

## 04/08/2023 (BOOK-19)

```
In [164]: 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 [165]: a=pd.read_csv(r"C:\Users\user\Downloads\Book19.csv")
a
```

Out[165]:

|     | index | SUBDIVISION       | YEAR | JAN  | FEB  | MAR  | APR  | MAY  | JUN   | JUL   | AUG   | SEP   | OCT  |
|-----|-------|-------------------|------|------|------|------|------|------|-------|-------|-------|-------|------|
| 0   | 1932  | EAST<br>RAJASTHAN | 1901 | 21.6 | 8.9  | 2.9  | 0.7  | 5.0  | 15.0  | 164.8 | 175.6 | 7.5   | 9.8  |
| 1   | 1933  | EAST<br>RAJASTHAN | 1902 | 4.1  | 0.7  | 0.0  | 1.8  | 9.9  | 34.6  | 247.6 | 116.7 | 145.6 | 14.4 |
| 2   | 1934  | EAST<br>RAJASTHAN | 1903 | 1.9  | 0.7  | 1.3  | 0.1  | 12.9 | 15.6  | 238.2 | 229.1 | 168.5 | 17.8 |
| 3   | 1935  | EAST<br>RAJASTHAN | 1904 | 4.3  | 5.5  | 21.7 | 0.2  | 27.5 | 49.9  | 289.7 | 223.5 | 50.2  | 1.5  |
| 4   | 1936  | EAST<br>RAJASTHAN | 1905 | 4.1  | 8.8  | 3.2  | 1.6  | 2.0  | 14.4  | 130.5 | 30.9  | 83.8  | 0.0  |
| ... | ...   | ...               | ...  | ...  | ...  | ...  | ...  | ...  | ...   | ...   | ...   | ...   | ...  |
| 110 | 2042  | EAST<br>RAJASTHAN | 2011 | 0.0  | 11.2 | 0.2  | 0.5  | 5.1  | 140.9 | 193.6 | 284.1 | 166.4 | 0.0  |
| 111 | 2043  | EAST<br>RAJASTHAN | 2012 | 1.9  | 0.0  | 0.0  | 3.6  | 9.5  | 11.2  | 170.5 | 365.0 | 131.3 | 0.5  |
| 112 | 2044  | EAST<br>RAJASTHAN | 2013 | 1.4  | 21.7 | 0.4  | 3.2  | 1.0  | 90.6  | 319.0 | 278.5 | 88.0  | 30.6 |
| 113 | 2045  | EAST<br>RAJASTHAN | 2014 | 28.4 | 10.0 | 6.4  | 7.3  | 8.4  | 23.5  | 197.1 | 261.0 | 136.9 | 3.2  |
| 114 | 2046  | EAST<br>RAJASTHAN | 2015 | 12.1 | 0.1  | 55.9 | 15.9 | 3.5  | 96.4  | 297.6 | 142.8 | 20.1  | 5.0  |

115 rows × 20 columns



```
In [166]: 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
dtypes: float64(17), int64(2), object(1)
memory usage: 18.1+ KB
```

```
In [167]: b=a.fillna(method='ffill')
b
```

Out[167]:

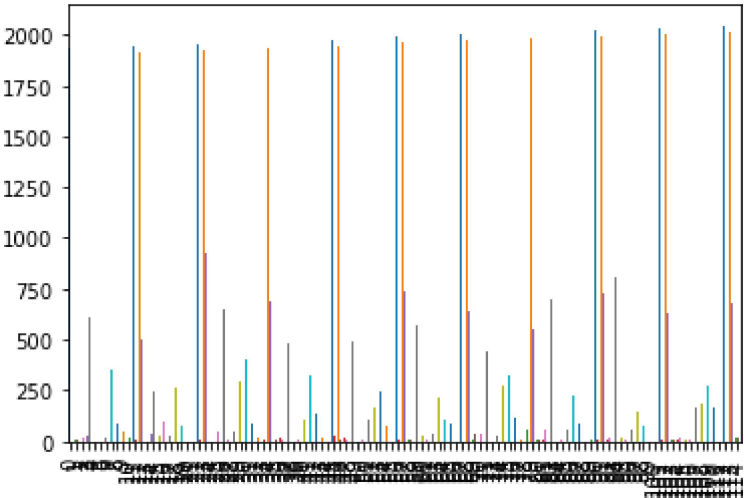
|     | index | SUBDIVISION       | YEAR | JAN  | FEB  | MAR  | APR  | MAY  | JUN   | JUL   | AUG   | SEP   | OCT  |
|-----|-------|-------------------|------|------|------|------|------|------|-------|-------|-------|-------|------|
| 0   | 1932  | EAST<br>RAJASTHAN | 1901 | 21.6 | 8.9  | 2.9  | 0.7  | 5.0  | 15.0  | 164.8 | 175.6 | 7.5   | 9.8  |
| 1   | 1933  | EAST<br>RAJASTHAN | 1902 | 4.1  | 0.7  | 0.0  | 1.8  | 9.9  | 34.6  | 247.6 | 116.7 | 145.6 | 14.4 |
| 2   | 1934  | EAST<br>RAJASTHAN | 1903 | 1.9  | 0.7  | 1.3  | 0.1  | 12.9 | 15.6  | 238.2 | 229.1 | 168.5 | 17.8 |
| 3   | 1935  | EAST<br>RAJASTHAN | 1904 | 4.3  | 5.5  | 21.7 | 0.2  | 27.5 | 49.9  | 289.7 | 223.5 | 50.2  | 1.5  |
| 4   | 1936  | EAST<br>RAJASTHAN | 1905 | 4.1  | 8.8  | 3.2  | 1.6  | 2.0  | 14.4  | 130.5 | 30.9  | 83.8  | 0.0  |
| ... | ...   | ...               | ...  | ...  | ...  | ...  | ...  | ...  | ...   | ...   | ...   | ...   | ...  |
| 110 | 2042  | EAST<br>RAJASTHAN | 2011 | 0.0  | 11.2 | 0.2  | 0.5  | 5.1  | 140.9 | 193.6 | 284.1 | 166.4 | 0.0  |
| 111 | 2043  | EAST<br>RAJASTHAN | 2012 | 1.9  | 0.0  | 0.0  | 3.6  | 9.5  | 11.2  | 170.5 | 365.0 | 131.3 | 0.5  |
| 112 | 2044  | EAST<br>RAJASTHAN | 2013 | 1.4  | 21.7 | 0.4  | 3.2  | 1.0  | 90.6  | 319.0 | 278.5 | 88.0  | 30.6 |
| 113 | 2045  | EAST<br>RAJASTHAN | 2014 | 28.4 | 10.0 | 6.4  | 7.3  | 8.4  | 23.5  | 197.1 | 261.0 | 136.9 | 3.2  |
| 114 | 2046  | EAST<br>RAJASTHAN | 2015 | 12.1 | 0.1  | 55.9 | 15.9 | 3.5  | 96.4  | 297.6 | 142.8 | 20.1  | 5.0  |

115 rows × 20 columns



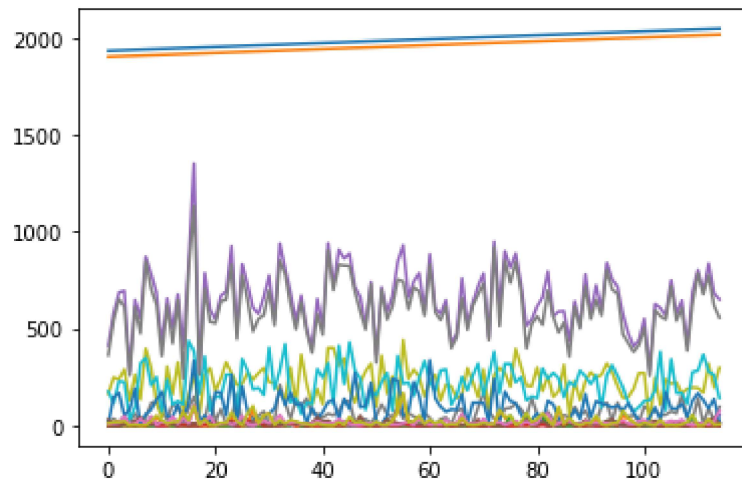
```
In [168]: b.plot.bar(legend=None)
```

Out[168]: <AxesSubplot:>



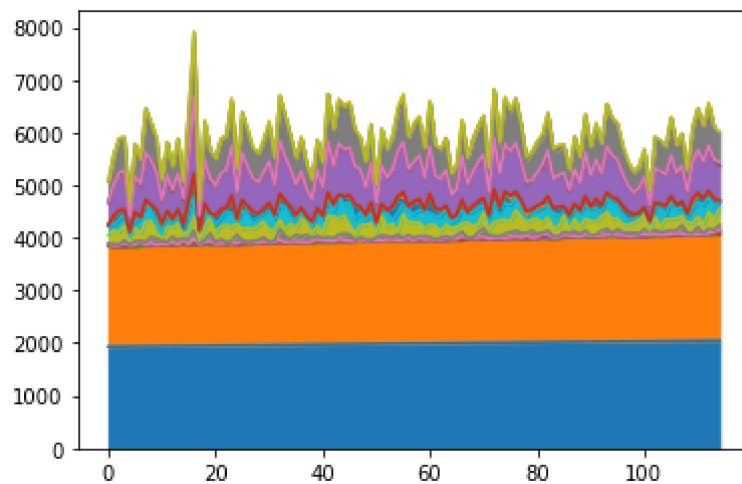
```
In [169]: b.plot.line(legend=None)
```

```
Out[169]: <AxesSubplot:>
```



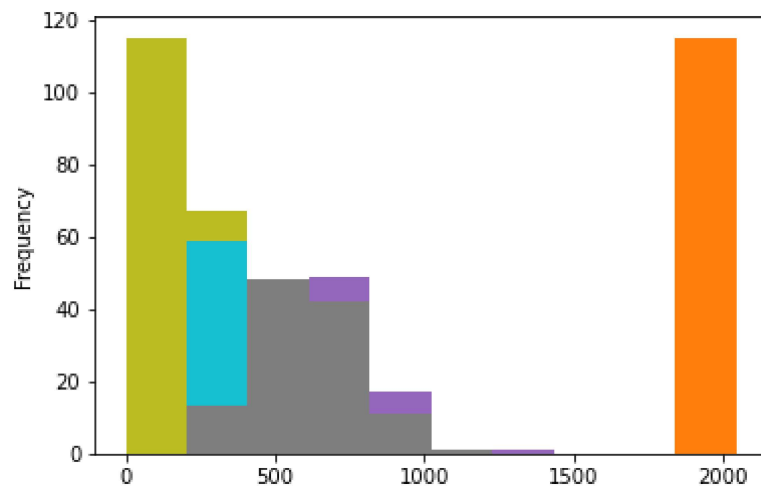
```
In [170]: b.plot.area(legend=None)
```

```
Out[170]: <AxesSubplot:>
```



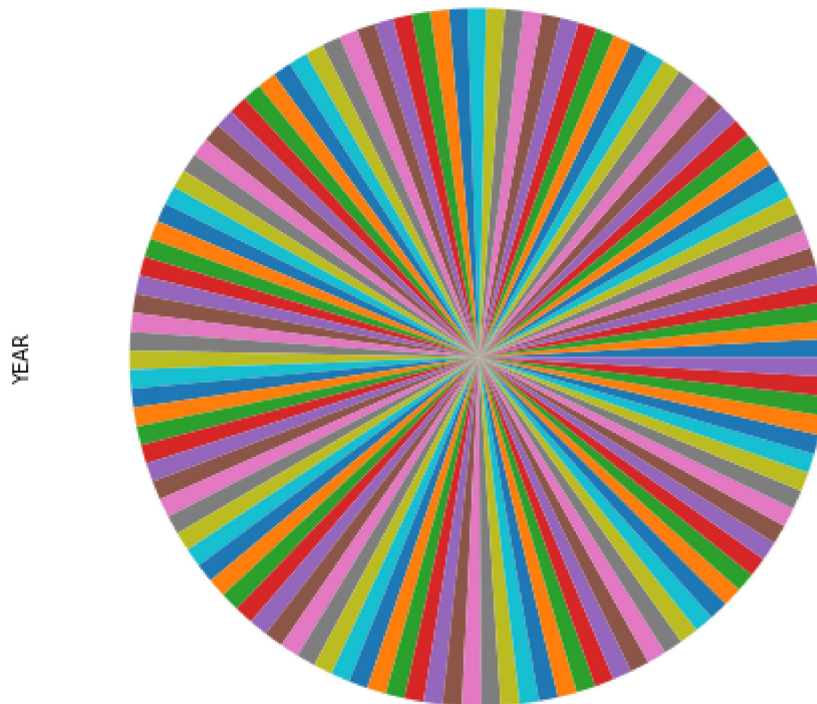
```
In [171]: b.plot.hist(legend=None)
```

```
Out[171]: <AxesSubplot:ylabel='Frequency'>
```



```
In [172]: b.plot.pie(y='YEAR',figsize=(8,8),labels=None,legend=None)
```

```
Out[172]: <AxesSubplot:ylabel='YEAR'>
```



```
In [ ]:
```

