

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_andaman _ nicobar islands.csv")
df
```

Out[2]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NC
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5	558
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2	359
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2	284
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2	308
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7	25
...
105	105	ANDAMAN & NICOBAR ISLANDS	2011	265.9	84.8	272.8	111.4	326.5	383.2	583.2	441.5	757.1	212.3	150
106	106	ANDAMAN & NICOBAR ISLANDS	2012	119.9	45.6	30.9	55.8	533.9	458.2	317.3	369.6	868.9	209.7	300
107	107	ANDAMAN & NICOBAR ISLANDS	2013	67.1	37.6	43.0	46.3	509.3	777.0	564.8	336.7	473.6	455.8	354
108	108	ANDAMAN & NICOBAR ISLANDS	2014	41.9	8.6	0.0	11.1	238.0	416.6	467.6	321.6	412.9	402.6	201
109	109	ANDAMAN & NICOBAR ISLANDS	2015	126.8	7.6	3.1	138.2	331.9	346.4	328.9	480.0	523.3	252.1	236

110 rows × 20 columns

head

In [3]:

```
df.head(5)
df
```

Out[3]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5	558.0	42.0
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2	359.0	11.0
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2	284.0	11.0
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2	308.0	11.0
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7	25.0	2.0
...
105	105	ANDAMAN & NICOBAR ISLANDS	2011	265.9	84.8	272.8	111.4	326.5	383.2	583.2	441.5	757.1	212.3	150.0	11.0
106	106	ANDAMAN & NICOBAR ISLANDS	2012	119.9	45.6	30.9	55.8	533.9	458.2	317.3	369.6	868.9	209.7	300.0	11.0
107	107	ANDAMAN & NICOBAR ISLANDS	2013	67.1	37.6	43.0	46.3	509.3	777.0	564.8	336.7	473.6	455.8	354.0	11.0
108	108	ANDAMAN & NICOBAR ISLANDS	2014	41.9	8.6	0.0	11.1	238.0	416.6	467.6	321.6	412.9	402.6	201.0	11.0
109	109	ANDAMAN & NICOBAR ISLANDS	2015	126.8	7.6	3.1	138.2	331.9	346.4	328.9	480.0	523.3	252.1	236.0	11.0

110 rows × 20 columns



tail

In [4]:

```
df.tail(5)
df
```

Out[4]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NC
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	388.5	558
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	197.2	355
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.2	284
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.2	308
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.7	25
...
105	105	ANDAMAN & NICOBAR ISLANDS	2011	265.9	84.8	272.8	111.4	326.5	383.2	583.2	441.5	757.1	212.3	150
106	106	ANDAMAN & NICOBAR ISLANDS	2012	119.9	45.6	30.9	55.8	533.9	458.2	317.3	369.6	868.9	209.7	300
107	107	ANDAMAN & NICOBAR ISLANDS	2013	67.1	37.6	43.0	46.3	509.3	777.0	564.8	336.7	473.6	455.8	354
108	108	ANDAMAN & NICOBAR ISLANDS	2014	41.9	8.6	0.0	11.1	238.0	416.6	467.6	321.6	412.9	402.6	201
109	109	ANDAMAN & NICOBAR ISLANDS	2015	126.8	7.6	3.1	138.2	331.9	346.4	328.9	480.0	523.3	252.1	236

110 rows × 20 columns



Data Cleaning and Data Preprocessing

describe()

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

Out[5]:

	index	YEAR	JAN	FEB	MAR	APR	MAY	JUN
count	110.000000	110.000000	110.000000	110.000000	108.000000	108.000000	109.000000	108.000000
mean	54.500000	1958.918182	52.637273	27.994545	31.824074	72.223148	357.056881	471.580556
std	31.898276	33.666778	73.305788	38.396975	48.787728	65.930403	149.862850	147.402101
min	0.000000	1901.000000	0.000000	0.000000	0.000000	0.000000	62.000000	148.800000
25%	27.250000	1929.250000	10.300000	1.725000	2.950000	21.475000	259.000000	369.975000
50%	54.500000	1960.500000	28.350000	12.650000	12.150000	54.800000	319.000000	451.400000
75%	81.750000	1987.750000	75.475000	35.800000	33.225000	103.350000	424.600000	547.625000
max	109.000000	2015.000000	583.700000	173.800000	272.800000	323.100000	973.100000	965.600000

shape

In [6]: `np.shape(df)`

Out[6]: (110, 20)

size

In [7]: `np.size(df)`

Out[7]: 2200

dropna

In [8]: `df=df.dropna()`

columns

In [9]: `df.columns`

Out[9]: 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')

info()

In [10]:

