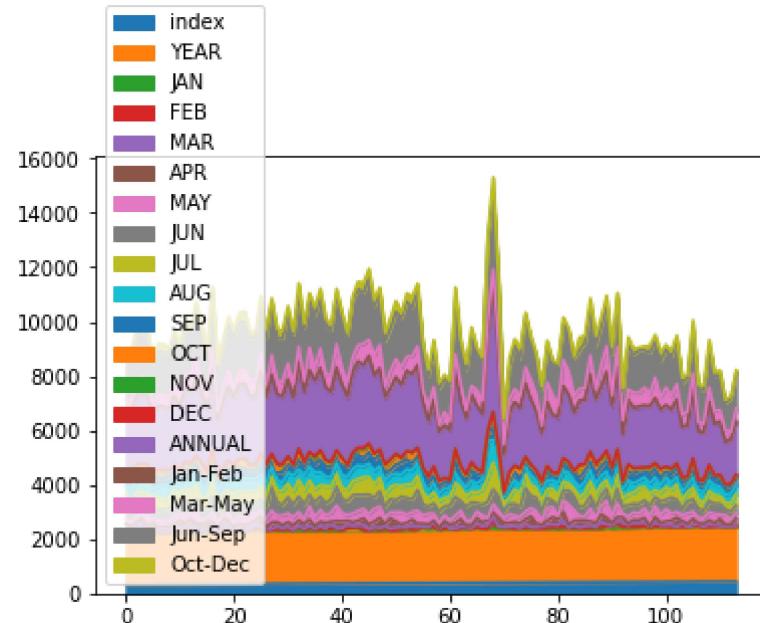
Out[9]: <AxesSubplot:ylabel='Frequency'>



Area Chart

In [10]: 1 df.plot.area()

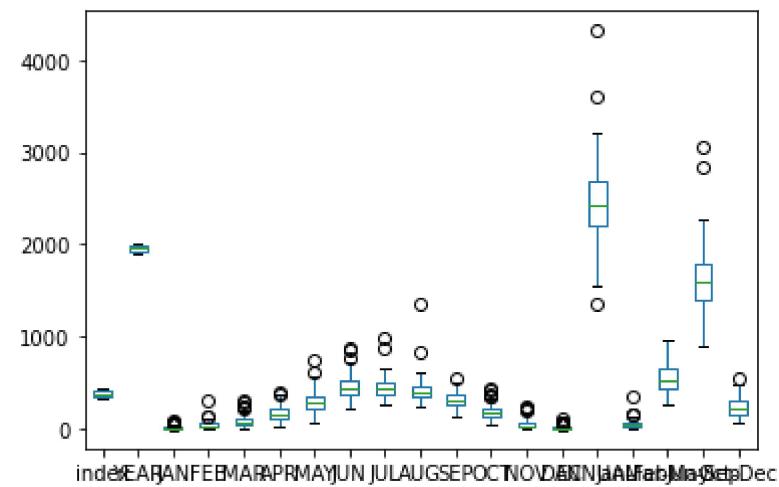
Out[10]: <AxesSubplot:>



Box Chart

```
In [11]: 1 df.plot.box()
```

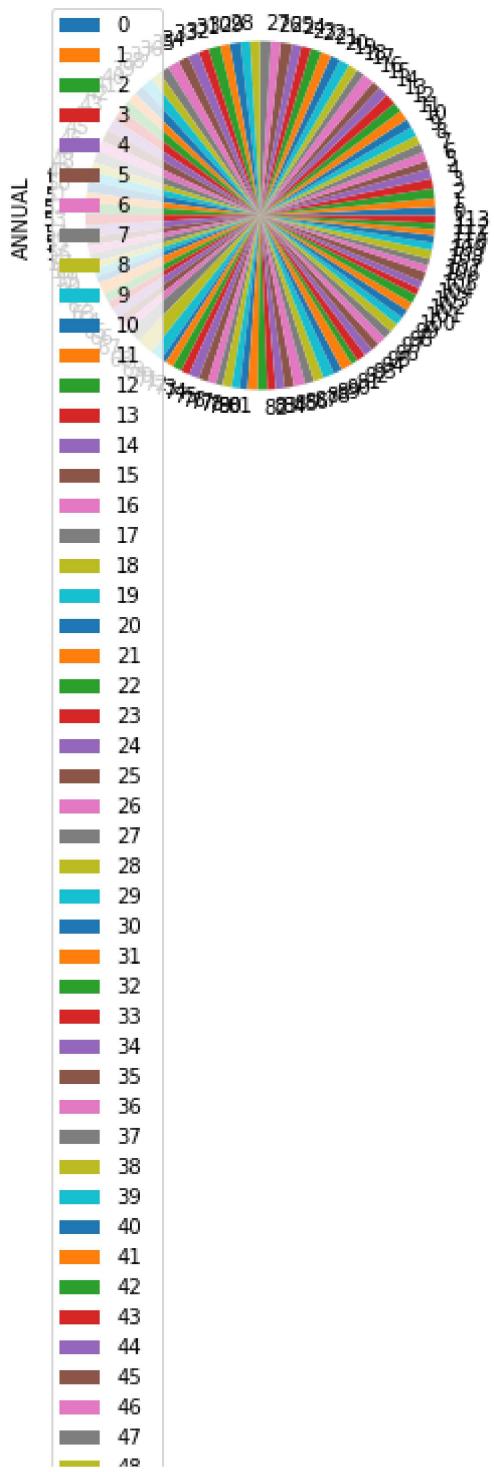
```
Out[11]: <AxesSubplot:>
```



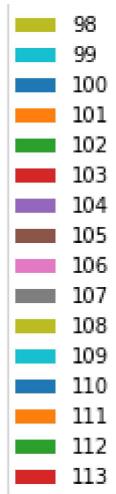
Pie Chart

```
In [12]: 1 df.plot.pie(y='ANNUAL')
```

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

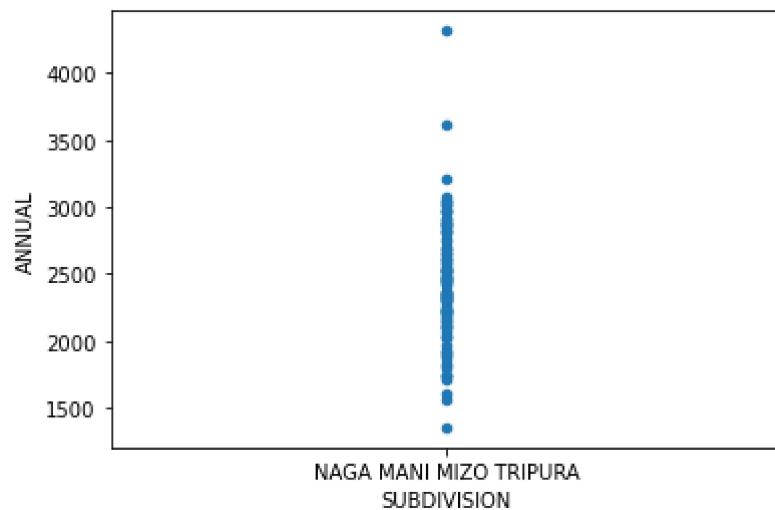
40
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97



Scatter Plot

```
In [13]: 1 df.plot.scatter(x='SUBDIVISION',y='ANNUAL')
```

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



In [14]: 1 df.info()

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 114 entries, 0 to 113
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: 18.7+ KB
```

