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("lakshadweep.csv")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	4002	LAKSHADWEEP	1901	22.6	86.4	114.8	263.8	37.3	459.0	0.0	0.0	46.7	183.7
1	4003	LAKSHADWEEP	1902	99.3	9.6	32.6	40.4	179.1	374.2	413.3	170.0	214.3	384.2
2	4004	LAKSHADWEEP	1903	63.5	95.0	0.0	29.5	144.1	212.4	261.8	202.0	292.1	79.1
3	4005	LAKSHADWEEP	1904	0.0	0.0	13.5	13.2	143.3	261.3	256.0	38.9	219.9	153.6
4	4006	LAKSHADWEEP	1905	62.4	0.0	0.0	0.0	166.7	400.7	68.7	377.5	107.5	232.1
...	...	...	...	...	...	...	...	...	...	...	...	...	...
109	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
110	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
111	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
112	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
113	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

114 rows × 20 columns

Data Cleaning and Data Preprocessing

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

Out[3]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
0	4002	LAKSHADWEEP	1901	22.6	86.4	114.8	263.8	37.3	459.0	0.0	0.0	46.7	183.7
1	4003	LAKSHADWEEP	1902	99.3	9.6	32.6	40.4	179.1	374.2	413.3	170.0	214.3	384.2
3	4005	LAKSHADWEEP	1904	0.0	0.0	13.5	13.2	143.3	261.3	256.0	38.9	219.9	153.6
4	4006	LAKSHADWEEP	1905	62.4	0.0	0.0	0.0	166.7	400.7	68.7	377.5	107.5	232.1
5	4007	LAKSHADWEEP	1906	17.8	0.0	24.4	33.8	213.0	465.0	348.6	260.5	25.9	252.3

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
...	...	...	...	...	...	...	...	...	...	...	...	...	...
109	4111	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2	117.4
110	4112	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8	145.9
111	4113	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0	72.8
112	4114	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2	169.2
113	4115	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4	165.4

103 rows × 20 columns

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()
```

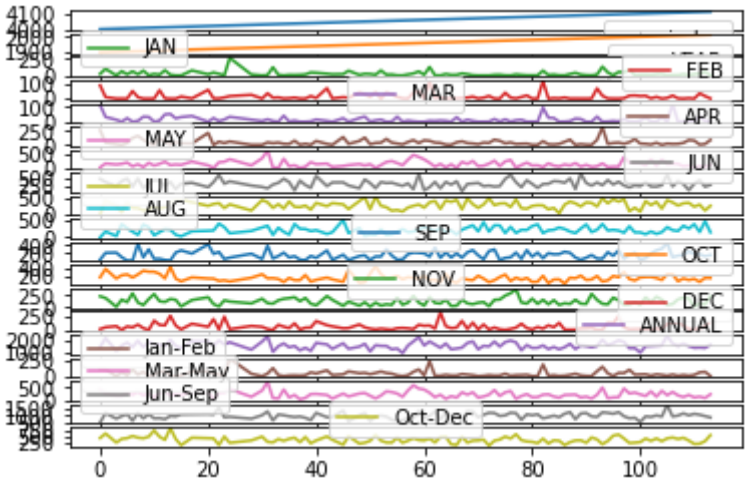
```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 103 entries, 0 to 113
Data columns (total 20 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   index        103 non-null    int64  
 1   SUBDIVISION  103 non-null    object 
 2   YEAR         103 non-null    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:>,
```

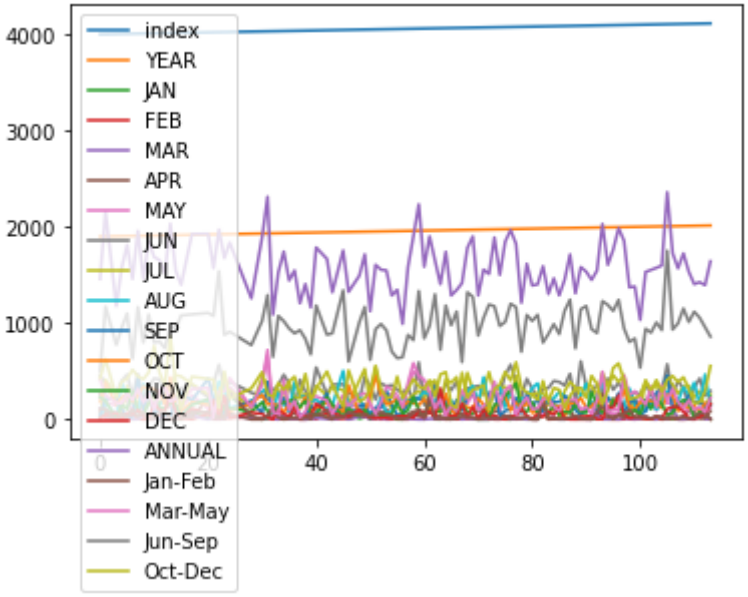
```
<AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>,
<AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>], dtype=object)
```



Line chart

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

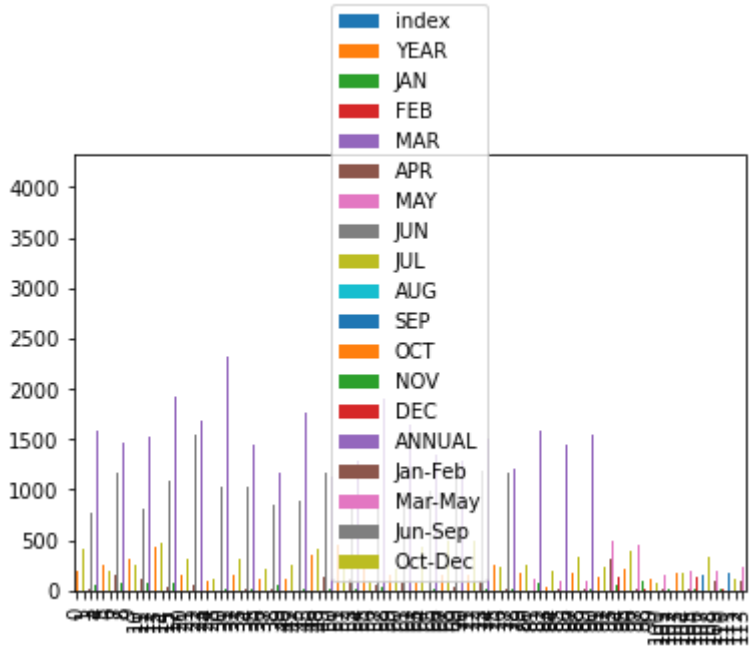
Out[7]: <AxesSubplot:>



Bar chart

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

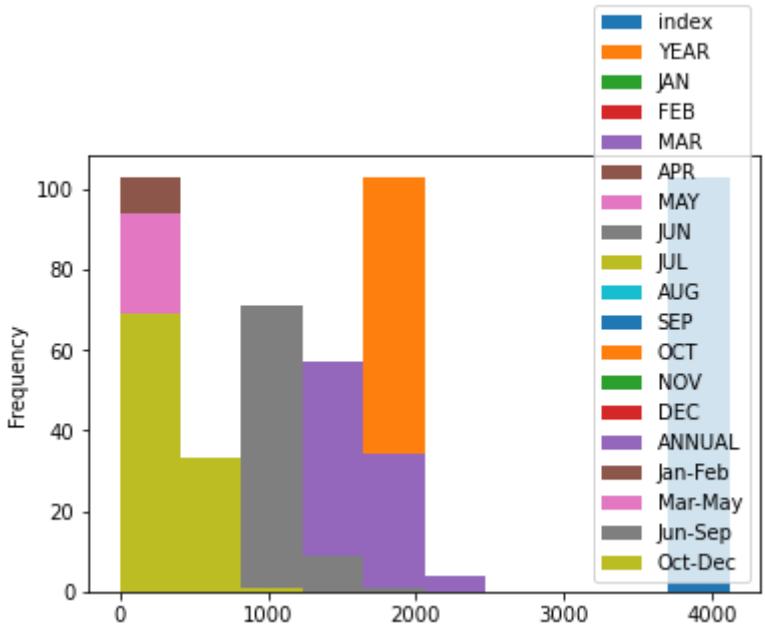
Out[8]: <AxesSubplot:>



Histogram

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

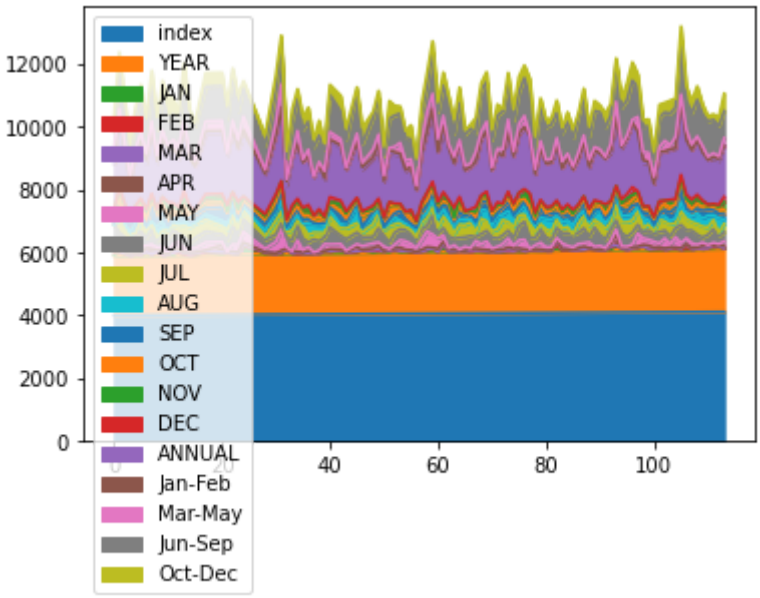
Out[9]: <AxesSubplot:ylabel='Frequency'>



Area chart

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

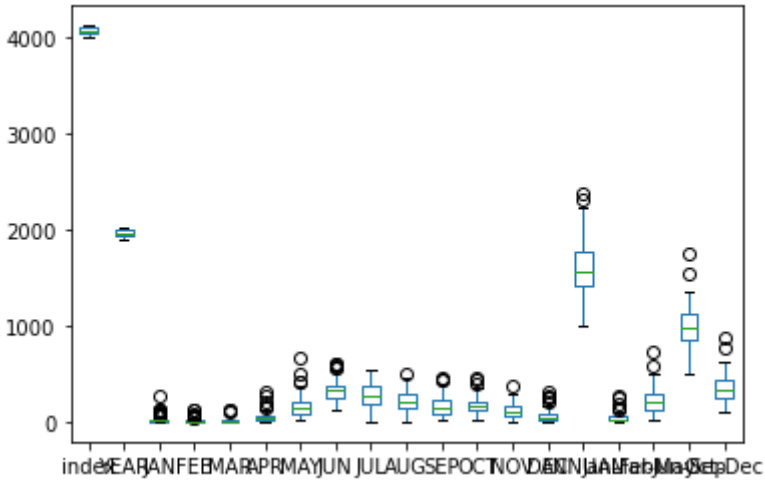
Out[10]: <AxesSubplot:>



Box chart

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

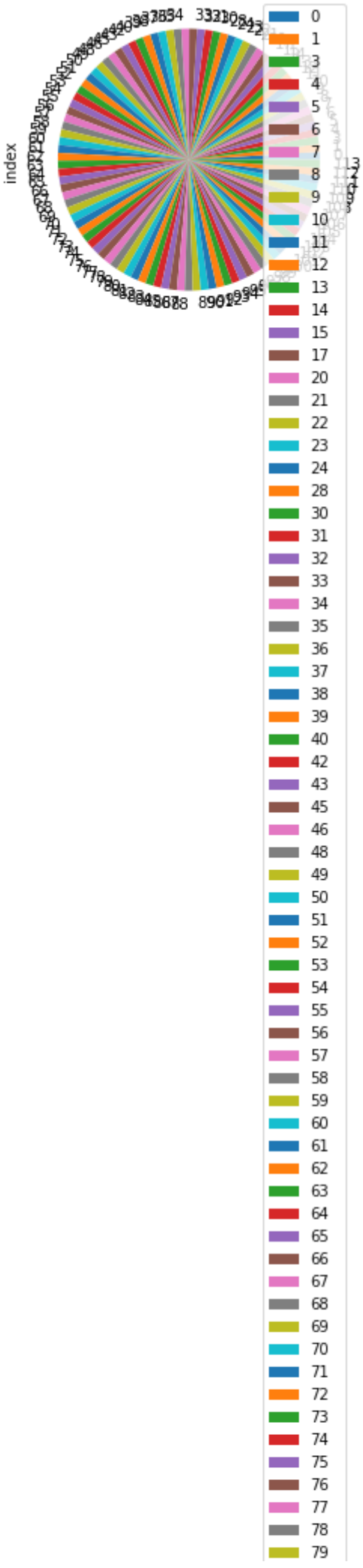
Out[11]: <AxesSubplot:>

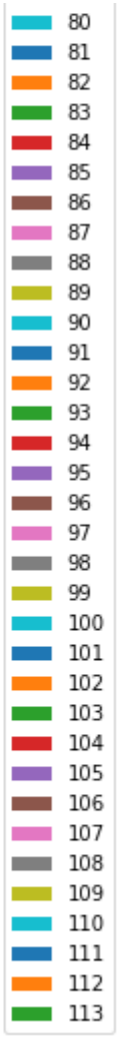


Pie chart

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

Out[12]: <AxesSubplot:ylabel='index'>

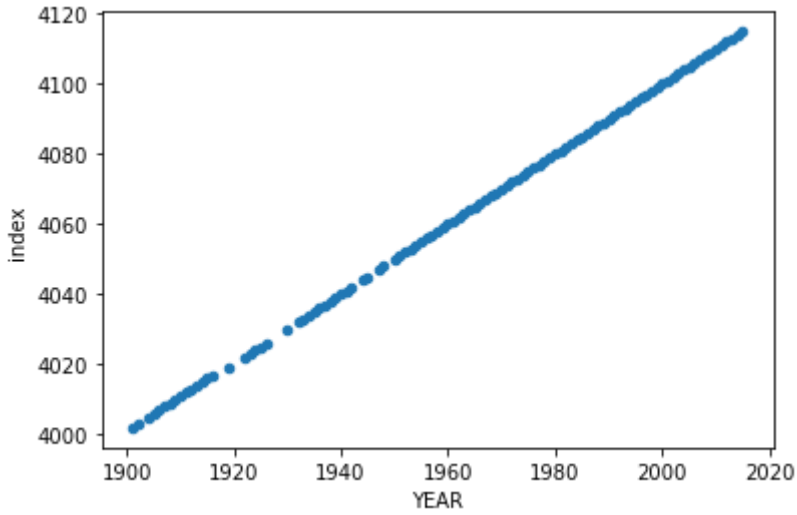

index
0
1
3
4
5
6
7
8
9
10
11
12
13
14
15
17
20
21
22
23
24
28
30
31
32
33
34
35
36
37
38
39
40
42
43
45
46
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79



Scatter chart

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

Out[13]: <AxesSubplot:xlabel='YEAR', ylabel='index'>



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
 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
```

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

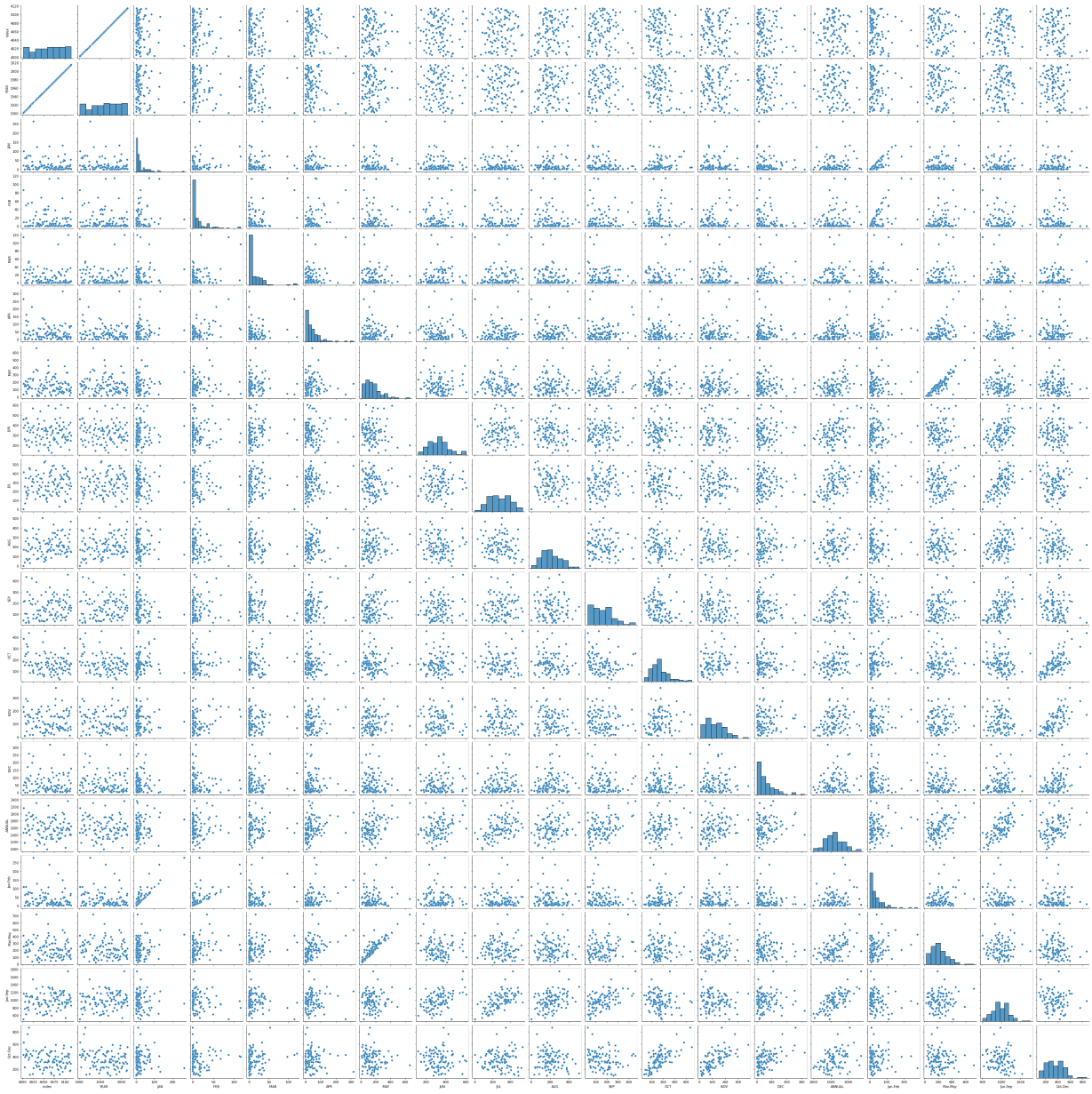
Out[15]:

	index	YEAR	JAN	FEB	MAR	APR	MAY	
count	103.000000	103.000000	103.000000	103.000000	103.000000	103.000000	103.000000	103.00(
mean	4061.679612	1961.533981	25.324272	13.766019	14.128155	45.643689	159.710680	329.25
std	32.970044	33.202237	37.228830	22.446431	21.518731	52.277828	111.277485	101.35
min	4002.000000	1901.000000	0.000000	0.000000	0.000000	0.000000	13.500000	125.60(
25%	4035.500000	1935.500000	3.900000	0.400000	0.450000	14.050000	80.500000	257.55(
50%	4064.000000	1964.000000	12.300000	3.800000	5.200000	32.600000	142.800000	327.00(
75%	4089.500000	1989.500000	25.800000	16.800000	22.150000	61.750000	204.600000	379.55(
max	4115.000000	2015.000000	262.800000	114.900000	120.700000	315.400000	660.800000	604.30(

EDA AND VISUALIZATION

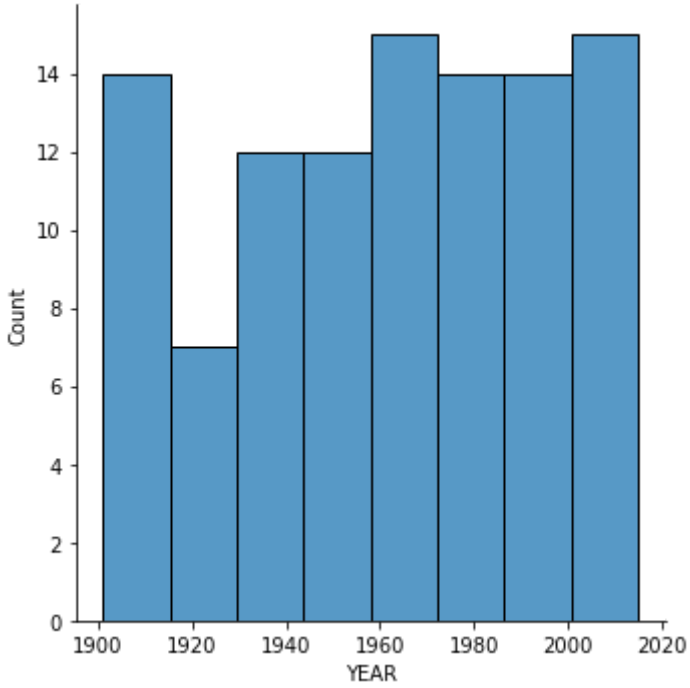
In [16]:
```
sns.pairplot(df)
```

Out[16]:
```
<seaborn.axisgrid.PairGrid at 0x14150a56970>
```



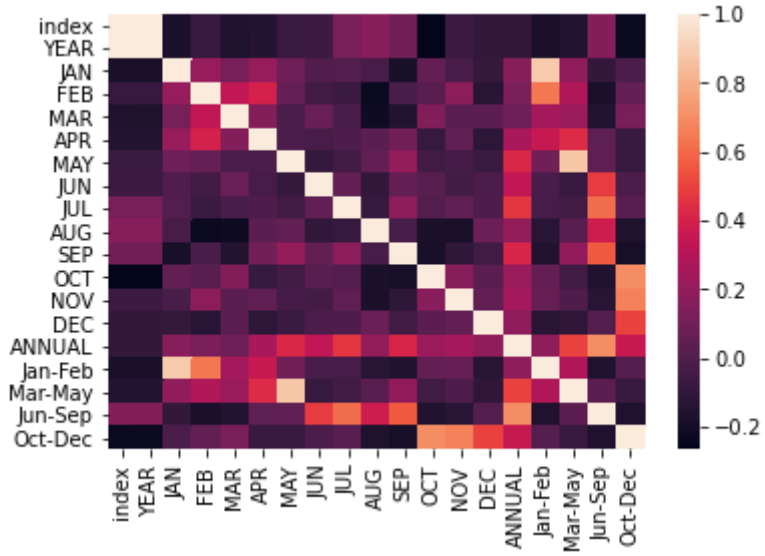
In [17]:
```
sns.displot(df['YEAR'])
```

Out[17]:
```
<seaborn.axisgrid.FacetGrid at 0x1415bf75160>
```



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

Out[18]: <AxesSubplot:>



In [ ]: