04/08/2023 (BOOK-36)

```
In [317]: 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 [318]: a=pd.read_csv(r"C:\Users\user\Downloads\Book36.csv")
 a

Out[318]:

index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	0
1242	UTTARAKHAND	1901	134.5	81.4	44.5	5.9	60.8	33.6	381.1	612.3	167.1	1
1243	UTTARAKHAND	1902	0.0	17.0	52.2	63.7	52.1	113.1	444.1	327.5	220.4	3
1244	UTTARAKHAND	1903	68.0	7.9	87.6	10.3	37.5	83.0	251.6	442.7	249.3	5
1245	UTTARAKHAND	1904	40.0	5.2	78.3	13.6	61.1	180.1	449.6	417.2	174.1	
1246	UTTARAKHAND	1905	115.4	80.7	99.8	26.1	70.3	111.5	299.9	349.5	129.5	
1352	UTTARAKHAND	2011	30.9	65.2	18.0	30.9	84.2	223.1	433.3	523.7	148.4	
1353	UTTARAKHAND	2012	38.8	11.9	28.1	39.2	9.1	46.0	387.1	419.5	220.6	
1354	UTTARAKHAND	2013	73.0	188.3	22.0	24.7	18.2	488.9	413.4	359.4	111.3	2
1355	UTTARAKHAND	2014	45.9	99.9	68.4	37.6	52.9	62.9	462.7	264.2	107.9	4
1356	UTTARAKHAND	2015	54.5	62.6	127.3	57.3	38.0	186.6	337.0	305.3	52.6	1
	1242 1243 1244 1245 1246 1352 1353 1354	1242 UTTARAKHAND 1243 UTTARAKHAND 1244 UTTARAKHAND 1245 UTTARAKHAND 1246 UTTARAKHAND 1352 UTTARAKHAND 1353 UTTARAKHAND 1354 UTTARAKHAND 1355 UTTARAKHAND	1242 UTTARAKHAND 1901 1243 UTTARAKHAND 1902 1244 UTTARAKHAND 1903 1245 UTTARAKHAND 1904 1246 UTTARAKHAND 1905 1352 UTTARAKHAND 2011 1353 UTTARAKHAND 2012 1354 UTTARAKHAND 2013 1355 UTTARAKHAND 2014	1242 UTTARAKHAND 1901 134.5 1243 UTTARAKHAND 1902 0.0 1244 UTTARAKHAND 1903 68.0 1245 UTTARAKHAND 1904 40.0 1246 UTTARAKHAND 1905 115.4 1352 UTTARAKHAND 2011 30.9 1353 UTTARAKHAND 2012 38.8 1354 UTTARAKHAND 2013 73.0 1355 UTTARAKHAND 2014 45.9	1242 UTTARAKHAND 1901 134.5 81.4 1243 UTTARAKHAND 1902 0.0 17.0 1244 UTTARAKHAND 1903 68.0 7.9 1245 UTTARAKHAND 1904 40.0 5.2 1246 UTTARAKHAND 1905 115.4 80.7 1352 UTTARAKHAND 2011 30.9 65.2 1353 UTTARAKHAND 2012 38.8 11.9 1354 UTTARAKHAND 2013 73.0 188.3 1355 UTTARAKHAND 2014 45.9 99.9	1242 UTTARAKHAND 1901 134.5 81.4 44.5 1243 UTTARAKHAND 1902 0.0 17.0 52.2 1244 UTTARAKHAND 1903 68.0 7.9 87.6 1245 UTTARAKHAND 1904 40.0 5.2 78.3 1246 UTTARAKHAND 1905 115.4 80.7 99.8 1352 UTTARAKHAND 2011 30.9 65.2 18.0 1353 UTTARAKHAND 2012 38.8 11.9 28.1 1354 UTTARAKHAND 2013 73.0 188.3 22.0 1355 UTTARAKHAND 2014 45.9 99.9 68.4	1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 1352 UTTARAKHAND 2011 30.9 65.2 18.0 30.9 1353 UTTARAKHAND 2012 38.8 11.9 28.1 39.2 1354 UTTARAKHAND 2013 73.0 188.3 22.0 24.7 1355 UTTARAKHAND 2014 45.9 99.9 68.4 37.6	1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 60.8 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 52.1 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 37.5 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 61.1 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 70.3 1352 UTTARAKHAND 2011 30.9 65.2 18.0 30.9 84.2 1353 UTTARAKHAND 2012 38.8 11.9 28.1 39.2 9.1 1354 UTTARAKHAND 2013 73.0 188.3 22.0 24.7 18.2 1355 UTTARAKHAND 2014 45.9 99.9 68.4 37.6 52.9	1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 60.8 33.6 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 52.1 113.1 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 37.5 83.0 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 61.1 180.1 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 70.3 111.5	1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 60.8 33.6 381.1 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 52.1 113.1 444.1 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 37.5 83.0 251.6 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 61.1 180.1 449.6 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 70.3 111.5 299.9 </th <th>1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 60.8 33.6 381.1 612.3 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 52.1 113.1 444.1 327.5 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 37.5 83.0 251.6 442.7 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 61.1 180.1 449.6 417.2 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 70.3 111.5 299.9 349.5 </th> <th>1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 60.8 33.6 381.1 612.3 167.1 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 52.1 113.1 444.1 327.5 220.4 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 37.5 83.0 251.6 442.7 249.3 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 61.1 180.1 449.6 417.2 174.1 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 70.3 111.5 299.9 349.5 129.5 </th>	1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 60.8 33.6 381.1 612.3 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 52.1 113.1 444.1 327.5 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 37.5 83.0 251.6 442.7 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 61.1 180.1 449.6 417.2 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 70.3 111.5 299.9 349.5	1242 UTTARAKHAND 1901 134.5 81.4 44.5 5.9 60.8 33.6 381.1 612.3 167.1 1243 UTTARAKHAND 1902 0.0 17.0 52.2 63.7 52.1 113.1 444.1 327.5 220.4 1244 UTTARAKHAND 1903 68.0 7.9 87.6 10.3 37.5 83.0 251.6 442.7 249.3 1245 UTTARAKHAND 1904 40.0 5.2 78.3 13.6 61.1 180.1 449.6 417.2 174.1 1246 UTTARAKHAND 1905 115.4 80.7 99.8 26.1 70.3 111.5 299.9 349.5 129.5

115 rows × 20 columns

In [319]: a.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 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					
<pre>dtypes: float64(17), int64(2), object(1)</pre>								
memory usage: 18.1+ KB								

In [320]: b=a.fillna(method='ffill')

b

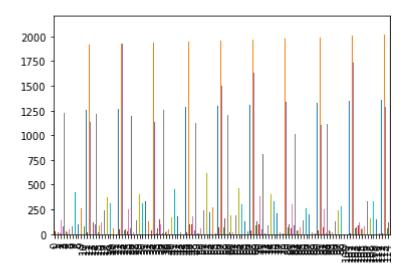
Out[320]:

	index	SUBDIVISION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	0
0	1242	UTTARAKHAND	1901	134.5	81.4	44.5	5.9	60.8	33.6	381.1	612.3	167.1	1
1	1243	UTTARAKHAND	1902	0.0	17.0	52.2	63.7	52.1	113.1	444.1	327.5	220.4	3
2	1244	UTTARAKHAND	1903	68.0	7.9	87.6	10.3	37.5	83.0	251.6	442.7	249.3	5
3	1245	UTTARAKHAND	1904	40.0	5.2	78.3	13.6	61.1	180.1	449.6	417.2	174.1	
4	1246	UTTARAKHAND	1905	115.4	80.7	99.8	26.1	70.3	111.5	299.9	349.5	129.5	
110	1352	UTTARAKHAND	2011	30.9	65.2	18.0	30.9	84.2	223.1	433.3	523.7	148.4	
111	1353	UTTARAKHAND	2012	38.8	11.9	28.1	39.2	9.1	46.0	387.1	419.5	220.6	
112	1354	UTTARAKHAND	2013	73.0	188.3	22.0	24.7	18.2	488.9	413.4	359.4	111.3	2
113	1355	UTTARAKHAND	2014	45.9	99.9	68.4	37.6	52.9	62.9	462.7	264.2	107.9	4
114	1356	UTTARAKHAND	2015	54.5	62.6	127.3	57.3	38.0	186.6	337.0	305.3	52.6	1

115 rows × 20 columns

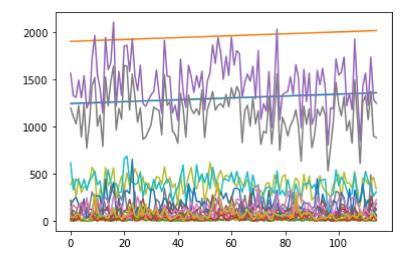
```
In [321]: b.plot.bar(legend=None)
```

Out[321]: <AxesSubplot:>



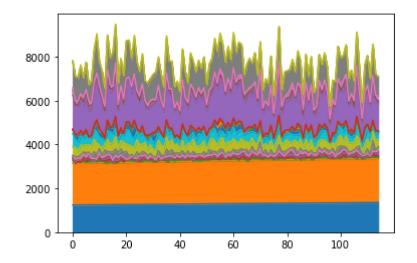
In [322]: b.plot.line(legend=None)

Out[322]: <AxesSubplot:>



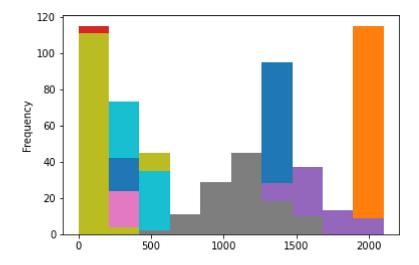
```
In [323]: b.plot.area(legend=None)
```

Out[323]: <AxesSubplot:>



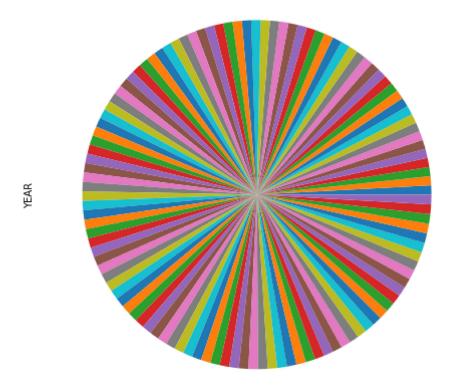
In [324]: b.plot.hist(legend=None)

Out[324]: <AxesSubplot:ylabel='Frequency'>



```
In [325]: b.plot.pie(y='YEAR',figsize=(8,8),labels=None,legend=None)
```

Out[325]: <AxesSubplot:ylabel='YEAR'>



```
In [ ]:
```