```
In [15]: 1 df.describe()
```

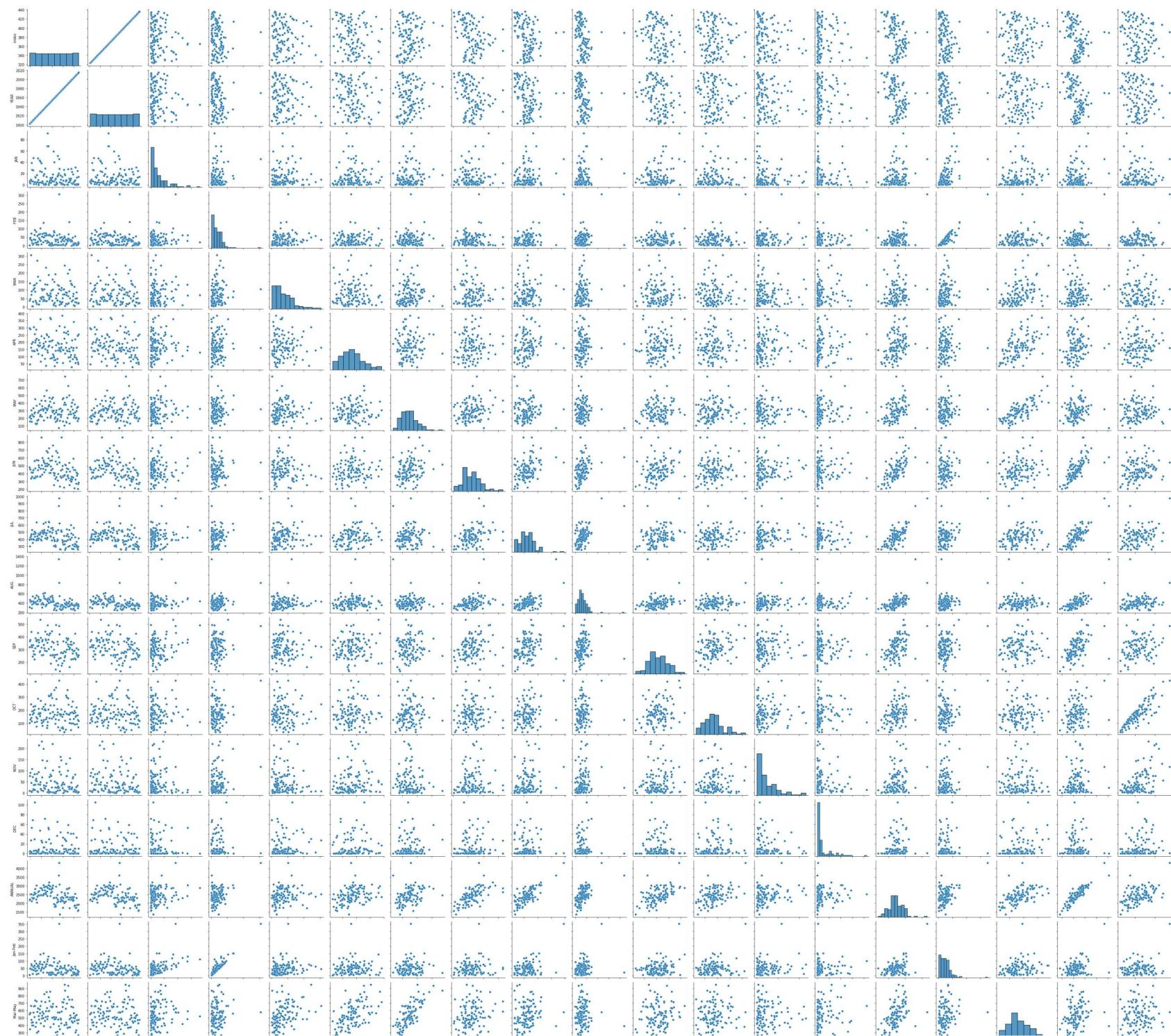
Out[15]:

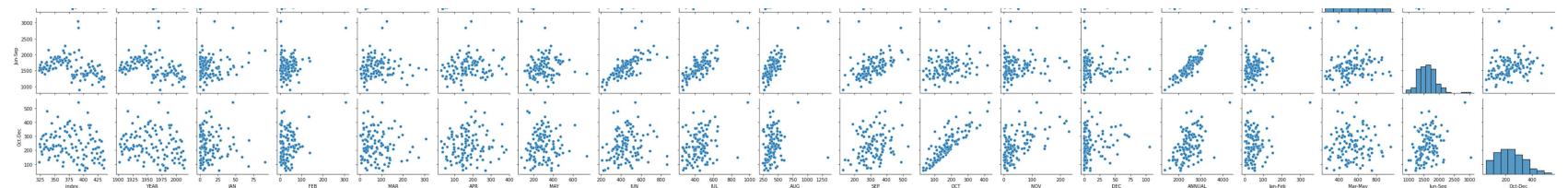
	index	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
count	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000	114.000000
mean	379.500000	1958.500000	14.045614	36.814912	77.618421	170.421930	292.302632	445.654386	439.625439	410.801754	314.4	250.000000	1958.500000	114.000000
std	33.052988	33.052988	16.699717	37.903151	60.756869	78.834683	112.069767	124.379590	115.149507	127.149688	77.3	33.052988	33.052988	114.000000
min	323.000000	1902.000000	0.000000	0.000000	3.100000	26.300000	73.500000	206.600000	255.300000	241.600000	129.6	323.000000	1902.000000	0.000000
25%	351.250000	1930.250000	3.075000	11.600000	32.975000	112.875000	211.275000	361.275000	373.925000	343.275000	258.4	351.250000	1930.250000	3.075000
50%	379.500000	1958.500000	7.800000	30.050000	63.400000	161.600000	279.550000	440.350000	433.100000	392.050000	310.1	379.500000	1958.500000	7.800000
75%	407.750000	1986.750000	18.525000	53.450000	105.275000	214.050000	352.350000	512.825000	499.675000	460.500000	364.3	407.750000	1986.750000	18.525000
max	436.000000	2015.000000	91.400000	306.300000	306.500000	383.800000	743.000000	861.100000	976.700000	1347.200000	533.9	436.000000	2015.000000	91.400000

EDA And Visualization

