

```
In [8]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.linear_model import LogisticRegression
from sklearn.preprocessing import StandardScaler
import re
from sklearn.datasets import load_digits
from sklearn.model_selection import train_test_split
```

```
In [9]: a=pd.read_csv(r"C:\Users\user\Downloads\FP2_RainFall\rainfall in india 1901-2010.csv")
a
```

Out[9]:

		index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
0	0		ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6
1	1		ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2
2	2		ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0
3	3		ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4
4	4		ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...
4111	4111	LAKSHADWEEP	LAKSHADWEEP	2011	5.1	2.8	3.1	85.9	107.2	153.6	350.2	254.0	255.2
4112	4112	LAKSHADWEEP	LAKSHADWEEP	2012	19.2	0.1	1.6	76.8	21.2	327.0	231.5	381.2	179.8
4113	4113	LAKSHADWEEP	LAKSHADWEEP	2013	26.2	34.4	37.5	5.3	88.3	426.2	296.4	154.4	180.0
4114	4114	LAKSHADWEEP	LAKSHADWEEP	2014	53.2	16.1	4.4	14.9	57.4	244.1	116.1	466.1	132.2
4115	4115	LAKSHADWEEP	LAKSHADWEEP	2015	2.2	0.5	3.7	87.1	133.1	296.6	257.5	146.4	160.4

4116 rows × 20 columns



```
In [10]: a.columns
```

```
Out[10]: 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')
```

# 1.ANDAMAN & NICOBAR ISLANDS

In [11]: `b=a.head(110)`  
`b`

Out[11]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	C
0	0	ANDAMAN & NICOBAR ISLANDS	1901	49.2	87.1	29.2	2.3	528.8	517.5	365.1	481.1	332.6	38
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	19
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	18
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	22
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	26
...	...	...	...	...	...	...	...	...	...	...	...	...	...
105	105	ANDAMAN & NICOBAR ISLANDS	2011	265.9	84.8	272.8	111.4	326.5	383.2	583.2	441.5	757.1	21
106	106	ANDAMAN & NICOBAR ISLANDS	2012	119.9	45.6	30.9	55.8	533.9	458.2	317.3	369.6	868.9	20
107	107	ANDAMAN & NICOBAR ISLANDS	2013	67.1	37.6	43.0	46.3	509.3	777.0	564.8	336.7	473.6	45
108	108	ANDAMAN & NICOBAR ISLANDS	2014	41.9	8.6	0.0	11.1	238.0	416.6	467.6	321.6	412.9	40
109	109	ANDAMAN & NICOBAR ISLANDS	2015	126.8	7.6	3.1	138.2	331.9	346.4	328.9	480.0	523.3	25

110 rows × 20 columns



In [12]: `c=b[['YEAR','JAN','FEB','MAR','APR']]`

c

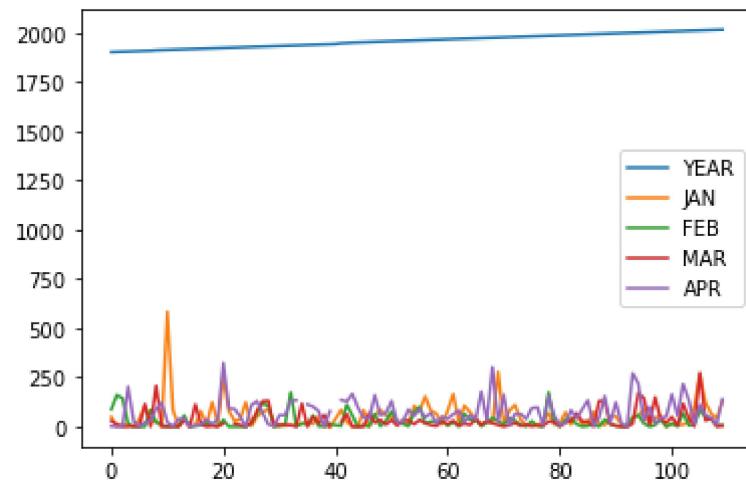
Out[12]:

	YEAR	JAN	FEB	MAR	APR
0	1901	49.2	87.1	29.2	2.3
1	1902	0.0	159.8	12.2	0.0
2	1903	12.7	144.0	0.0	1.0
3	1904	9.4	14.7	0.0	202.4
4	1905	1.3	0.0	3.3	26.9
...	...	...	...	...	...
105	2011	265.9	84.8	272.8	111.4
106	2012	119.9	45.6	30.9	55.8
107	2013	67.1	37.6	43.0	46.3
108	2014	41.9	8.6	0.0	11.1
109	2015	126.8	7.6	3.1	138.2

110 rows × 5 columns

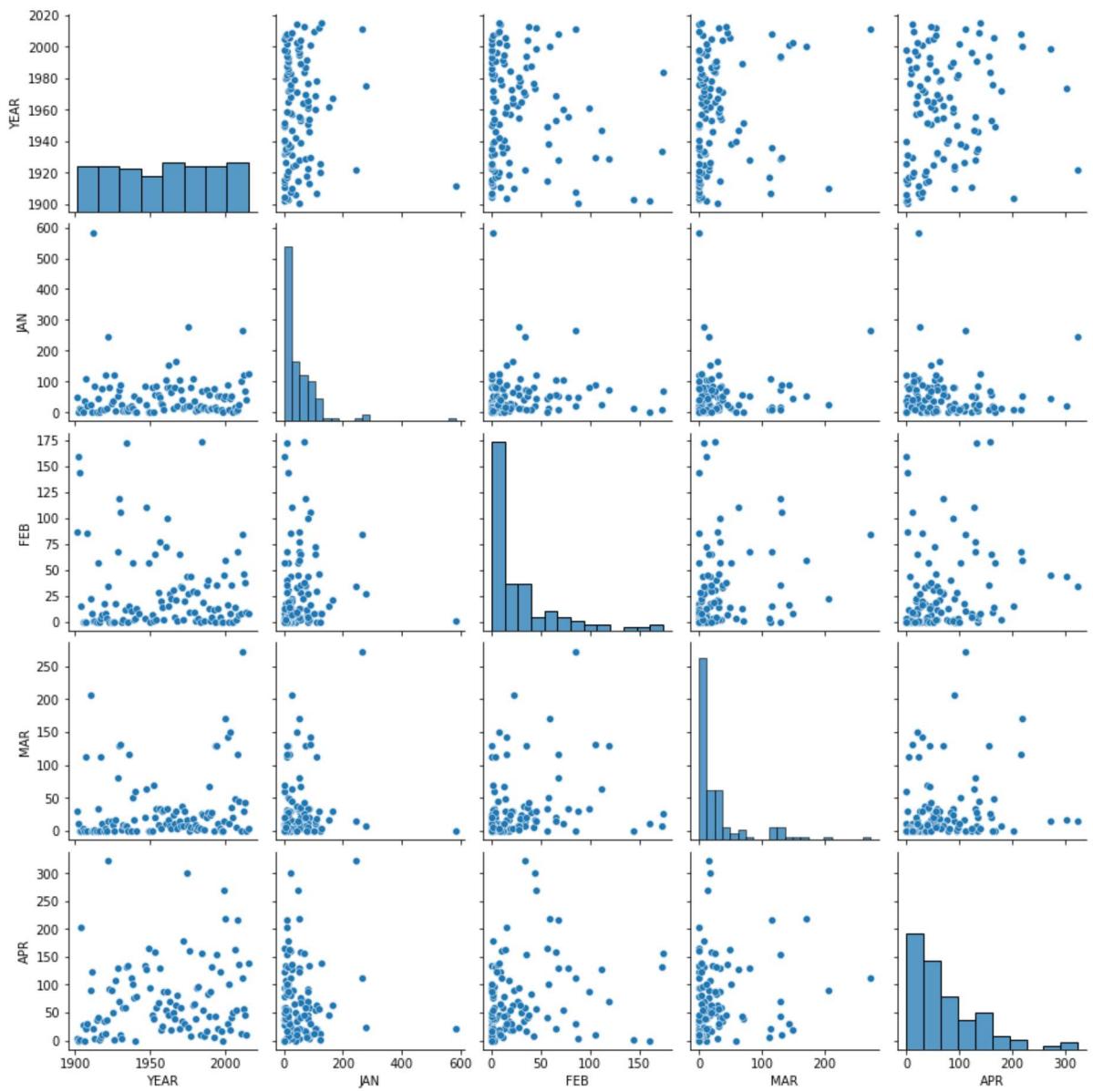
In [13]: `c.plot.line()`

Out[13]: <AxesSubplot:>



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

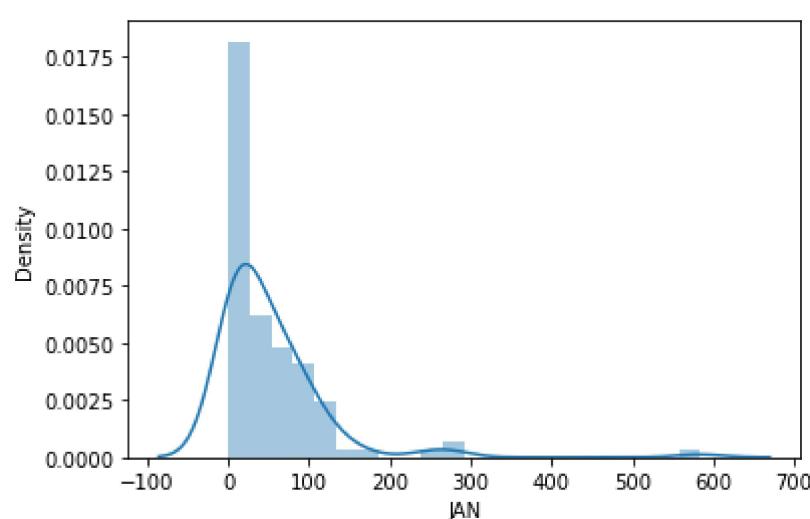
```
Out[14]: <seaborn.axisgrid.PairGrid at 0x24b595c3e80>
```



