# 04/08/2023 (BOOK-6)

In [47]:
```
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 [48]:
```
a=pd.read_csv(r"C:\Users\user\Downloads\Book6.csv")
a
```

Out[48]:

| | index | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 3772 | SOUTH INTERIOR KARNATAKA | 1901 | 4.9 | 31.8 | 3.0 | 32.7 | 109.6 | 106.0 | 210.0 | 109.2 | 140.8 | 170.1 |
| **1** | 3773 | SOUTH INTERIOR KARNATAKA | 1902 | 1.9 | 0.5 | 6.7 | 42.6 | 97.7 | 91.7 | 210.0 | 82.1 | 138.4 | 219.1 |
| **2** | 3774 | SOUTH INTERIOR KARNATAKA | 1903 | 0.3 | 0.0 | 1.1 | 11.6 | 125.1 | 129.7 | 284.4 | 155.7 | 197.1 | 154.2 |
| **3** | 3775 | SOUTH INTERIOR KARNATAKA | 1904 | 1.0 | 0.5 | 5.2 | 43.5 | 144.7 | 167.9 | 197.1 | 73.2 | 89.6 | 120.4 |
| **4** | 3776 | SOUTH INTERIOR KARNATAKA | 1905 | 1.7 | 7.9 | 14.2 | 23.6 | 118.6 | 95.9 | 148.4 | 140.6 | 43.1 | 142.8 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **110** | 3882 | SOUTH INTERIOR KARNATAKA | 2011 | 2.1 | 12.4 | 12.4 | 80.2 | 83.5 | 177.1 | 202.4 | 199.5 | 111.2 | 144.8 |
| **111** | 3883 | SOUTH INTERIOR KARNATAKA | 2012 | 4.6 | 5.5 | 8.1 | 99.0 | 45.6 | 81.8 | 144.7 | 236.5 | 100.6 | 62.8 |
| **112** | 3884 | SOUTH INTERIOR KARNATAKA | 2013 | 0.5 | 10.1 | 11.7 | 34.6 | 95.6 | 176.2 | 307.4 | 151.7 | 191.8 | 103.7 |
| **113** | 3885 | SOUTH INTERIOR KARNATAKA | 2014 | 0.4 | 2.4 | 17.7 | 46.7 | 130.5 | 106.8 | 271.6 | 254.6 | 161.6 | 152.9 |
| **114** | 3886 | SOUTH INTERIOR KARNATAKA | 2015 | 1.7 | 0.2 | 24.4 | 80.5 | 125.3 | 218.7 | 112.0 | 136.6 | 164.5 | 106.1 |

115 rows × 20 columns

In [49]:
```
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 [50]:
```
b=a.fillna(method='ffill')
b
```

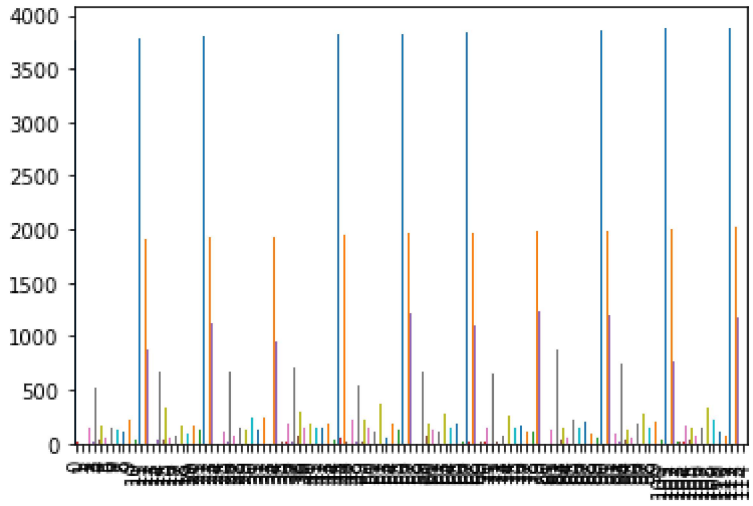
Out[50]:

| | index | SUBDIVISION | YEAR | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 3772 | SOUTH INTERIOR KARNATAKA | 1901 | 4.9 | 31.8 | 3.0 | 32.7 | 109.6 | 106.0 | 210.0 | 109.2 | 140.8 | 170.1 |
| **1** | 3773 | SOUTH INTERIOR KARNATAKA | 1902 | 1.9 | 0.5 | 6.7 | 42.6 | 97.7 | 91.7 | 210.0 | 82.1 | 138.4 | 219.1 |
| **2** | 3774 | SOUTH INTERIOR KARNATAKA | 1903 | 0.3 | 0.0 | 1.1 | 11.6 | 125.1 | 129.7 | 284.4 | 155.7 | 197.1 | 154.2 |
| **3** | 3775 | SOUTH INTERIOR KARNATAKA | 1904 | 1.0 | 0.5 | 5.2 | 43.5 | 144.7 | 167.9 | 197.1 | 73.2 | 89.6 | 120.4 |
| **4** | 3776 | SOUTH INTERIOR KARNATAKA | 1905 | 1.7 | 7.9 | 14.2 | 23.6 | 118.6 | 95.9 | 148.4 | 140.6 | 43.1 | 142.8 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **110** | 3882 | SOUTH INTERIOR KARNATAKA | 2011 | 2.1 | 12.4 | 12.4 | 80.2 | 83.5 | 177.1 | 202.4 | 199.5 | 111.2 | 144.8 |
| **111** | 3883 | SOUTH INTERIOR KARNATAKA | 2012 | 4.6 | 5.5 | 8.1 | 99.0 | 45.6 | 81.8 | 144.7 | 236.5 | 100.6 | 62.8 |
| **112** | 3884 | SOUTH INTERIOR KARNATAKA | 2013 | 0.5 | 10.1 | 11.7 | 34.6 | 95.6 | 176.2 | 307.4 | 151.7 | 191.8 | 103.7 |
| **113** | 3885 | SOUTH INTERIOR KARNATAKA | 2014 | 0.4 | 2.4 | 17.7 | 46.7 | 130.5 | 106.8 | 271.6 | 254.6 | 161.6 | 152.9 |
| **114** | 3886 | SOUTH INTERIOR KARNATAKA | 2015 | 1.7 | 0.2 | 24.4 | 80.5 | 125.3 | 218.7 | 112.0 | 136.6 | 164.5 | 106.1 |

115 rows × 20 columns

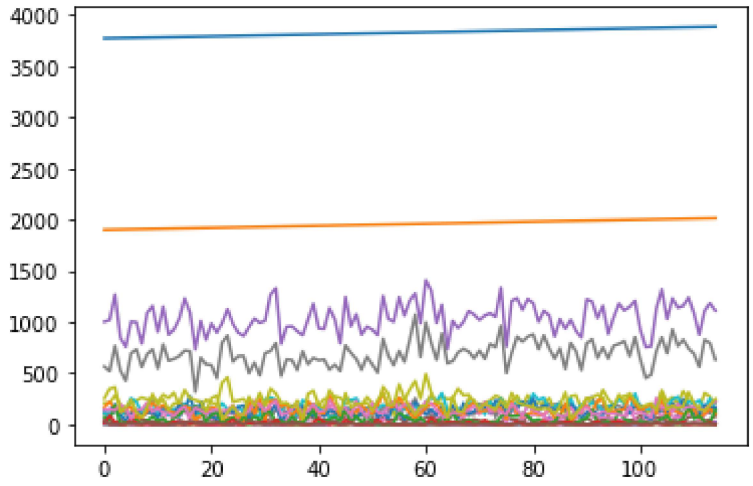
In [51]:
```
b.plot.bar(legend=None)
```

Out[51]: <AxesSubplot:>



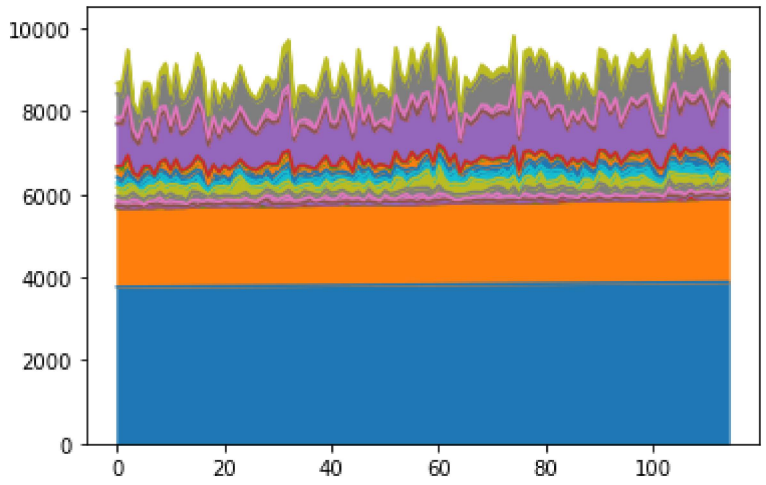

In [52]:
```
b.plot.line(legend=None)
```

Out[52]: <AxesSubplot:>



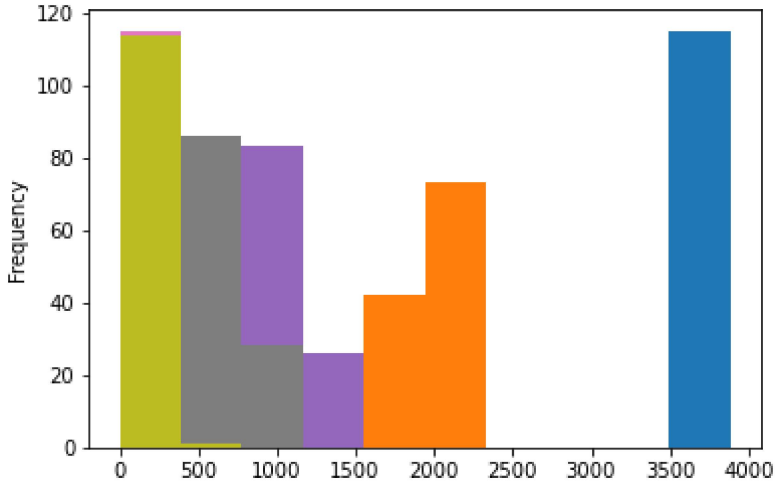
In [53]:
```
b.plot.area(legend=None)
```

Out[53]: <AxesSubplot:>




In [54]:
```
b.plot.hist(legend=None)
```

Out[54]: <AxesSubplot:ylabel='Frequency'>



In [55]:
```
b.plot.pie(y='YEAR',figsize=(8,8),labels=None,legend=None)
```

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