```
df.info()
```

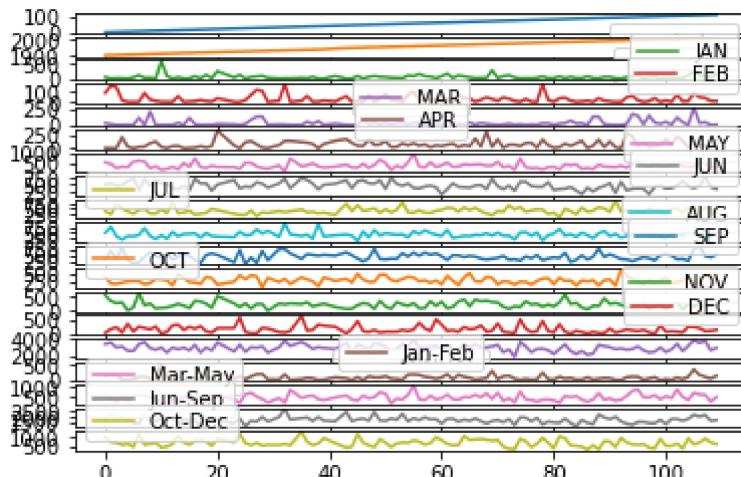
```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 104 entries, 0 to 109
Data columns (total 20 columns):
 #   Column      Non-Null Count  Dtype  
--- 
 0   index       104 non-null    int64  
 1   SUBDIVISION 104 non-null    object  
 2   YEAR        104 non-null    int64  
 3   JAN         104 non-null    float64 
 4   FEB         104 non-null    float64 
 5   MAR         104 non-null    float64 
 6   APR         104 non-null    float64 
 7   MAY         104 non-null    float64 
 8   JUN         104 non-null    float64 
 9   JUL         104 non-null    float64 
 10  AUG         104 non-null    float64 
 11  SEP         104 non-null    float64 
 12  OCT         104 non-null    float64 
 13  NOV         104 non-null    float64 
 14  DEC         104 non-null    float64 
 15  ANNUAL      104 non-null    float64 
 16  Jan-Feb     104 non-null    float64 
 17  Mar-May     104 non-null    float64 
 18  Jun-Sep     104 non-null    float64 
 19  Oct-Dec     104 non-null    float64 
dtypes: float64(17), int64(2), object(1)
memory usage: 17.1+ KB
```

Line chart

In [11]:

```
df.plot.line(subplots=True)
```

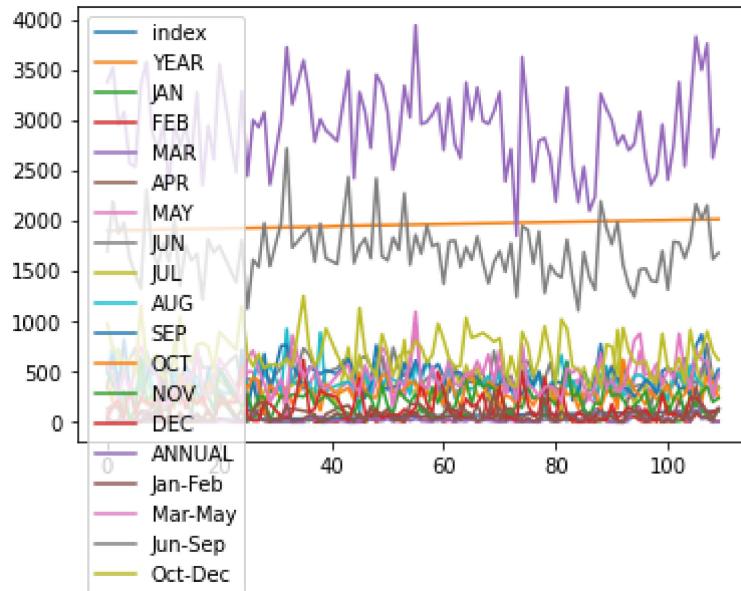
```
Out[11]: array([<AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>], dtype=object)
```



Line chart

In [12]: `df.plot.line()`

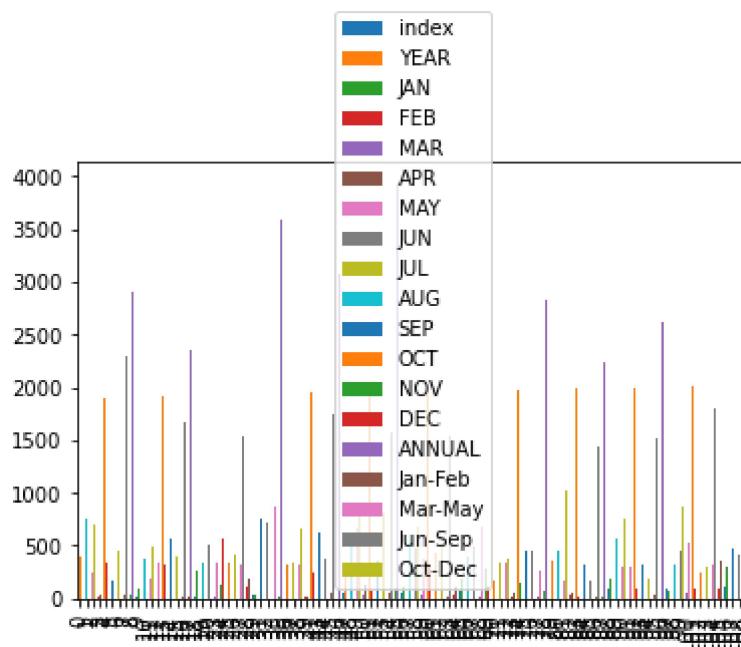
Out[12]: <AxesSubplot:>



Bar chart

In [13]: `df.plot.bar()`

Out[13]: <AxesSubplot:>

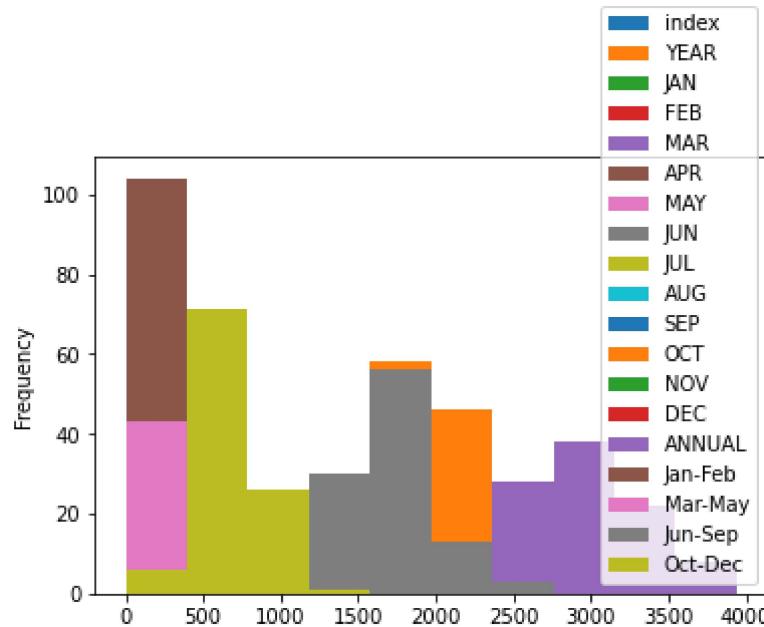


Histogram

In [14]:

```
df.plot.hist()
```

Out[14]: <AxesSubplot:ylabel='Frequency'>

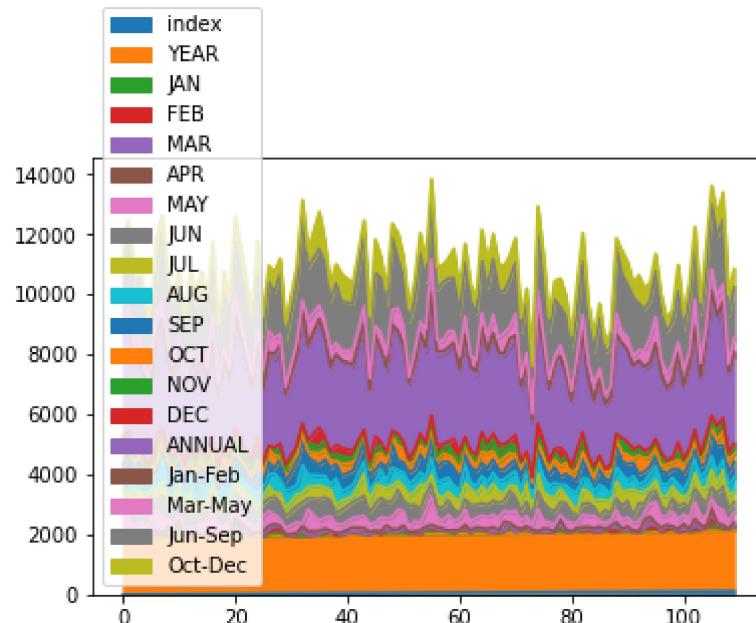


Area chart

In [15]:

```
df.plot.area()
```

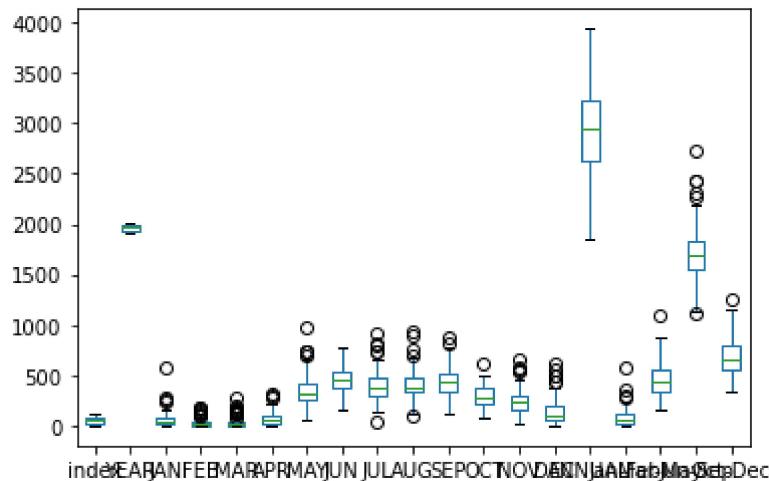
Out[15]: <AxesSubplot:>



Box chart

In [16]: df.plot.box()

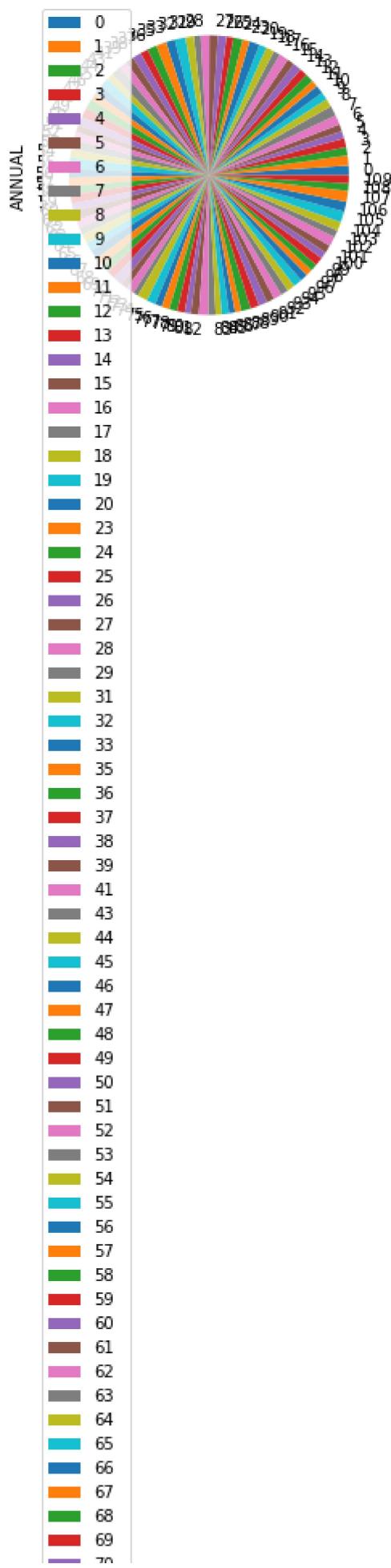
Out[16]: <AxesSubplot:>

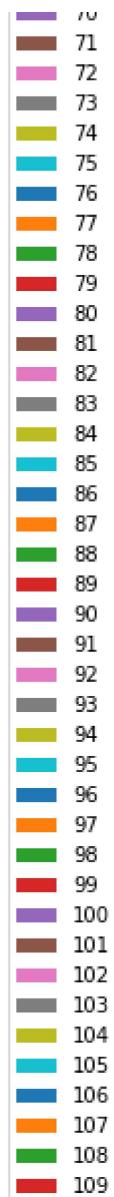


Pie chart

```
In [17]: df.plot.pie(y='ANNUAL')
```

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

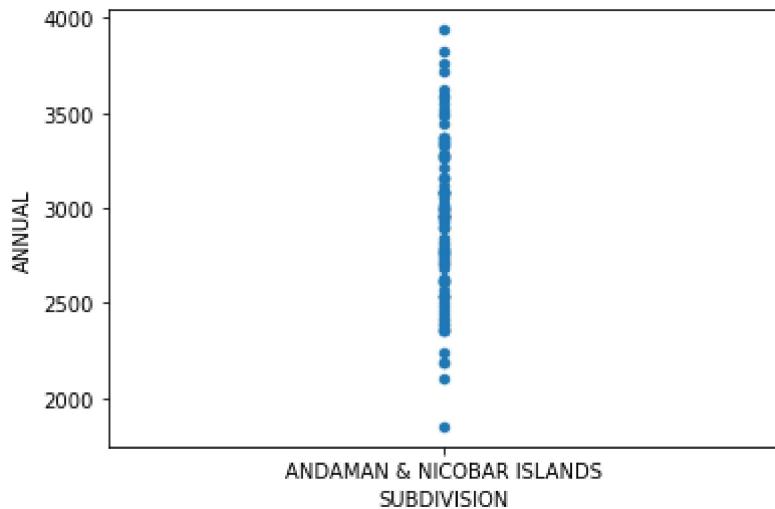




Scatter chart

```
In [18]: df.plot.scatter(x='SUBDIVISION' ,y='ANNUAL')
```

```
Out[18]: <AxesSubplot:xlabel='SUBDIVISION', ylabel='ANNUAL'>
```



In [19]:

`df.info()`

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 104 entries, 0 to 109
Data columns (total 20 columns):
 #   Column      Non-Null Count  Dtype  
--- 
 0   index       104 non-null    int64  
 1   SUBDIVISION 104 non-null    object  
 2   YEAR        104 non-null    int64  
 3   JAN         104 non-null    float64 
 4   FEB         104 non-null    float64 
 5   MAR         104 non-null    float64 
 6   APR         104 non-null    float64 
 7   MAY         104 non-null    float64 
 8   JUN         104 non-null    float64 
 9   JUL         104 non-null    float64 
 10  AUG         104 non-null    float64 
 11  SEP         104 non-null    float64 
 12  OCT         104 non-null    float64 
 13  NOV         104 non-null    float64 
 14  DEC         104 non-null    float64 
 15  ANNUAL      104 non-null    float64 
 16  Jan-Feb     104 non-null    float64 
 17  Mar-May     104 non-null    float64 
 18  Jun-Sep     104 non-null    float64 
 19  Oct-Dec     104 non-null    float64 
dtypes: float64(17), int64(2), object(1)
memory usage: 17.1+ KB
```

In [20]:

`df.describe()`

Out[20]:

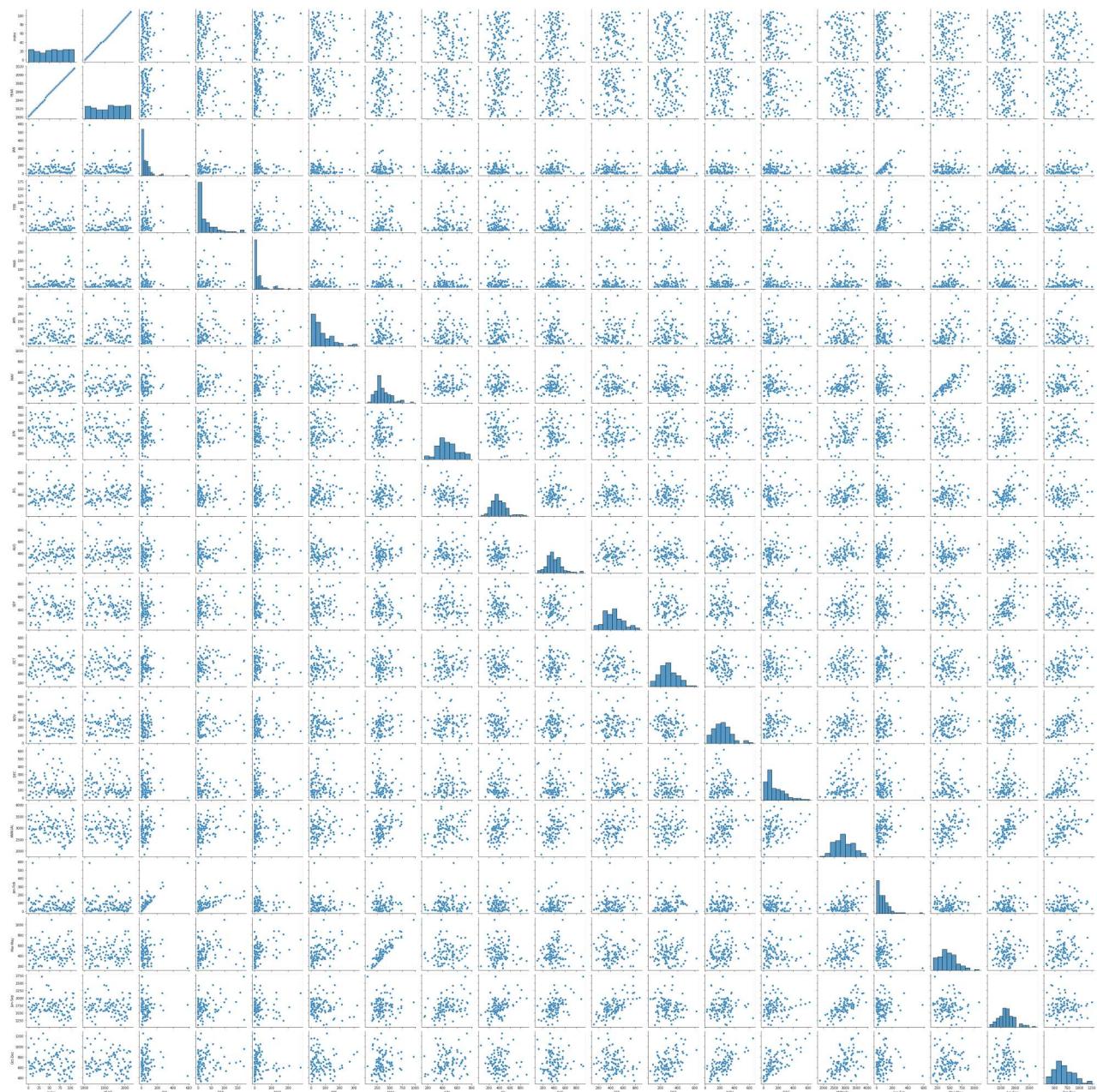
	index	YEAR	JAN	FEB	MAR	APR	MAY	JUN
count	104.000000	104.000000	104.000000	104.000000	104.000000	104.000000	104.000000	104.000000
mean	55.826923	1960.355769	53.829808	28.299038	31.080769	71.473077	361.098077	465.357692
std	32.254884	34.010826	75.012392	38.286466	48.842153	66.908670	150.341139	136.471692
min	0.000000	1901.000000	0.000000	0.000000	0.000000	0.000000	62.000000	148.800000
25%	27.750000	1929.750000	10.200000	1.775000	2.300000	21.025000	263.125000	369.975000

	index	YEAR	JAN	FEB	MAR	APR	MAY	JUN
50%	57.500000	1963.500000	31.750000	12.800000	12.100000	52.300000	321.050000	450.250000
75%	83.250000	1989.250000	76.275000	36.325000	31.775000	103.350000	425.325000	545.625000
max	109.000000	2015.000000	583.700000	173.800000	272.800000	323.100000	973.100000	777.000000

EDA AND VISUALIZATION

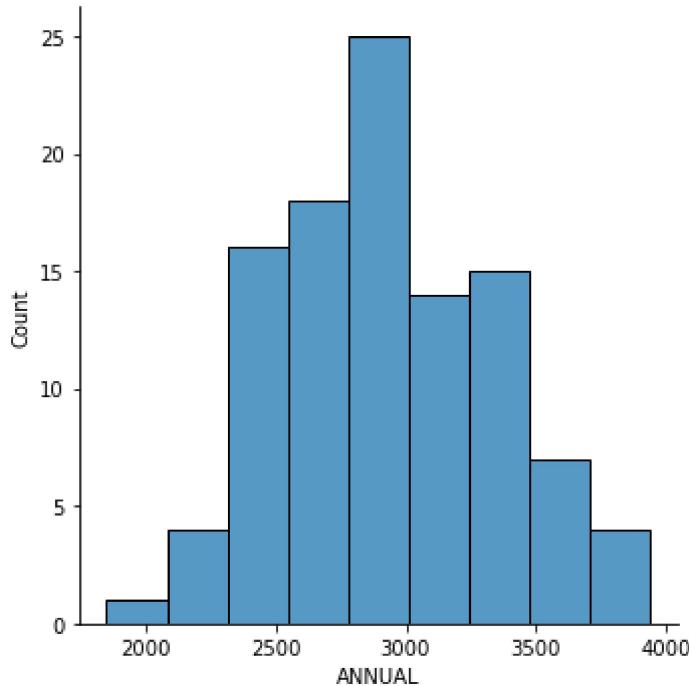
In [21]: `sns.pairplot(df)`

Out[21]: <seaborn.axisgrid.PairGrid at 0x282b7b60640>



In [22]: `sns.displot(df['ANNUAL'])`

Out[22]: <seaborn.axisgrid.FacetGrid at 0x282c4faa6d0>

In [23]:
sns.heatmap(df.corr())

Out[23]: <AxesSubplot:>