In [15]: `sns.distplot(c['JAN'])`

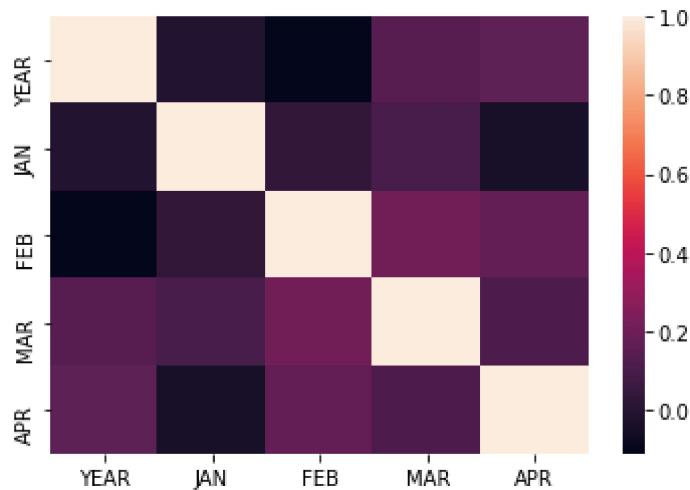
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function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

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



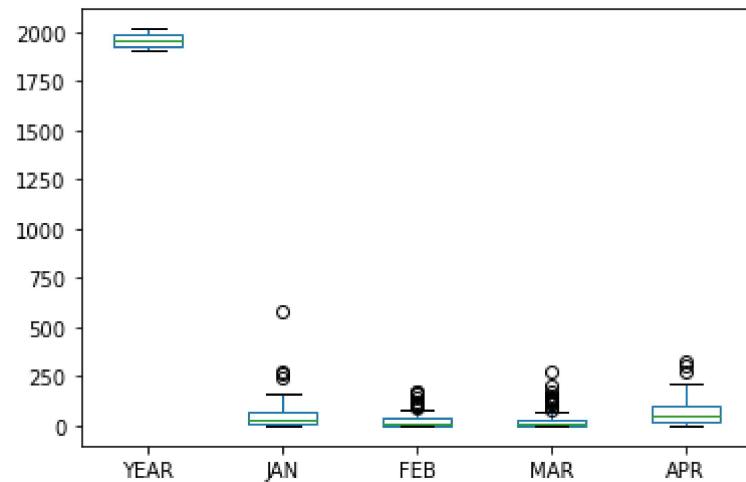
In [16]: `sns.heatmap(c.corr())`

Out[16]: <AxesSubplot:>



In [17]: `c.plot.box()`

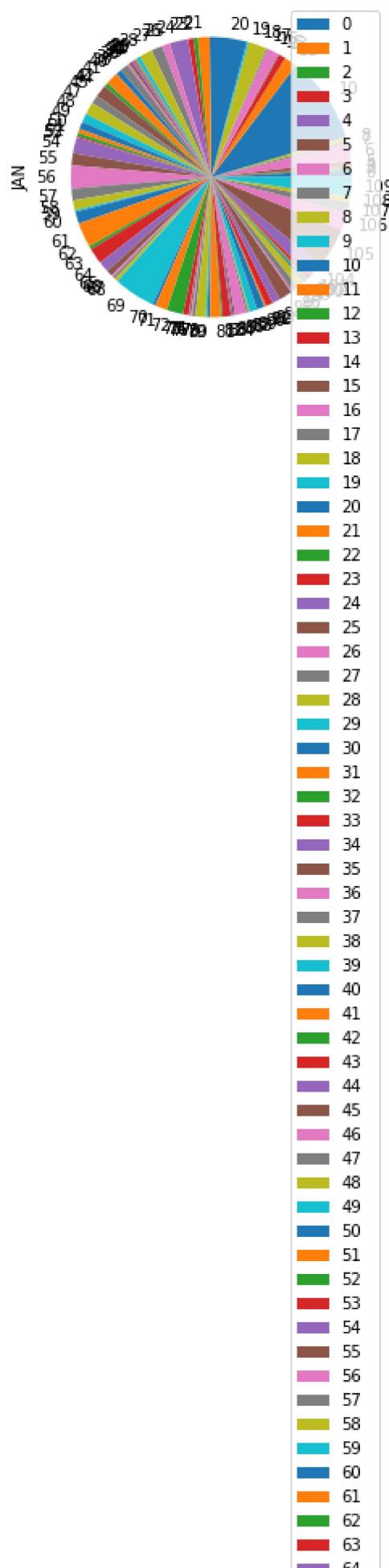
Out[17]: <AxesSubplot:>



```
In [20]: c.plot.pie(y='JAN')
```

```
Out[20]: <AxesSubplot:ylabel='JAN'>
```





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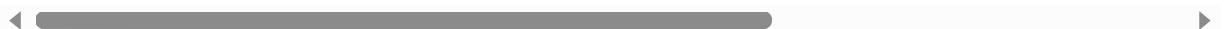
## 2.ARUNACHAL PRADESH

In [24]: `b=a.head(207)`  
`b`

Out[24]:

	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	388.1	30.1	10.1
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	19.1	10.1	10.1
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	18.1	10.1	10.1
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	22.1	10.1	10.1
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.1	10.1	10.1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
202	202	ARUNACHAL PRADESH	2011	40.0	51.3	174.5	240.8	219.6	288.4	531.4	277.6	286.7	51.1	10.1	10.1
203	203	ARUNACHAL PRADESH	2012	57.8	35.8	134.2	403.4	187.4	645.8	638.9	316.0	724.9	248.1	10.1	10.1
204	204	ARUNACHAL PRADESH	2013	18.5	40.5	115.1	175.1	335.8	290.0	329.6	230.2	316.1	164.1	10.1	10.1
205	205	ARUNACHAL PRADESH	2014	19.0	101.9	80.3	86.7	299.0	415.8	392.4	599.6	343.0	34.1	10.1	10.1
206	206	ARUNACHAL PRADESH	2015	30.8	47.5	97.5	287.1	238.9	637.9	329.3	595.5	374.2	61.1	10.1	10.1

207 rows × 20 columns



In [34]: `b=b.tail(97)`  
`b`

Out[34]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
110	110	ARUNACHAL PRADESH	1916	48.1	69.8	71.1	316.1	424.6	1124.9	NaN	629.7	333.9
111	111	ARUNACHAL PRADESH	1917	21.4	164.5	NaN	269.6	107.9	823.8	909.1	628.4	411.5
112	112	ARUNACHAL PRADESH	1918	10.4	11.0	191.2	144.6	861.1	1609.9	1303.0	692.6	515.8
113	113	ARUNACHAL PRADESH	1919	34.5	67.8	28.5	256.9	420.6	973.6	999.0	286.7	628.7
114	114	ARUNACHAL PRADESH	1920	14.0	196.3	605.6	364.7	173.6	840.6	535.4	896.5	376.7
...	...	...	...	...	...	...	...	...	...	...	...	...
202	202	ARUNACHAL PRADESH	2011	40.0	51.3	174.5	240.8	219.6	288.4	531.4	277.6	286.7
203	203	ARUNACHAL PRADESH	2012	57.8	35.8	134.2	403.4	187.4	645.8	638.9	316.0	724.9
204	204	ARUNACHAL PRADESH	2013	18.5	40.5	115.1	175.1	335.8	290.0	329.6	230.2	316.1
205	205	ARUNACHAL PRADESH	2014	19.0	101.9	80.3	86.7	299.0	415.8	392.4	599.6	343.0
206	206	ARUNACHAL PRADESH	2015	30.8	47.5	97.5	287.1	238.9	637.9	329.3	595.5	374.2

97 rows × 20 columns



In [35]:

```
c=b[['YEAR','JAN','FEB','MAR','APR']]  
c
```

Out[35]:

	YEAR	JAN	FEB	MAR	APR
110	1916	48.1	69.8	71.1	316.1
111	1917	21.4	164.5	Nan	269.6
112	1918	10.4	11.0	191.2	144.6
113	1919	34.5	67.8	28.5	256.9
114	1920	14.0	196.3	605.6	364.7
...	...	...	...	...	...
202	2011	40.0	51.3	174.5	240.8
203	2012	57.8	35.8	134.2	403.4
204	2013	18.5	40.5	115.1	175.1
205	2014	19.0	101.9	80.3	86.7
206	2015	30.8	47.5	97.5	287.1

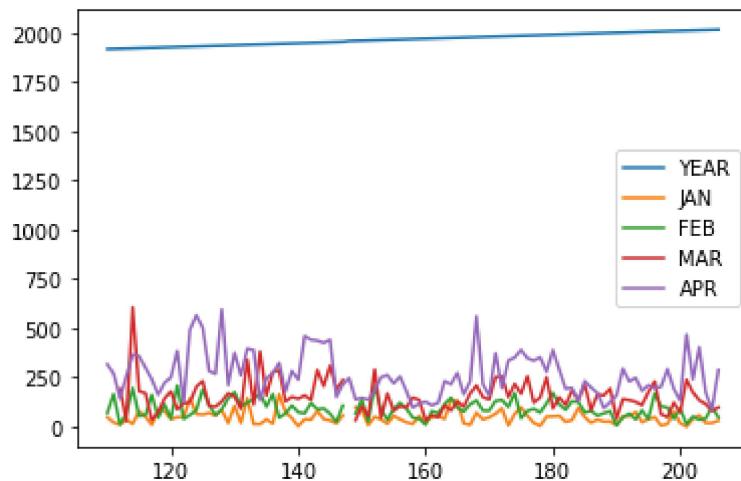
97 rows × 5 columns

In [36]:

```
c.plot.line()
```

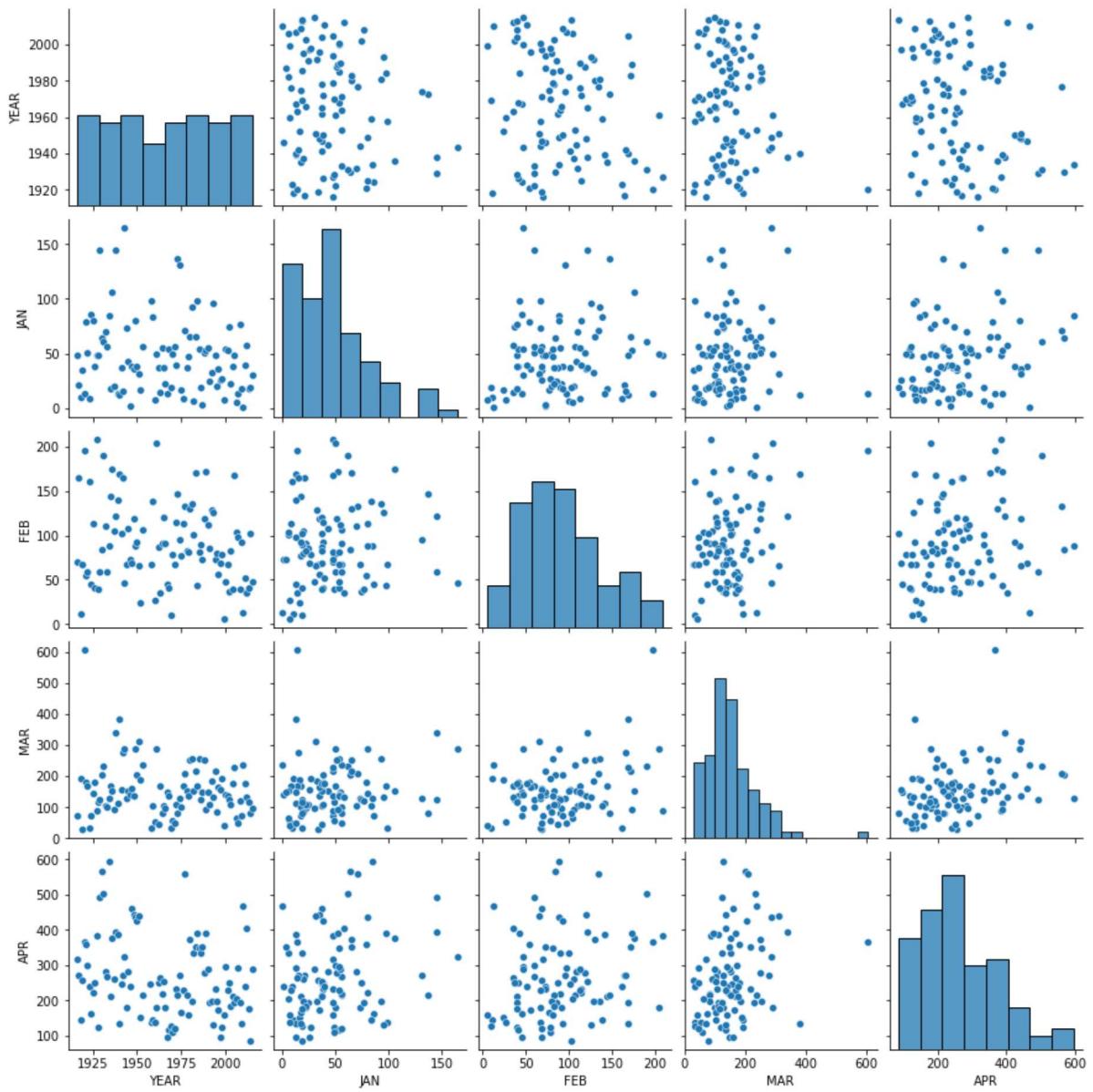
Out[36]:

```
<AxesSubplot:>
```



```
In [37]: sns.pairplot(c)
```

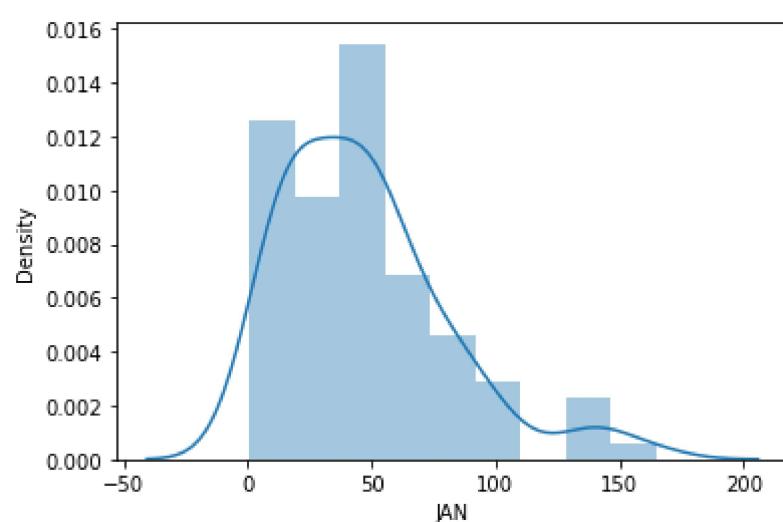
```
Out[37]: <seaborn.axisgrid.PairGrid at 0x24b5f140910>
```



In [38]: `sns.distplot(c['JAN'])`

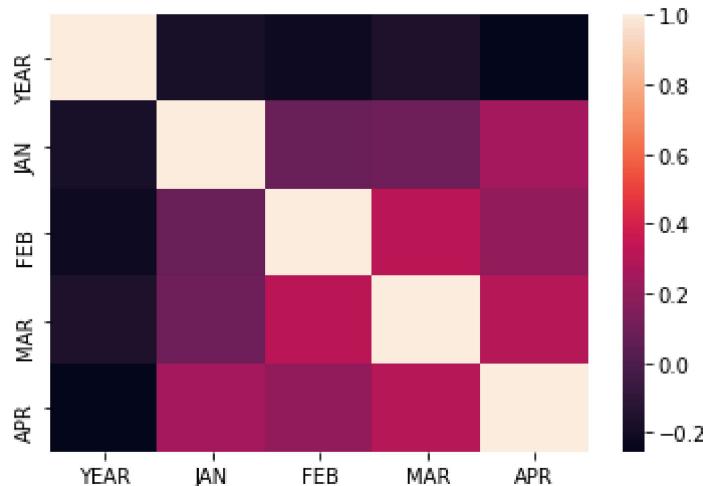
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function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

Out[38]: <AxesSubplot:xlabel='JAN', ylabel='Density'>



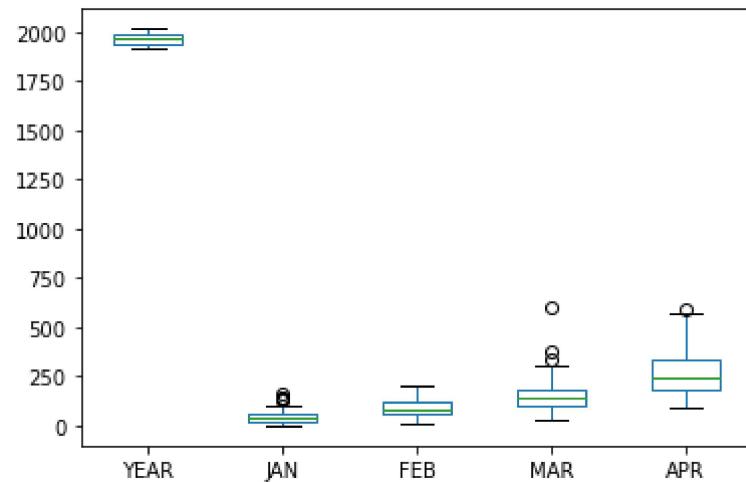
In [39]: `sns.heatmap(c.corr())`

Out[39]: <AxesSubplot:>



In [40]: `c.plot.box()`

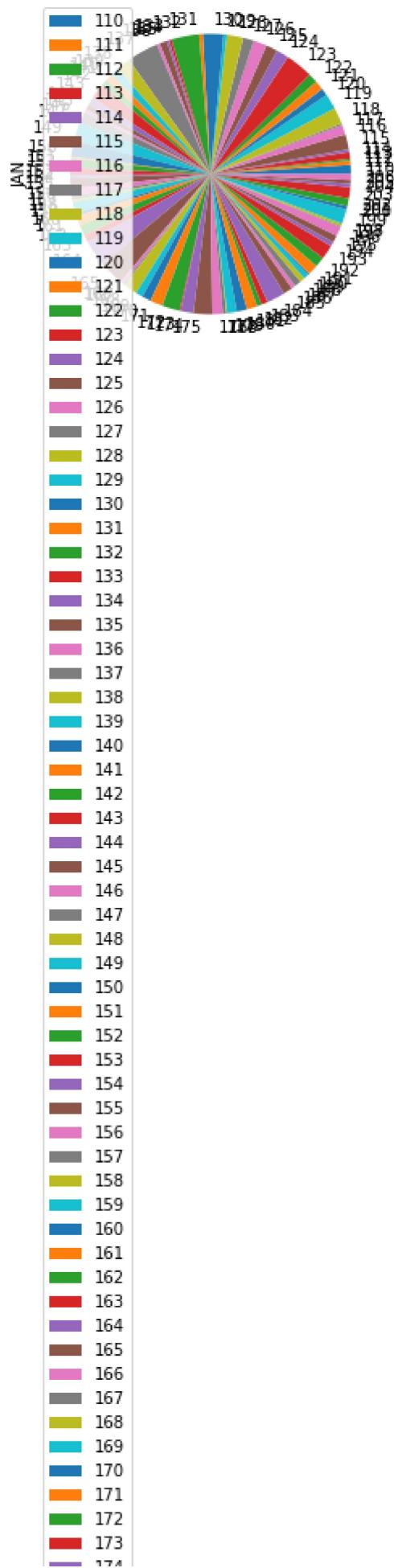
Out[40]: <AxesSubplot:>



```
In [41]: c.plot.pie(y='JAN')
```

```
Out[41]: <AxesSubplot:ylabel='JAN'>
```





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### 3.ASSAM & MEGHALAYA

In [46]: `b=a.head(322)`  
`b`

Out[46]:

	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	388.1	300.1	388.1
1	1	ANDAMAN & NICOBAR ISLANDS	1902	0.0	159.8	12.2	0.0	446.1	537.1	228.9	753.7	666.2	191.1	191.1	191.1
2	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181.1	181.1	181.1
3	3	ANDAMAN & NICOBAR ISLANDS	1904	9.4	14.7	0.0	202.4	304.5	495.1	502.0	160.1	820.4	222.1	222.1	222.1
4	4	ANDAMAN & NICOBAR ISLANDS	1905	1.3	0.0	3.3	26.9	279.5	628.7	368.7	330.5	297.0	260.1	260.1	260.1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
317	317	ASSAM & MEGHALAYA	2011	11.1	11.4	109.0	92.1	238.3	316.0	395.8	302.6	221.6	300.1	300.1	300.1
318	318	ASSAM & MEGHALAYA	2012	15.2	6.9	28.8	279.1	185.8	729.7	444.3	289.2	411.6	190.1	190.1	190.1
319	319	ASSAM & MEGHALAYA	2013	1.1	9.6	44.0	112.8	346.7	286.2	367.8	289.7	229.3	126.1	126.1	126.1
320	320	ASSAM & MEGHALAYA	2014	2.0	28.3	29.3	51.5	351.1	426.4	374.4	484.6	420.2	351.1	351.1	351.1
321	321	ASSAM & MEGHALAYA	2015	13.4	15.5	37.5	250.9	332.5	558.5	300.1	590.9	279.9	62.1	62.1	62.1