```
In [16]: 1 sns.pairplot(df)
```

```
Out[16]: <seaborn.axisgrid.PairGrid at 0x26640a59820>
```

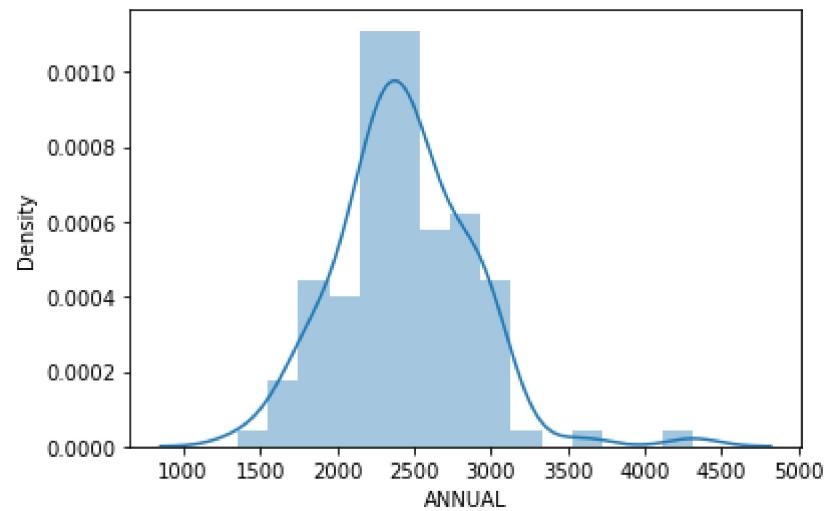





In [17]: 1 sns.distplot(df['ANNUAL'])

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



```
In [18]: 1 sns.heatmap(df.corr())
```

```
Out[18]: <AxesSubplot:>
```

