In [1]:
```
import pandas as pd
from bs4 import BeautifulSoup
import requests
import re
```

In [2]:
```
request=requests.get("http://books.toscrape.com/")
```

In [3]:
```
soup=BeautifulSoup(request.text,'html.parser')
```

Title of Website

In [4]:
```

title=re.sub('[\n|-]','',soup.title.text).lstrip()
title
```

Out[4]:
```
'All products  Books to Scrape  Sandbox'
```

In [5]:
```
## Creating f(x) which convert str rating to the integer
def rating_str_to_num_conversion(rating_txt):
    rating_list=list()
    for r in rating_txt:
        if r=='One':
            rating_list.append(1)
        elif r=='Two':
            rating_list.append(2)
        elif r=='Three':
            rating_list.append(3)
        elif r=='Four':
            rating_list.append(4)
        elif r=='Five':
            rating_list.append(5)

    return rating_list
```

In [6]:
```
## geting all rating of the one page
def get_rating_list(soup,rating_arr):
    a=soup.find_all('p',class_='star-rating')
    rating_txt=re.findall('Three|One|Four|Two|Five',str(a))
    rating_list=rating_str_to_num_conversion(rating_txt)
    for i in rating_list:
        rating_arr.append(i)
    return rating_arr
```

In [7]:
```python
## geting all book names of the one page
def get_books_name(soup,book_name_arr):
    a=soup.find_all('h3')
    books_titles=[i.text for i in a]
    for i in books_titles:
        book_name_arr.append(i)
    return book_name_arr
```

In [8]:
```python
## geting all book prices of the one page
def get_book_prices(soup,book_arr):
    l=soup.find_all('p',attrs={'class':'price_color'})
    books_prices=[i.text for i in l]
    for i in books_prices:
        book_arr.append(i)
    return book_arr
```

In [9]:
```python
## geting all whether book is available or not of the one page
def check_book_availability(soup,books_arr):
    z=soup.find_all('p',class_='instock availability')
    books_data=[re.sub('[\n]','',i.text.strip()) for i in z]
    for i in books_data:
        books_arr.append(i)
    return books_arr
```

In [10]:
```python
url='http://books.toscrape.com/catalogue'
rating_list=list()
book_list=list()
book_prices_list=list()
book_availability_list=list()
for page in range(1,50):

    request=requests.get(url+'/page-'+str(page)+'.html')
    soup=BeautifulSoup(request.text,'html.parser')
    rating_list=get_rating_list(soup,rating_list)
    book_list=get_books_name(soup,book_list)
    book_prices_list=get_book_prices(soup,book_prices_list)
    book_availability_list=check_book_availability(soup,book_availability_lis
```

Creating the DataFrame

In [11]:
```
df=pd.DataFrame({
    'Books_Name':book_list,
    'Books_Price':book_prices_list,
    'Rating':rating_list,
    'Availability_Stock':book_availability_list
})
df.head()
```

Out[11]:

	Books_Name	Books_Price	Rating	Availability_Stock
0	A Light in the ...	Â£51.77	3	In stock
1	Tipping the Velvet	Â£53.74	1	In stock
2	Soumission	Â£50.10	1	In stock
3	Sharp Objects	Â£47.82	4	In stock
4	Sapiens: A Brief History ...	Â£54.23	5	In stock

In [12]:
```
df.to_csv(title+'.csv',index=False)
```

In [40]:
```
df=pd.read_csv("All products  Books to Scrape  Sandbox.csv")
```

In [41]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 980 entries, 0 to 979
Data columns (total 4 columns):
 #   Column              Non-Null Count  Dtype 
---  ------              --------------  ----- 
 0   Books_Name          980 non-null    object
 1   Books_Price         980 non-null    object
 2   Rating              980 non-null    int64 
 3   Availability_Stock  980 non-null    object
dtypes: int64(1), object(3)
memory usage: 30.8+ KB
```

In [14]:
```
df.head()['Books_Name']
```

Out[14]:
```
0              A Light in the ...
1              Tipping the Velvet
2                      Soumission
3                   Sharp Objects
4    Sapiens: A Brief History ...
Name: Books_Name, dtype: object
```

Visualizing the data

Matplotlib Visualization

In [15]:
```
import matplotlib.pyplot as plt
```

In [43]:
```
# converting book_price column into the float
str_book_price=df['Books_Price'].str.replace('Â£','')
df['Books_Price']=str_book_price.astype(float)
```

In [47]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 980 entries, 0 to 979
Data columns (total 4 columns):
 #   Column              Non-Null Count  Dtype  
---  ------              --------------  -----  
 0   Books_Name          980 non-null    object 
 1   Books_Price         980 non-null    float64
 2   Rating              980 non-null    int64  
 3   Availability_Stock  980 non-null    object 
dtypes: float64(1), int64(1), object(2)
memory usage: 30.8+ KB
```

In [48]:
```
df
```

Out[48]:

	Books_Name	Books_Price	Rating	Availability_Stock
0	A Light in the ...	51.77	3	In stock
1	Tipping the Velvet	53.74	1	In stock
2	Soumission	50.10	1	In stock
3	Sharp Objects	47.82	4	In stock
4	Sapiens: A Brief History ...	54.23	5	In stock
...	...	...	...	...
975	Icing (Aces Hockey #2)	40.44	4	In stock
976	Hawkeye, Vol. 1: My ...	45.24	3	In stock
977	Having the Barbarian's Baby ...	34.96	4	In stock
978	Giant Days, Vol. 1 ...	56.76	4	In stock
979	Fruits Basket, Vol. 1 ...	40.28	5	In stock

980 rows × 4 columns

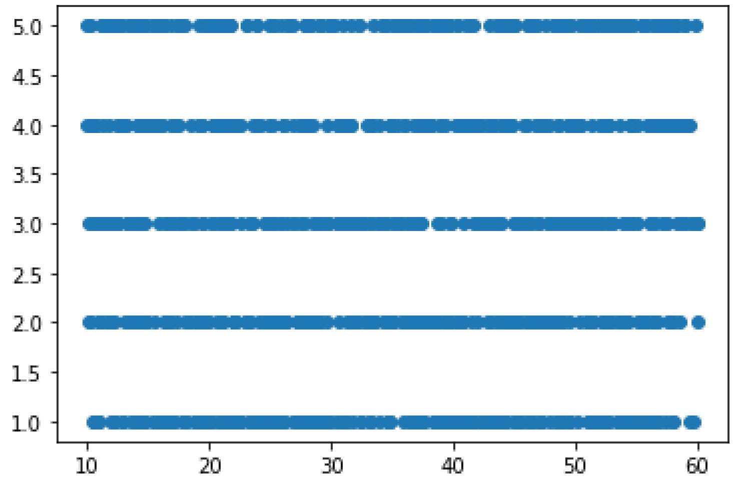
In [46]:
```
# top 10 largest rating

top_10=df.nlargest(n=10,columns=['Rating'])
top_10
```

Out[46]:

	Books_Name	Books_Price	Rating	Availability_Stock
4	Sapiens: A Brief History ...	54.23	5	In stock
12	Set Me Free	17.46	5	In stock
13	Scott Pilgrim's Precious Little ...	52.29	5	In stock
14	Rip it Up and ...	35.02	5	In stock
23	Chase Me (Paris Nights ...	25.27	5	In stock
24	Black Dust	34.53	5	In stock
28	Worlds Elsewhere: Journeys Around ...	40.30	5	In stock
30	The Four Agreements: A ...	17.66	5	In stock
32	The Elephant Tree	23.82	5	In stock
34	Sophie's World	15.94	5	In stock

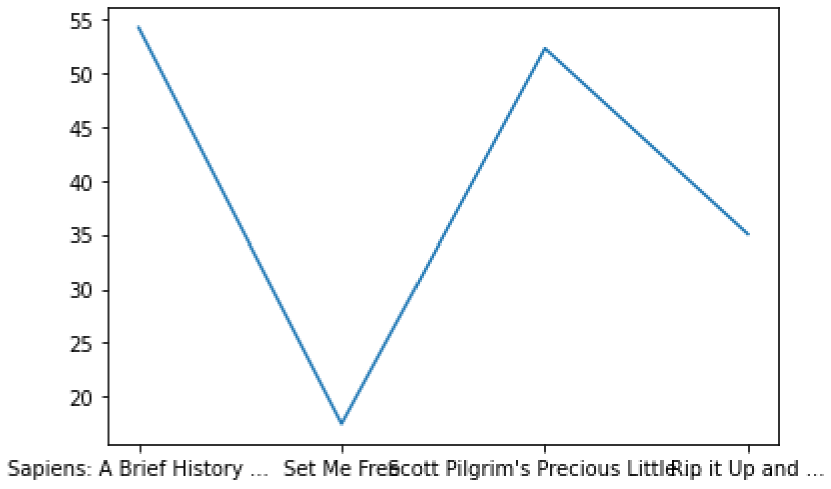
In [59]:
```
plt.scatter(df['Books_Price'],df['Rating'])
```

Out[59]:
```
<matplotlib.collections.PathCollection at 0x20a0a75e700>
```

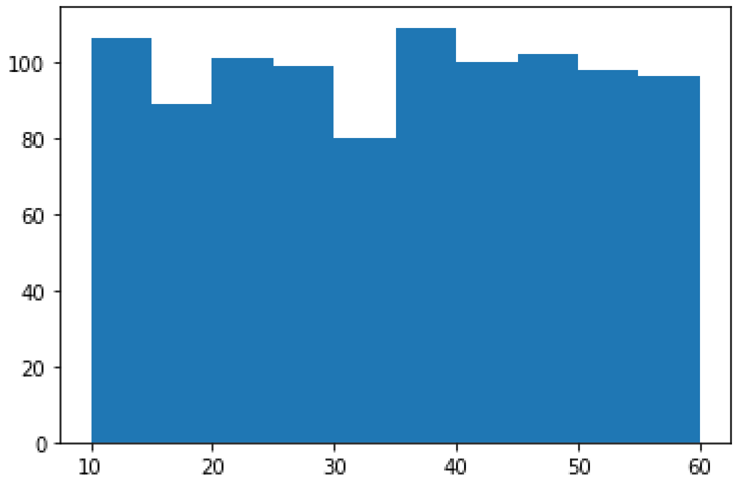


In [58]:
```
plt.plot(top_10['Books_Name'].head(4),top_10['Books_Price'].head(4))
```

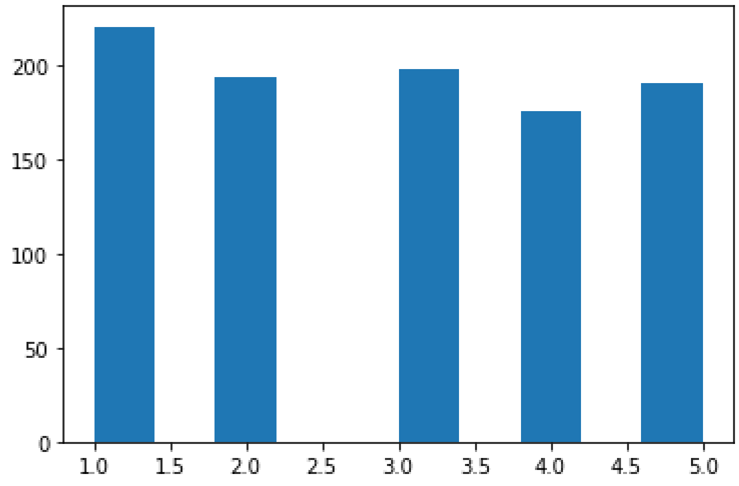
Out[58]:
```
[<matplotlib.lines.Line2D at 0x20a0a7060d0>]
```



In [62]:
```
plt.hist(df['Books_Price']);
```



In [64]:
```
plt.hist(df['Rating']);
```



In [81]:
```
(df['Rating'].value_counts()/980)*100
```

Out[81]:
```
1    22.551020
3    20.204082
2    19.795918
5    19.489796
4    17.959184
Name: Rating, dtype: float64
```

In [88]:
```
rating_vals=df['Rating'].value_counts()
rating_vals.sort_index(inplace=True)
rating_vals
```

Out[88]:
```
1    221
2    194
3    198
4    176
5    191
Name: Rating, dtype: int64
```

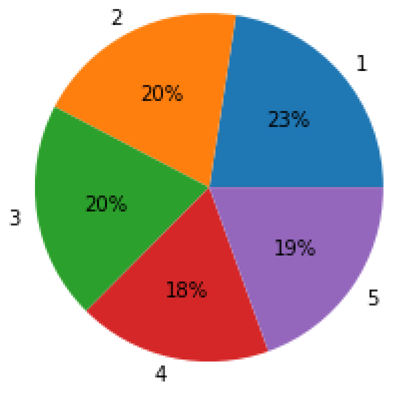
In [96]:
```
rating_vals=(rating_vals/980)*100
rating_vals
```

Out[96]:
```
1    22.551020
2    19.795918
3    20.204082
4    17.959184
5    19.489796
Name: Rating, dtype: float64
```

In [94]:
```
distinct_rating_label=df['Rating'].unique()
distinct_rating_label.sort()
distinct_rating_label
```

Out[94]:
```
array([1, 2, 3, 4, 5], dtype=int64)
```

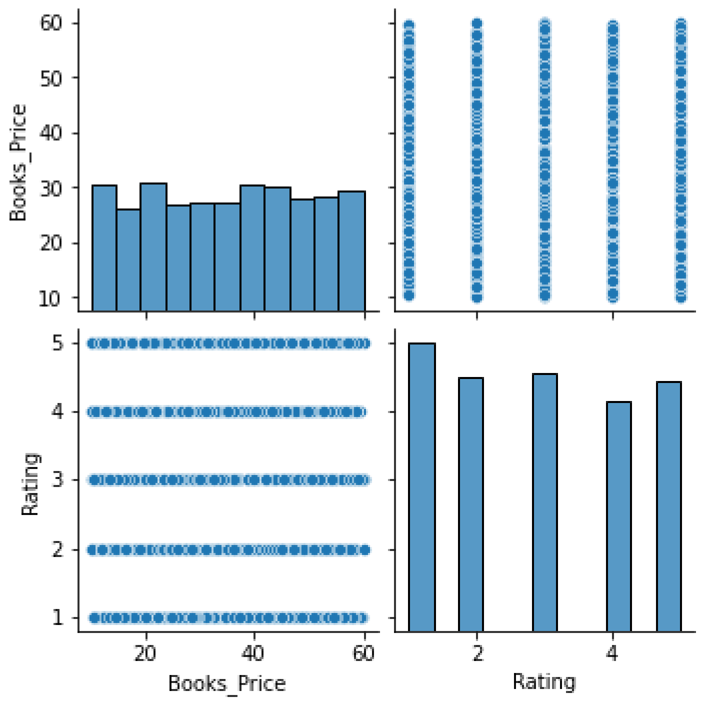
In [98]:
```
plt.pie(rating_vals,labels=distinct_rating_label,autopct='%.0f%%');
```



Seaborn Visualization

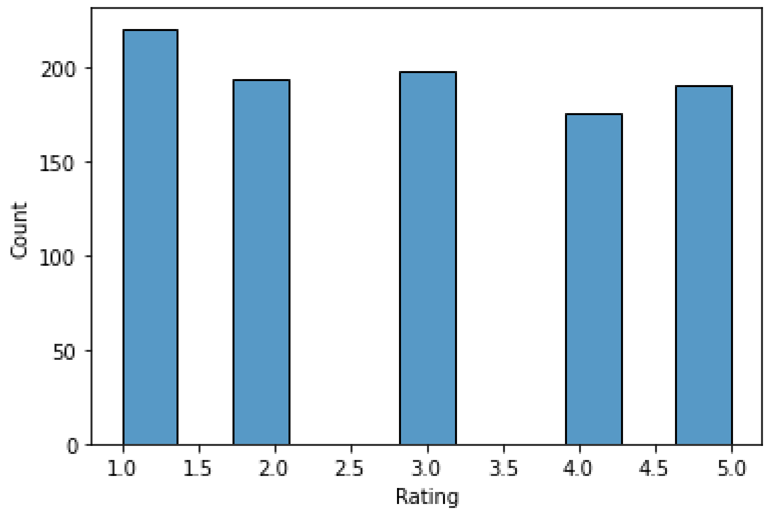
In [60]:
```
import seaborn as sns
sns.pairplot(df)
```

Out[60]:
```
<seaborn.axisgrid.PairGrid at 0x20a0a79d220>
```



In [71]:
```
sns.histplot(df['Rating'])
```

Out[71]:
```
<AxesSubplot:xlabel='Rating', ylabel='Count'>
```



In [ ]:
```
```