322 rows × 20 columns



In [47]: `b=b.tail(115)`  
`b`

Out[47]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OC
207	207	ASSAM & MEGHALAYA	1901	27.1	19.5	30.6	223.0	207.0	524.9	430.6	464.1	291.4	163.
208	208	ASSAM & MEGHALAYA	1902	9.3	10.2	105.6	350.0	262.1	620.7	510.8	536.0	441.3	97.
209	209	ASSAM & MEGHALAYA	1903	19.9	25.4	103.6	140.6	206.6	607.4	362.7	551.9	306.4	159.
210	210	ASSAM & MEGHALAYA	1904	11.1	56.1	51.9	457.1	375.2	385.7	477.6	438.8	245.9	115.
211	211	ASSAM & MEGHALAYA	1905	19.9	16.9	137.9	213.0	275.5	521.7	439.1	649.1	276.0	200.
...	...	...	...	...	...	...	...	...	...	...	...	...	...
317	317	ASSAM & MEGHALAYA	2011	11.1	11.4	109.0	92.1	238.3	316.0	395.8	302.6	221.6	30.
318	318	ASSAM & MEGHALAYA	2012	15.2	6.9	28.8	279.1	185.8	729.7	444.3	289.2	411.6	199.
319	319	ASSAM & MEGHALAYA	2013	1.1	9.6	44.0	112.8	346.7	286.2	367.8	289.7	229.3	126.
320	320	ASSAM & MEGHALAYA	2014	2.0	28.3	29.3	51.5	351.1	426.4	374.4	484.6	420.2	35.
321	321	ASSAM & MEGHALAYA	2015	13.4	15.5	37.5	250.9	332.5	558.5	300.1	590.9	279.9	62.

115 rows × 20 columns



In [48]:

```
c=b[['YEAR','JAN','FEB','MAR','APR']]  
c
```

Out[48]:

	YEAR	JAN	FEB	MAR	APR
207	1901	27.1	19.5	30.6	223.0
208	1902	9.3	10.2	105.6	350.0
209	1903	19.9	25.4	103.6	140.6
210	1904	11.1	56.1	51.9	457.1
211	1905	19.9	16.9	137.9	213.0
...	...	...	...	...	...
317	2011	11.1	11.4	109.0	92.1
318	2012	15.2	6.9	28.8	279.1
319	2013	1.1	9.6	44.0	112.8
320	2014	2.0	28.3	29.3	51.5
321	2015	13.4	15.5	37.5	250.9

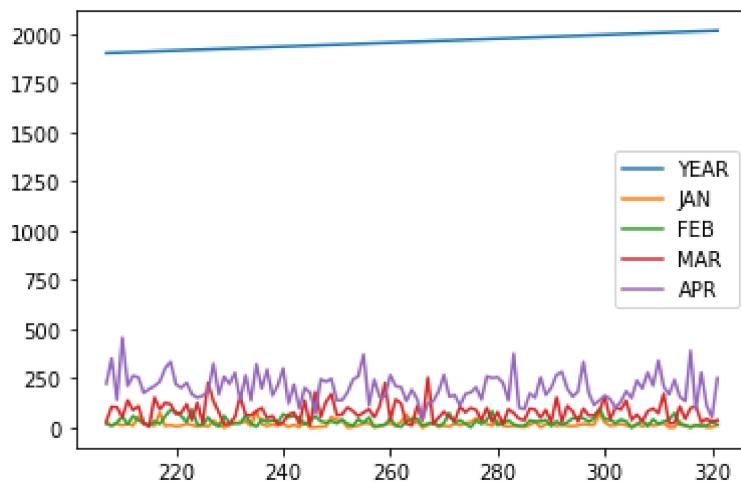
115 rows × 5 columns

In [49]:

```
c.plot.line()
```

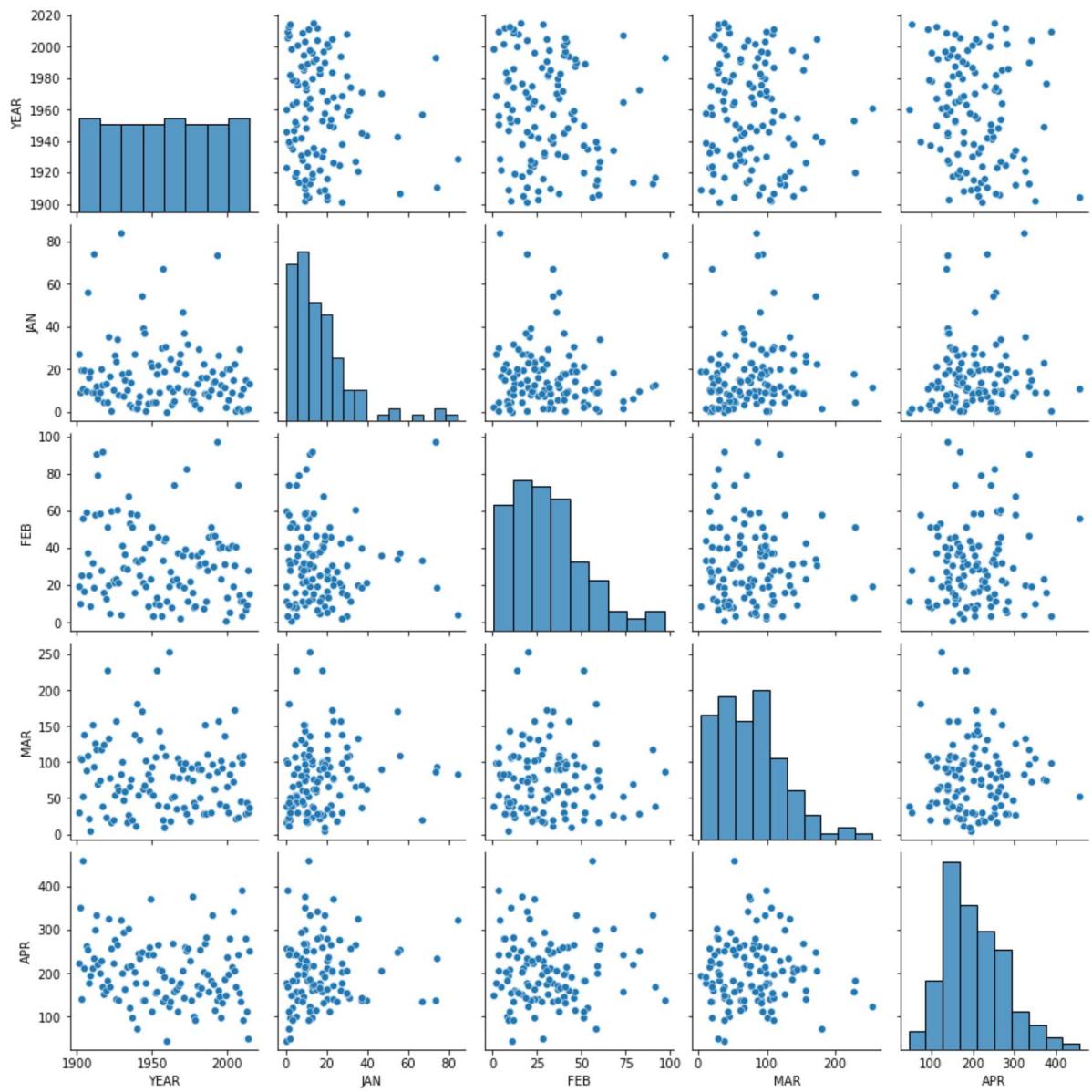
Out[49]:

```
<AxesSubplot:>
```



```
In [50]: sns.pairplot(c)
```

```
Out[50]: <seaborn.axisgrid.PairGrid at 0x24b623cbdf0>
```

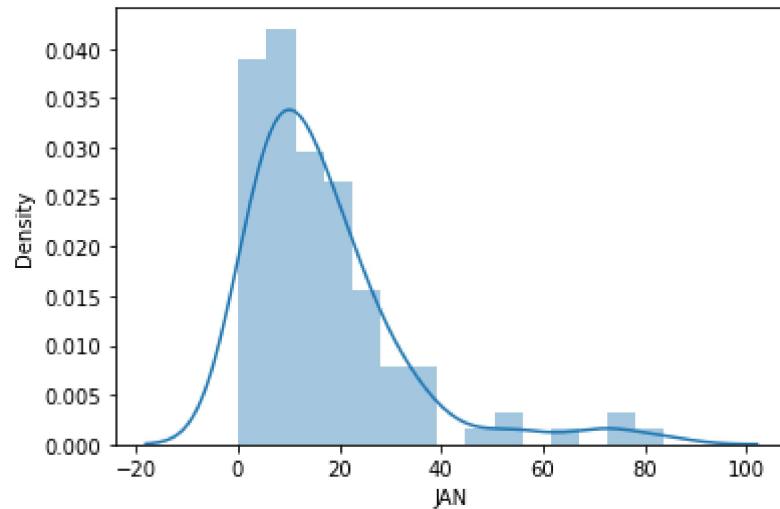


In [52]: `sns.distplot(c['JAN'])`

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).

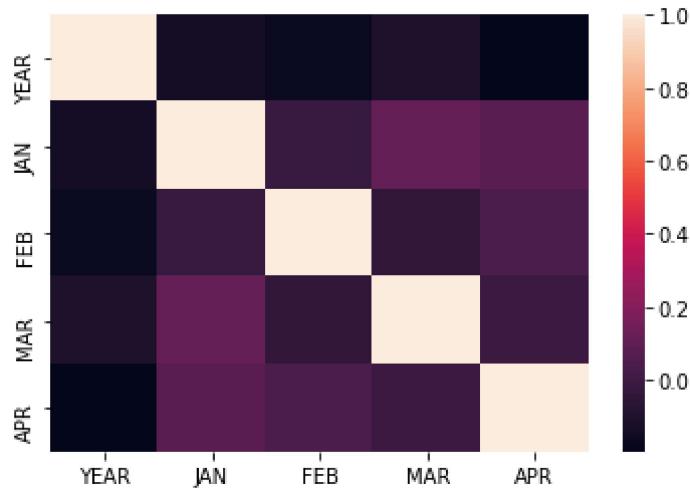
```
warnings.warn(msg, FutureWarning)
```

Out[52]: <AxesSubplot:xlabel='JAN', ylabel='Density'>



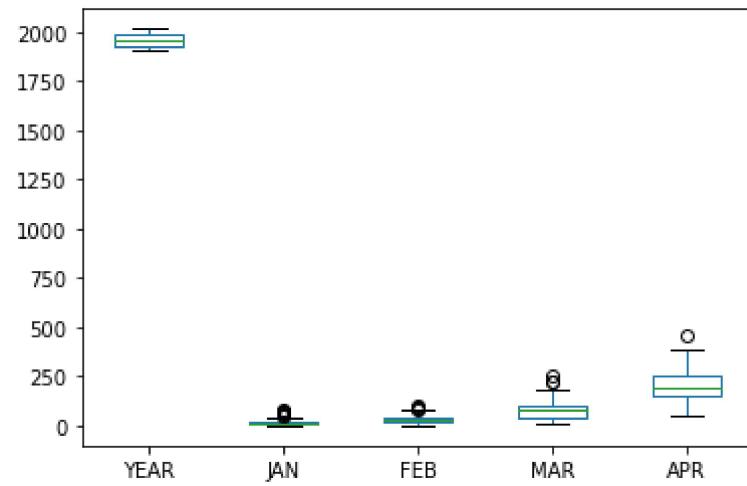
In [53]: `sns.heatmap(c.corr())`

Out[53]: <AxesSubplot:>



In [54]: `c.plot.box()`

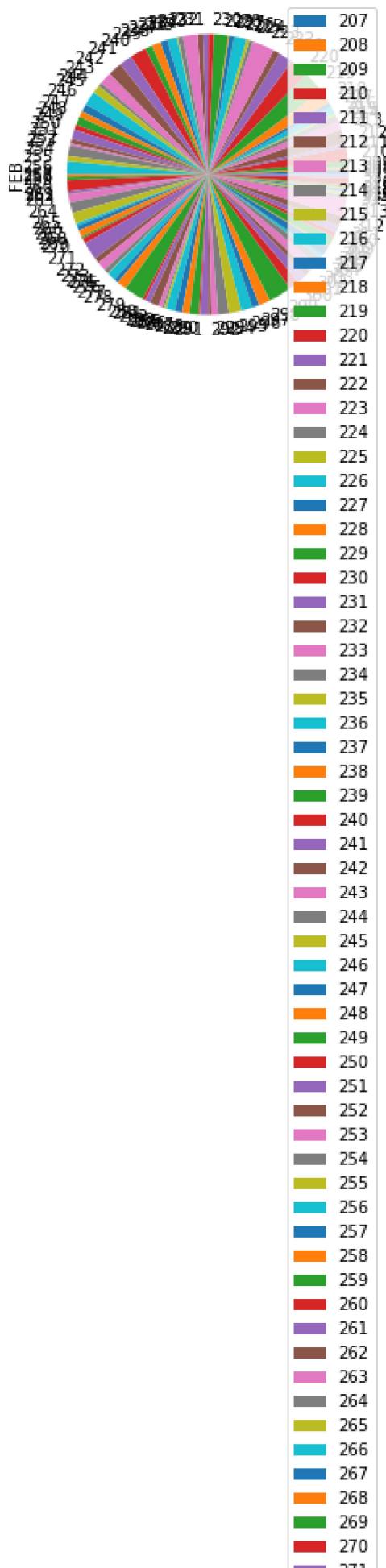
Out[54]: <AxesSubplot:>



```
In [55]: c.plot.pie(y='FEB')
```

```
Out[55]: <AxesSubplot:ylabel='FEB'>
```





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## 4.NAGA MANI MIZO TRIPURA

In [56]: `b=a.head(437)`  
`b`

Out[56]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
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
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	2	ANDAMAN & NICOBAR ISLANDS	1903	12.7	144.0	0.0	1.0	235.1	479.9	728.4	326.7	339.0	181
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
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
...	...	...	...	...	...	...	...	...	...	...	...	...	...
432	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
433	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
434	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
435	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
436	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

437 rows × 20 columns



In [57]: `b=b.tail(115)`  
`b`

Out[57]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OC
322	322	NAGA MANI MIZO TRIPURA	1901	11.7	18.1	29.4	206.2	124.0	443.3	331.4	466.0	304.1	166.
323	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.
324	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.
325	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.
326	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.
...	...	...	...	...	...	...	...	...	...	...	...	...	...
432	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.
433	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.
434	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.
435	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.
436	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.

115 rows × 20 columns



```
In [59]: c=b[['YEAR','JAN','FEB','MAR','APR','MAY','JUN']]  
c
```

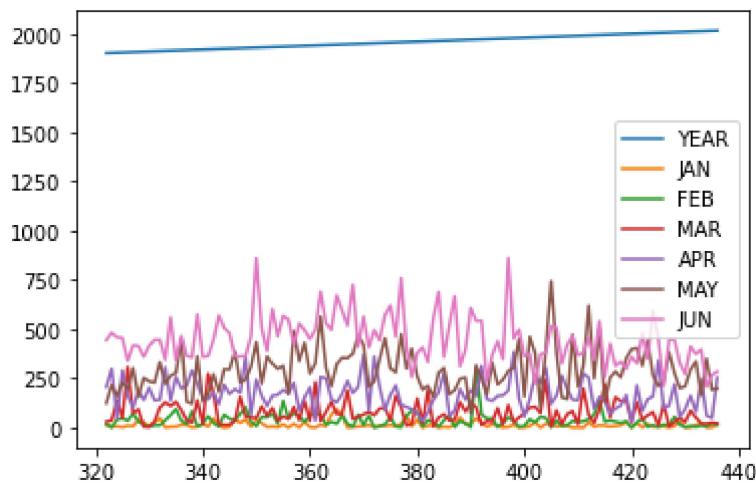
Out[59]:

	YEAR	JAN	FEB	MAR	APR	MAY	JUN
322	1901	11.7	18.1	29.4	206.2	124.0	443.3
323	1902	4.8	0.5	36.3	297.8	215.5	480.1
324	1903	6.5	40.5	139.8	45.5	159.9	458.6
325	1904	2.3	46.9	47.5	290.3	230.5	455.3
326	1905	9.1	35.3	306.5	161.7	193.6	339.7
...	...	...	...	...	...	...	...
432	2011	12.6	3.6	51.4	81.1	334.9	374.2
433	2012	24.5	10.2	20.3	243.5	163.5	396.2
434	2013	0.2	5.7	19.7	60.3	348.9	206.6
435	2014	1.2	21.0	25.4	49.6	192.5	268.3
436	2015	14.4	14.2	21.6	253.5	198.3	283.9

115 rows × 7 columns

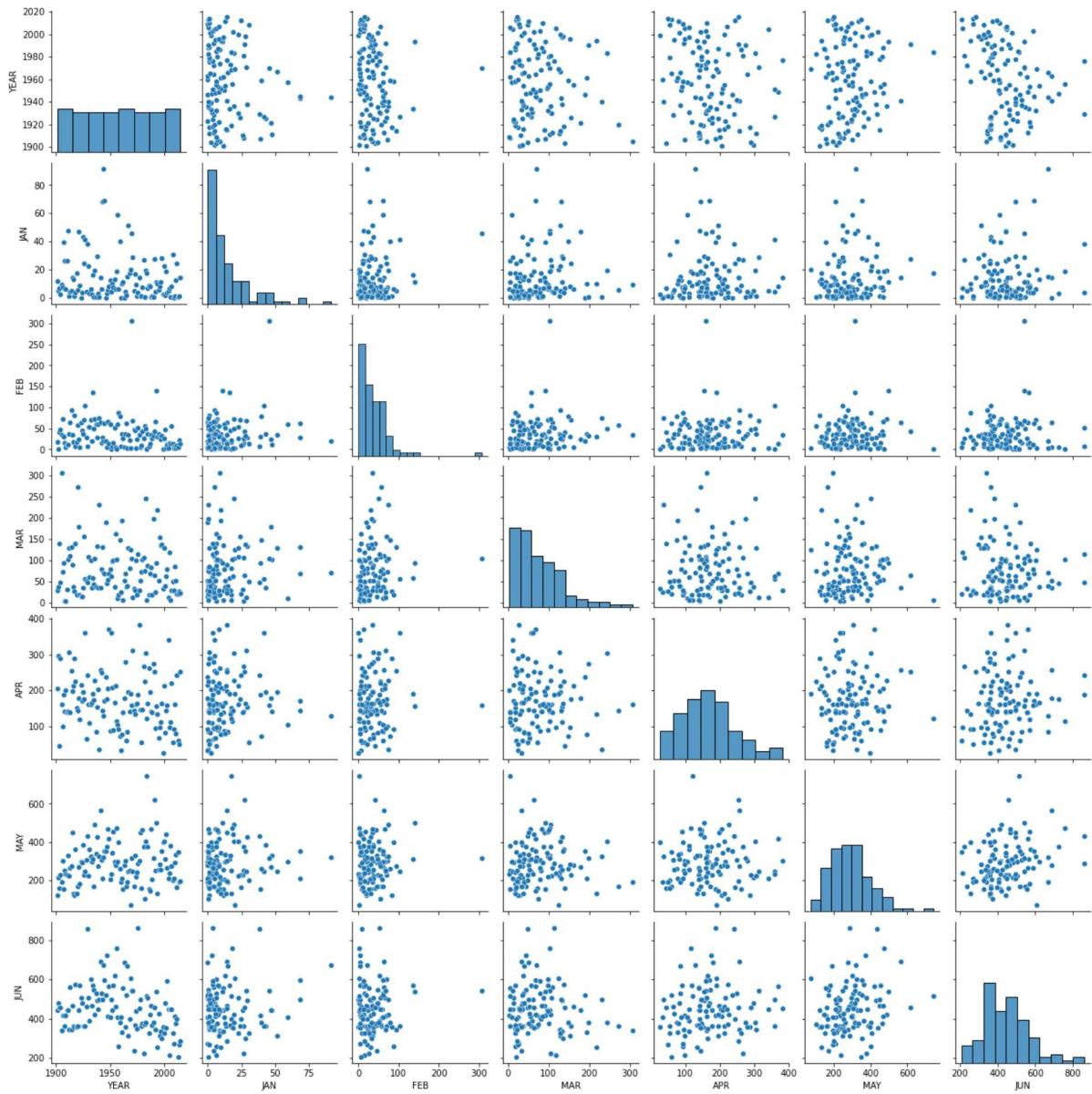
```
In [60]: c.plot.line()
```

Out[60]: <AxesSubplot:>



```
In [61]: sns.pairplot(c)
```

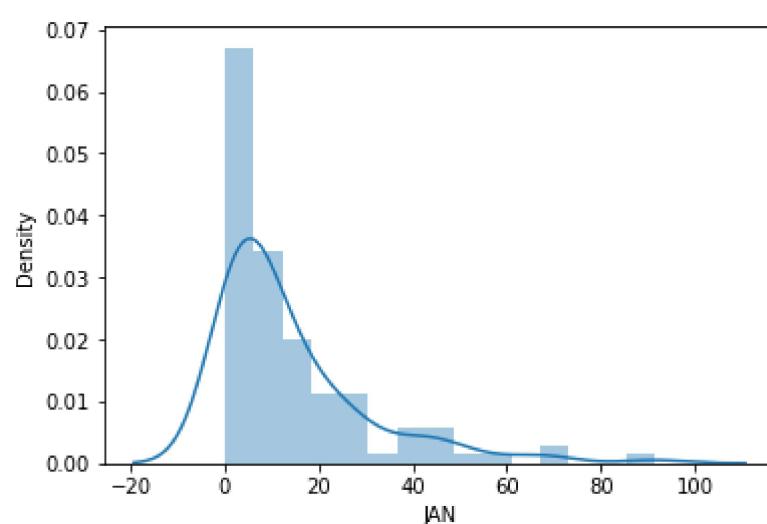
```
Out[61]: <seaborn.axisgrid.PairGrid at 0x24b63b69ee0>
```



In [62]: `sns.distplot(c['JAN'])`

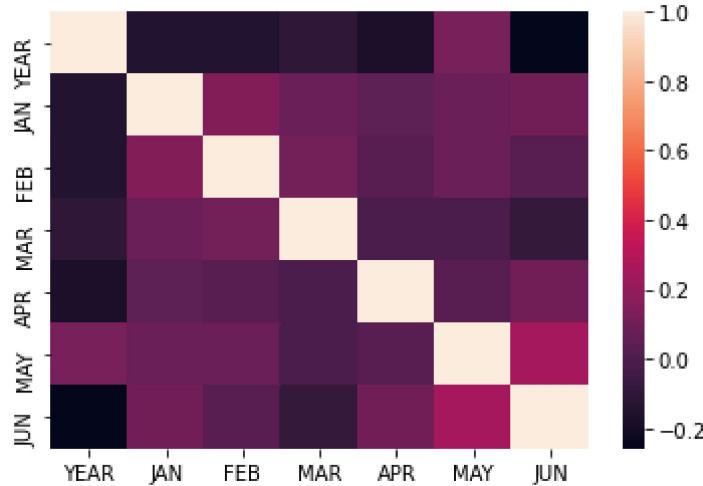
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function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

Out[62]: <AxesSubplot:xlabel='JAN', ylabel='Density'>



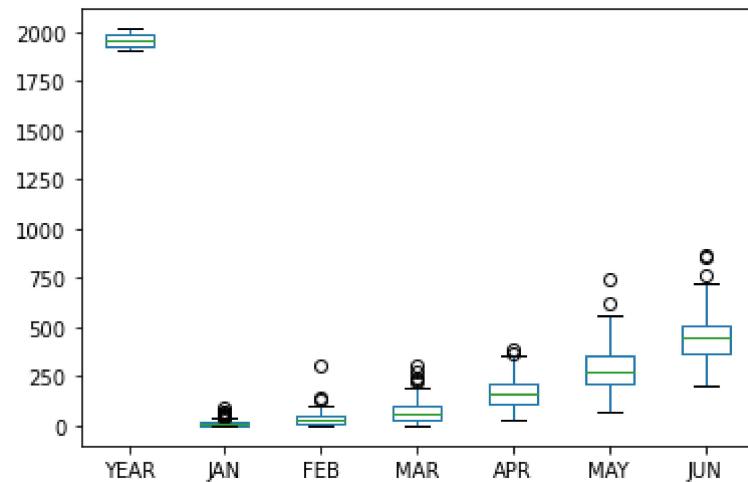
In [63]: `sns.heatmap(c.corr())`

Out[63]: <AxesSubplot:>



In [64]: `c.plot.box()`

Out[64]: <AxesSubplot:>



## 5. SUB HIMALAYAN WEST BENGAL & SIKKIM



```
In [66]: b=a.head(552)
b=b.tail(115)
b
```

Out[66]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
437	437	SUB HIMALAYAN WEST BENGAL & SIKKIM	1901	26.5	14.8	14.1	29.2	195.5	488.4	524.8	501.1	242.7	55
438	438	SUB HIMALAYAN WEST BENGAL & SIKKIM	1902	1.2	0.7	87.1	126.1	271.3	539.2	671.0	603.8	799.9	74
439	439	SUB HIMALAYAN WEST BENGAL & SIKKIM	1903	5.5	8.7	19.6	18.6	163.6	541.2	431.5	708.8	365.2	141
440	440	SUB HIMALAYAN WEST BENGAL & SIKKIM	1904	3.4	29.2	0.9	124.3	333.6	274.2	500.4	468.5	260.6	164
441	441	SUB HIMALAYAN WEST BENGAL & SIKKIM	1905	12.0	31.2	51.9	104.4	290.6	524.8	523.1	1036.6	321.1	87
...	...	...	...	...	...	...	...	...	...	...	...	...	...
547	547	SUB HIMALAYAN WEST BENGAL & SIKKIM	2011	8.5	19.9	71.2	135.0	247.8	419.8	612.3	470.3	356.3	46
548	548	SUB HIMALAYAN WEST BENGAL & SIKKIM	2012	15.3	13.9	45.5	159.8	202.4	604.2	684.5	332.7	434.7	119
549	549	SUB HIMALAYAN WEST BENGAL & SIKKIM	2013	3.0	23.6	32.1	114.7	296.5	404.9	588.4	416.3	308.0	199
550	550	SUB HIMALAYAN WEST BENGAL & SIKKIM	2014	0.2	26.6	37.7	47.9	308.6	543.2	384.6	563.3	371.5	31
551	551	SUB HIMALAYAN WEST BENGAL & SIKKIM	2015	15.7	15.0	64.8	149.0	304.6	508.2	393.3	626.6	354.9	53

115 rows × 20 columns



In [68]: `c=b[['YEAR','JAN','FEB','MAR','APR','MAY','JUN']]  
c`

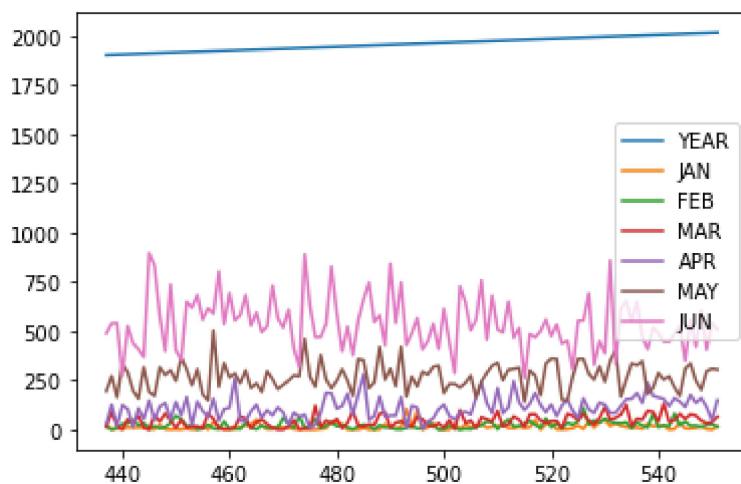
Out[68]:

	YEAR	JAN	FEB	MAR	APR	MAY	JUN
437	1901	26.5	14.8	14.1	29.2	195.5	488.4
438	1902	1.2	0.7	87.1	126.1	271.3	539.2
439	1903	5.5	8.7	19.6	18.6	163.6	541.2
440	1904	3.4	29.2	0.9	124.3	333.6	274.2
441	1905	12.0	31.2	51.9	104.4	290.6	524.8
...	...	...	...	...	...	...	...
547	2011	8.5	19.9	71.2	135.0	247.8	419.8
548	2012	15.3	13.9	45.5	159.8	202.4	604.2
549	2013	3.0	23.6	32.1	114.7	296.5	404.9
550	2014	0.2	26.6	37.7	47.9	308.6	543.2
551	2015	15.7	15.0	64.8	149.0	304.6	508.2

115 rows × 7 columns

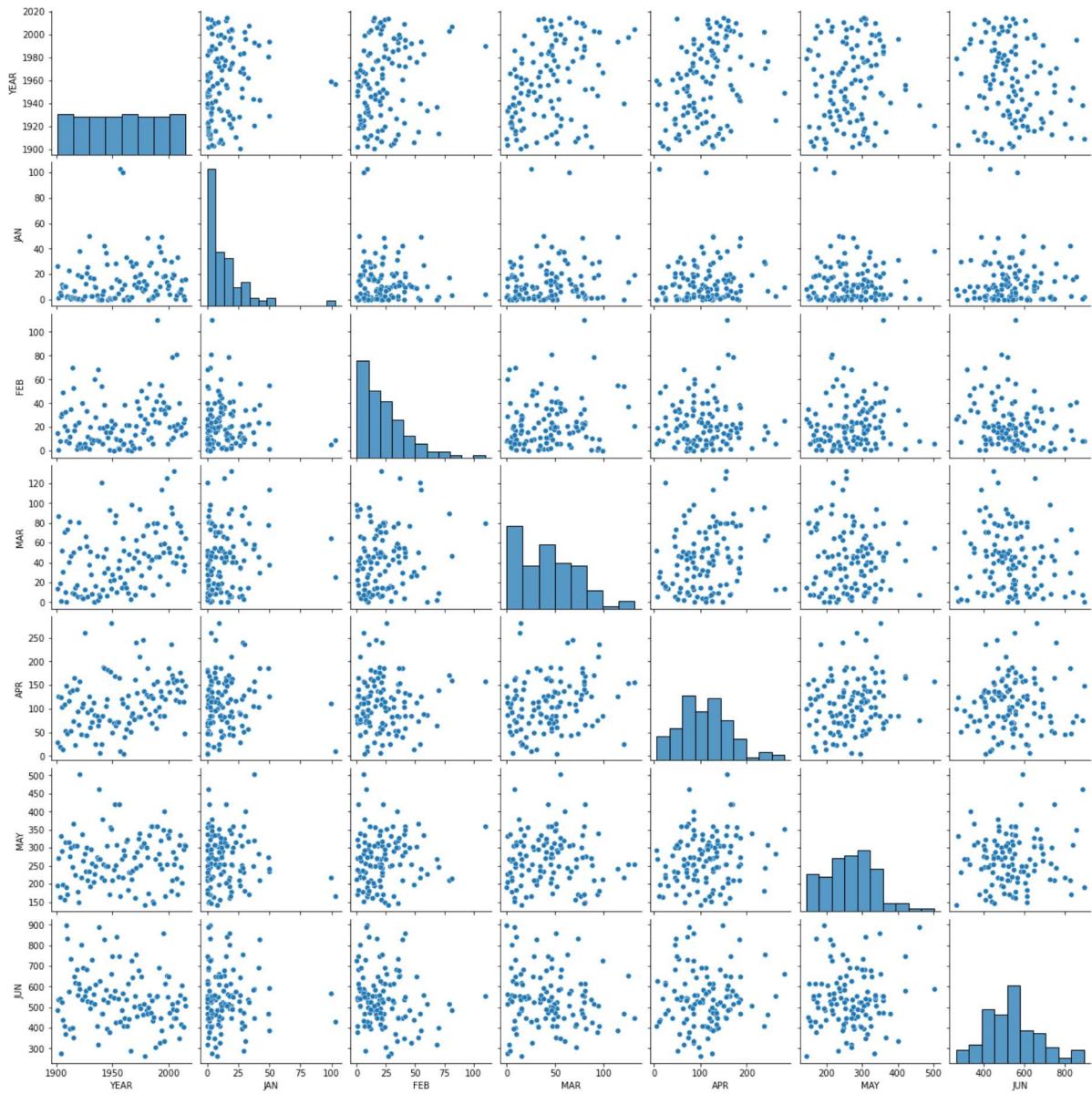
In [69]: `c.plot.line()`

Out[69]: <AxesSubplot:>



```
In [71]: sns.pairplot(c)
```

```
Out[71]: <seaborn.axisgrid.PairGrid at 0x24b660c5f40>
```

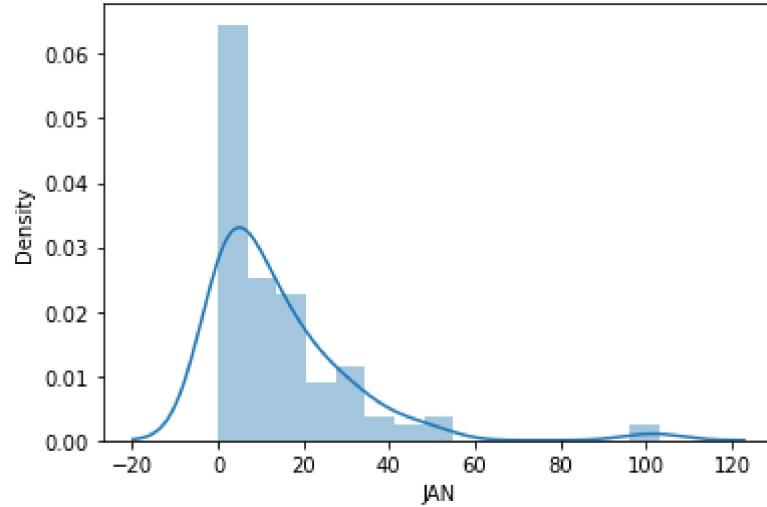


In [72]: `sns.distplot(c['JAN'])`

```
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).
```

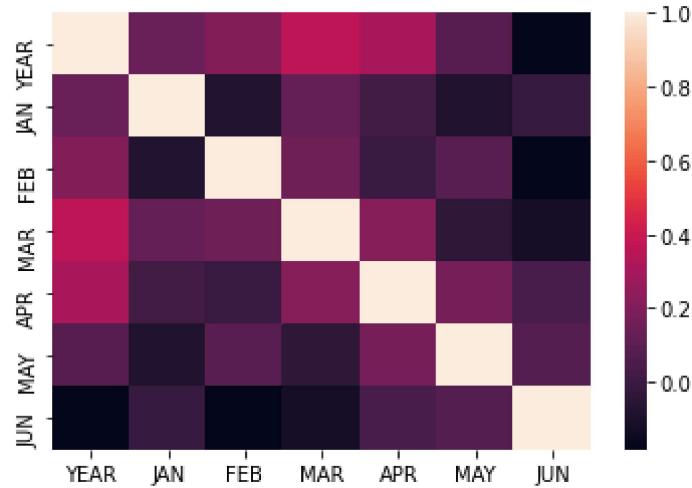
```
warnings.warn(msg, FutureWarning)
```

Out[72]: <AxesSubplot:xlabel='JAN', ylabel='Density'>



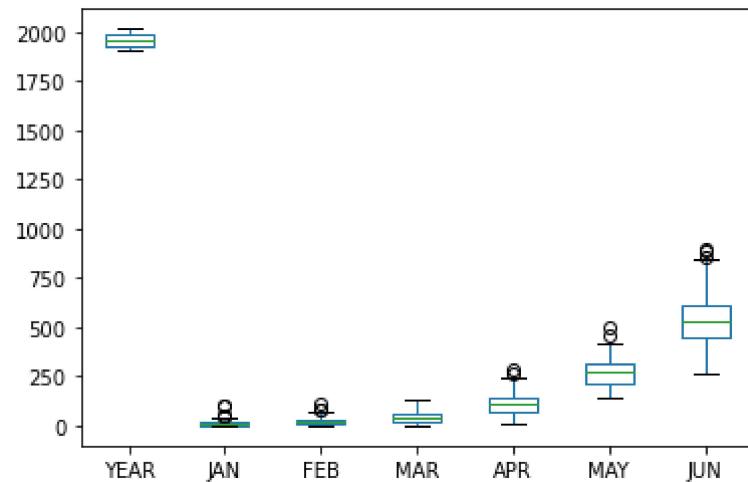
In [73]: `sns.heatmap(c.corr())`

Out[73]: <AxesSubplot:>



In [74]: `c.plot.box()`

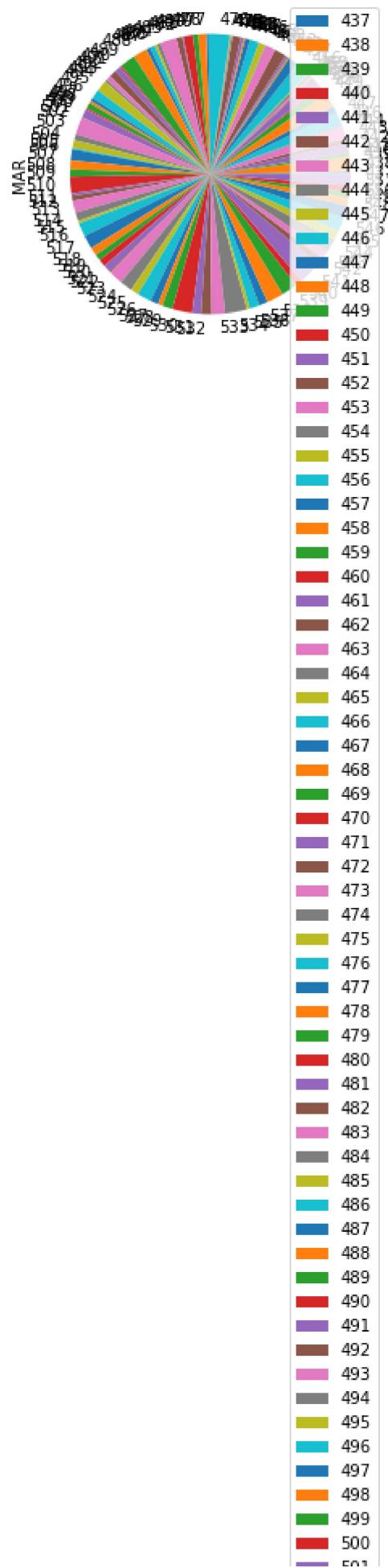
Out[74]: <AxesSubplot:>



```
In [75]: c.plot.pie(y='MAR')
```

```
Out[75]: <AxesSubplot:ylabel='MAR'>
```





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## 6.GANGETIC WEST BENGAL

```
In [79]: b=a.head(667)
b=b.tail(116)
b
```

Out[79]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OC
551	551	SUB HIMALAYAN WEST BENGAL & SIKKIM	2015	15.7	15.0	64.8	149.0	304.6	508.2	393.3	626.6	354.9	53.1
552	552	GANGETIC WEST BENGAL	1901	37.1	58.4	3.9	64.1	121.7	198.0	280.8	275.7	313.5	51.
553	553	GANGETIC WEST BENGAL	1902	0.0	1.2	44.2	103.8	161.6	140.9	347.8	264.8	230.5	32.1
554	554	GANGETIC WEST BENGAL	1903	17.5	24.6	37.3	30.6	78.5	201.7	179.6	277.6	300.7	198.1
555	555	GANGETIC WEST BENGAL	1904	0.1	23.9	35.6	17.5	160.2	286.7	435.3	241.7	142.8	35.
...	...	...	...	...	...	...	...	...	...	...	...	...	...
662	662	GANGETIC WEST BENGAL	2011	2.5	2.7	40.5	75.0	132.6	434.5	219.9	443.2	295.9	36.1
663	663	GANGETIC WEST BENGAL	2012	40.7	15.3	4.4	57.7	44.2	146.6	315.0	261.4	246.9	64.1
664	664	GANGETIC WEST BENGAL	2013	2.5	10.0	4.8	45.6	195.9	233.4	263.2	401.4	254.0	353.1
665	665	GANGETIC WEST BENGAL	2014	0.9	42.2	19.9	1.9	124.4	193.6	298.7	292.6	229.5	56.1
666	666	GANGETIC WEST BENGAL	2015	12.9	5.5	19.3	88.7	57.6	247.2	633.1	260.6	164.0	32.1

116 rows × 20 columns



```
In [80]: c=b[['YEAR','JAN','FEB','MAR','APR','MAY','JUN']]  
c
```

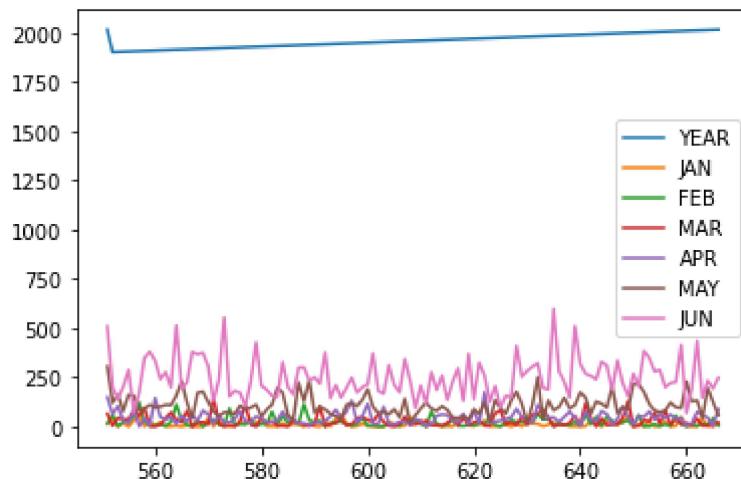
Out[80]:

	YEAR	JAN	FEB	MAR	APR	MAY	JUN
551	2015	15.7	15.0	64.8	149.0	304.6	508.2
552	1901	37.1	58.4	3.9	64.1	121.7	198.0
553	1902	0.0	1.2	44.2	103.8	161.6	140.9
554	1903	17.5	24.6	37.3	30.6	78.5	201.7
555	1904	0.1	23.9	35.6	17.5	160.2	286.7
...	...	...	...	...	...	...	...
662	2011	2.5	2.7	40.5	75.0	132.6	434.5
663	2012	40.7	15.3	4.4	57.7	44.2	146.6
664	2013	2.5	10.0	4.8	45.6	195.9	233.4
665	2014	0.9	42.2	19.9	1.9	124.4	193.6
666	2015	12.9	5.5	19.3	88.7	57.6	247.2

116 rows × 7 columns

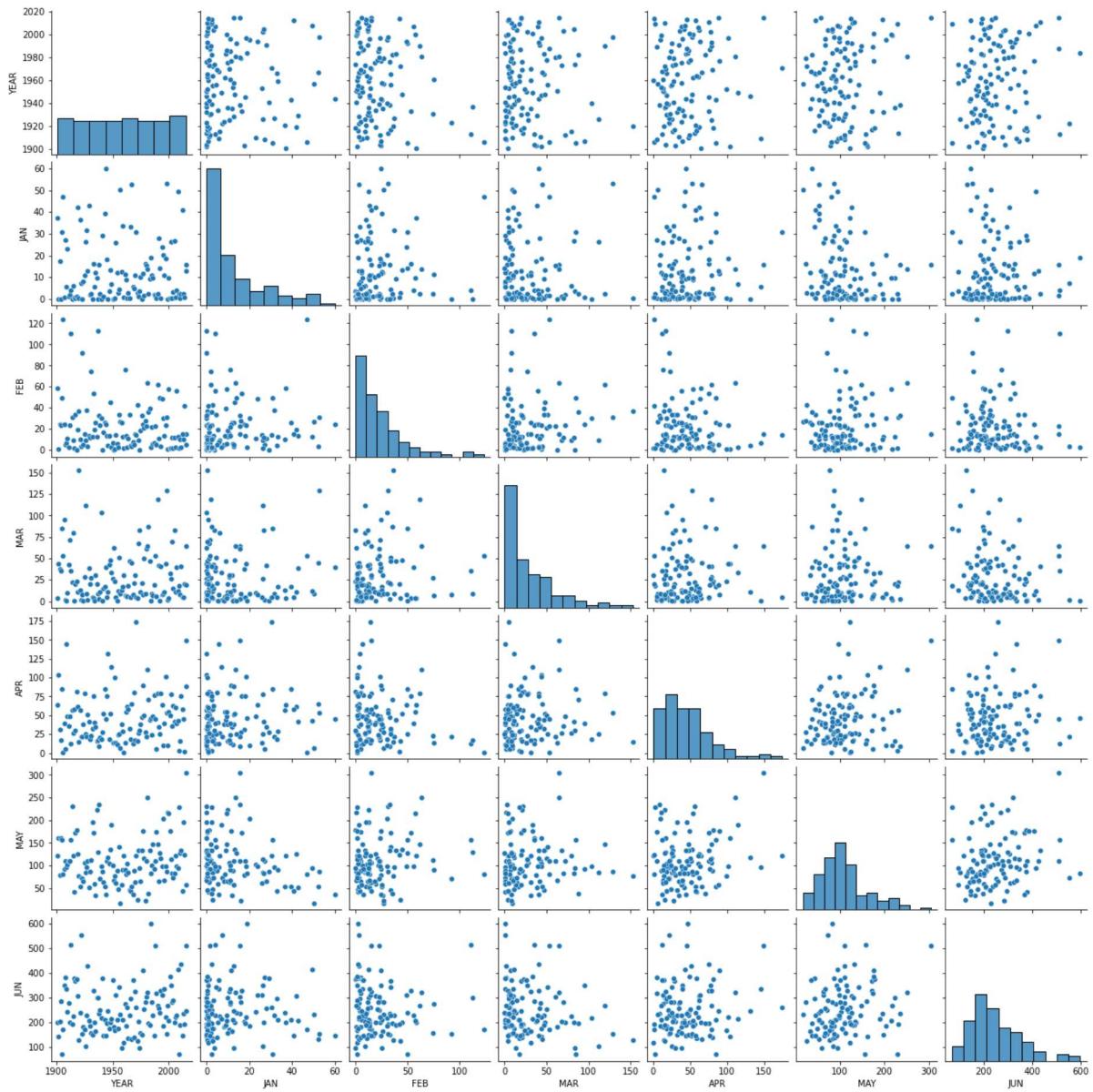
```
In [81]: c.plot.line()
```

Out[81]: <AxesSubplot:>



```
In [82]: sns.pairplot(c)
```

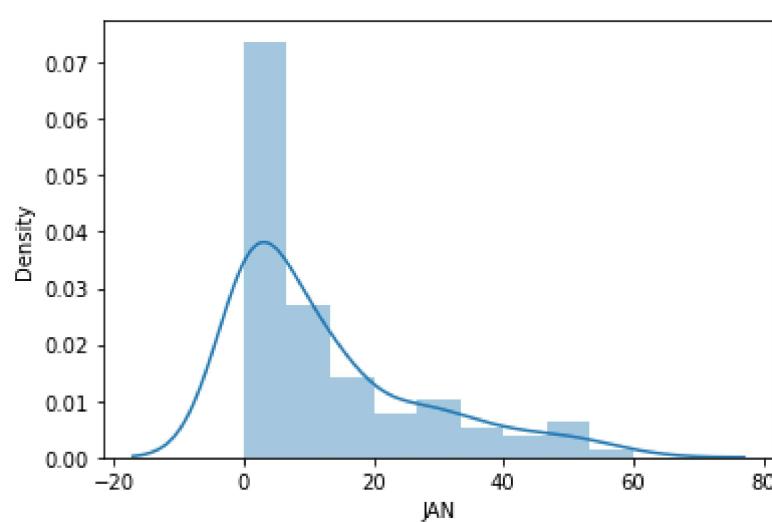
```
Out[82]: <seaborn.axisgrid.PairGrid at 0x24b68d464c0>
```



In [83]: `sns.distplot(c['JAN'])`

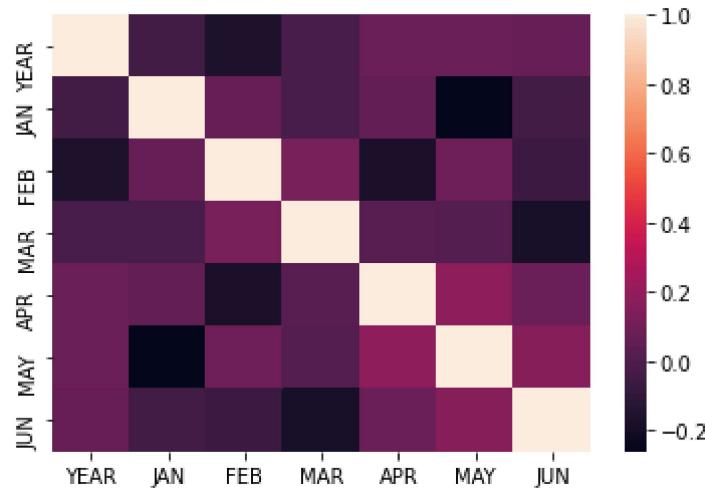
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function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

Out[83]: <AxesSubplot:xlabel='JAN', ylabel='Density'>



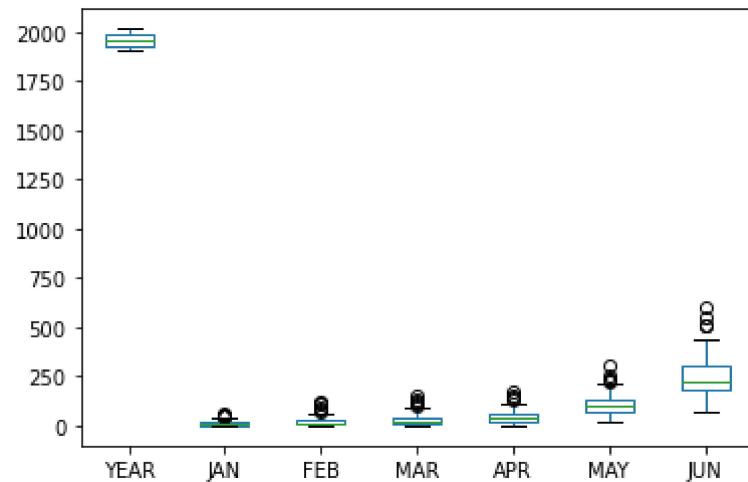
In [84]: `sns.heatmap(c.corr())`

Out[84]: <AxesSubplot:>



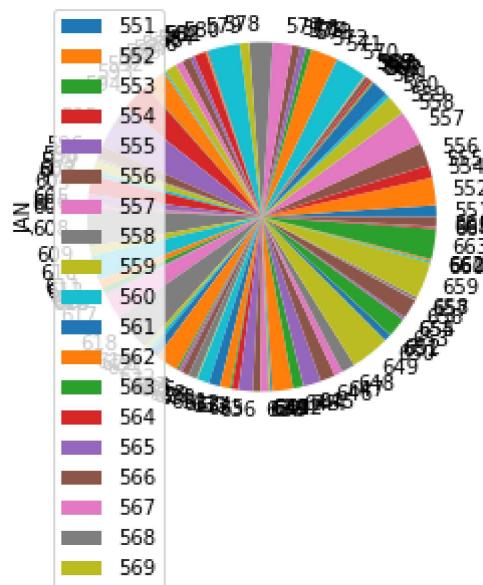
In [85]: `c.plot.box()`

Out[85]: <AxesSubplot:>



In [86]: `c.plot.pie(y='JAN')`

Out[86]: <AxesSubplot:ylabel='JAN'>



In [ ]: