


```
In [4]: Soup = BeautifulSoup(data, "html.parser")
        Soup.prettify
```

```
Out[4]: <bound method Tag.prettify of <!DOCTYPE html>
<html lang="en"><head><link href="https://rukminim2.flixcart.com" rel
="preconnect"/><link href="//static-assets-web.flixcart.com/fk-p-linchp
in-web/fk-cp-zion/css/app_modules.chunk.905c37.css" rel="stylesheet"/><
link href="//static-assets-web.flixcart.com/fk-p-linchpin-web/fk-cp-zio
n/css/app.chunk.615ed9.css" rel="stylesheet"/><meta content="text/html;
charset=utf-8" http-equiv="Content-type"/><meta content="IE=Edge" http-
equiv="X-UA-Compatible"/><meta content="102988293558" property="fb:page
_id"/><meta content="658873552,624500995,100000233612389" property="fb:
admins"/><meta content="noodp" name="robots"/><link href="https://www/
promos/new/20150528-140547-favicon-retina.ico" rel="shortcut icon"/><li
nk href="/osdd.xml?v=2" rel="search" type="application/opensearchdescri
ption+xml"/><meta content="website" property="og:type"/><meta content
="Flipkart.com" name="og_site_name" property="og:site_name"/><link href
="/apple-touch-icon-57x57.png" rel="apple-touch-icon" sizes="57x57"/><l
ink href="/apple-touch-icon-72x72.png" rel="apple-touch-icon" sizes="72
x72"/><link href="/apple-touch-icon-114x114.png" rel="apple-touch-icon"
sizes="114x114"/><link href="/apple-touch-icon-144x144.png" rel="apple-
touch-icon" sizes="144x144"/><link href="/apple-touch-icon-57x57.png" r
```

STEP 3:- HTML tree traversal

Commonly Used Types Of Objects:

- (1) Tag
- (2) Navigablestring
- (3) BeautifulSoup
- (4) Comment

Google Pixel 7a

```
In [5]: title=Soup.title
        title
```

```
Out[5]: <title>Google Pixel 7a (Sea, 128 GB) (8 GB RAM)</title>
```

(1) Check The Product Price:-

```
In [7]: Price = Soup.find_all(class_="_30jeq3 _16Jk6d")
        Price[0].get_text()
```

```
Out[7]: '₹40,999'
```

(2) Get All The Customers Names In This HTML Page:-

```
In [8]: names = Soup.find_all(class_="_2sc7ZR _2V5EHH")
names=list(names)
print(type(names))
print(names)

len(names)
```

```
<class 'list'>
[<p class="_2sc7ZR _2V5EHH">Vishal Roy</p>, <p class="_2sc7ZR _2V5EHH">Suryakanta Prusty</p>, <p class="_2sc7ZR _2V5EHH">Rohith A S</p>, <p class="_2sc7ZR _2V5EHH">Wazahat Ali</p>, <p class="_2sc7ZR _2V5EHH">aditya mandor</p>, <p class="_2sc7ZR _2V5EHH">Masud Rana</p>, <p class="_2sc7ZR _2V5EHH">Risha Kashyap </p>, <p class="_2sc7ZR _2V5EHH">Lissiyas Antony</p>, <p class="_2sc7ZR _2V5EHH">Azar H</p>, <p class="_2sc7ZR _2V5EHH">Yash Jan gra</p>]
```

Out[8]: 10

(3) Get All The Customers Names In List Form:-

```
In [10]: cust_name = []
for i in names:
    cust_name.append(i.get_text())
cust_name
```

Out[10]: ['Vishal Roy',
'Suryakanta Prusty',
'Rohith A S',
'Wazahat Ali',
'aditya mandor',
'Masud Rana',
'Risha Kashyap ',
'Lissiyas Antony',
'Azar H',
'Yash Jangra']

(4) Get All The Customers Comments On This Product:-

```
In [12]: Comment = Soup.find_all(class_="_2-N8zT")
Comment
```

Out[12]: [<p class="_2-N8zT">Brilliant</p>,
<p class="_2-N8zT">Good</p>,
<p class="_2-N8zT">Terrific purchase</p>,
<p class="_2-N8zT">Delightful</p>,
<p class="_2-N8zT">Great product</p>,
<p class="_2-N8zT">Good choice</p>,
<p class="_2-N8zT">Terrific</p>,
<p class="_2-N8zT">Excellent</p>,
<p class="_2-N8zT">Super!</p>,
<p class="_2-N8zT">Pretty good</p>]

(5) Get All The Customers Comments In List Form:-

```
In [13]: Review_Comment = []  
         for i in Comment:  
             Review_Comment.append(i.get_text())  
         Review_Comment
```

```
Out[13]: ['Brilliant',  
          'Good',  
          'Terrific purchase',  
          'Delightful',  
          'Great product',  
          'Good choice',  
          'Terrific',  
          'Excellent',  
          'Super!',  
          'Pretty good']
```

(6) Check How Much STARS Gives Customers To This Product:-

(STARS RATING OUT OF 5 STARS)

```
In [14]: Stars = Soup.find_all("div",class_="_3LWZlK _1BLPMq")
Stars
```

```
Out[14]: [<div class="_3LWZlK _1BLPMq">5</div>,
  <div class="_3LWZlK _1BLPMq">3</div>,
  <div class="_3LWZlK _1BLPMq">5</div>,
  <div class="_3LWZlK _1BLPMq">4</div>,
  <div class="_3LWZlK _1BLPMq">5</div>,
  <div class="_3LWZlK _1BLPMq">4</div>,
  <div class="_3LWZlK _1BLPMq">5</div>,
  <div class="_3LWZlK _1BLPMq">5</div>,
  <div class="_3LWZlK _1BLPMq">5</div>,
  <div class="_3LWZlK _1BLPMq">4</div>]
```

(7) Check How Much STARS Gives Customers To This Product In List Form:-

(STARS RATING OUT OF 5 STARS)

```
In [15]: Review_Stars = []  
         for i in range(0, len(Stars)):  
             Review_Stars.append(Stars[i].get_text())  
         Review_Stars
```

```
Out[15]: ['5', '3', '5', '4', '5', '4', '5', '5', '5', '4']
```

(8) Get All The Customers Review To This Product:-

```
In [16]: Review = Soup.find_all("div",class_="t-ZTKy")
Review
```

```
Out[16]: [<div class="t-ZTKy"><div><div class="">Google need to fix the battery issue and heating issue.<br>Overall phone awesome</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">I'm using pixel since 4months, camera is awesome but<br>If you r interested in gaming and using device maximum times. then its not for you.</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">Nice design and colour camera is at its peak as far as now</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">Nice Phone</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">Using it for two days now, I can see why people are complaining about the heating but I haven't bought it for gaming so not a problem for me, camera design build quality and os are perfect, the only complaint I have is that they should include screen protector in box as this is recent release and its not available anywhere in market also the 2 other accessories in box are completely useless. If anyone is looking for this details but 7 back cover fits fine and custom cut screen protector for S...</div><span class="_1BWGvX"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">Its extraordinary, something new, everything thing is good about this phone except the battery life</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">A great camera phone. The colour science is pretty good. And the display is decent enough. But the night videos are not worth it. <br/>And it is not made for extensive gaming.</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">Update:<br>Heats a Lot , if you are living in a state with more than 32 degree. dont go for it because it heats a lot<br><br>Pros.<br><br>Camera<br>Os <br>Display<br>Chip(not for extreme gaming) - optimized with os makes a better user experience. The chip delivers near flagship grade performance. But not the best chip for long gaming sessions<br><br>Cons<br><br>Charging time is a high<br><br>Heating is Normal but some times it heats a little. Maybe it's because of the two x1 chip design and the x1 is an ML powerhouse which is a big...</div><span class="_1BWGvX"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">Very good phone camera is next level 🥰👍</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>,
  <div class="t-ZTKy"><div><div class="">Camera Is Excellent. <br>Processor is good for light gaming<br>Software experience is excellent<br>Charging is too slow <br>Battery backup is good <br>Overall phone is good for premium users</div><span class="_1H-bmy"><span>READ MORE</span></span></div></div>]
```

(9) Get All The Customers Review To This Product In List Form:-

```
In [17]: Content_Review = []  
for i in range(0,len(Review)):  
    Content_Review.append(Review[i].get_text())  
Content_Review
```

```
Out[17]: ['Google need to fix the battery issue and heating issue.Overall phone awe  
someREAD MORE',  
        "I'm using pixel since 4months, camera is awesome butIf you r interested  
in gaming and using device maximum times. then its not for you.READ MORE",  
        'Nice design and colour camer is at its peak as far as nowREAD MORE',  
        'Nice PhoneREAD MORE',  
        "Using it for two days now, I can see why people are complaining about th  
e heating but I haven't bought it for gaming so not a problem for me, came  
ra design build quality and os are perfect, the only complaint I have is t  
hat they should include screen protector in box as this is recent release  
and its not available anywhere in market also the 2 other accessories in b  
ox are completely useless. If anyone is looking for this details but 7 bac  
k cover fits fine and custom cut screen protector for S...READ MORE",  
        'Its extraordinary, something new, everything thing is good about this ph  
one except the battery lifeREAD MORE',  
        'A great camera phone. The colour science is pretty good. And the display  
is decent enough. But the night videos are not worth it. And it is not mad  
e for extensive gaming.READ MORE',  
        "Update:Heats a Lot , if you are living in a state with more than 32 degr  
ee. dont go for it because it heats a lotPros.CameraOs DisplayChip(not for  
extreme gaming) - optimized with os makes a better user experience. The c  
hip delivers near flagship grade performance. But not the best chip for lo  
ng gaming sessionsConsCharging time is a highHeating is Normal but some t  
imes it heats a little. Maybe it's because of the two x1 chip design and t  
he x1 is an ML powerhouse which is a big...READ MORE",  
        'Very good phone camera is next level 🥰👍 READ MORE',  
        'Camera Is Excellent. Processor is good for light gamingSoftware experien  
ce is excellentCharging is too slow Battery backup is good Overall phone i  
s good for premium usersREAD MORE']
```

(10) Get All The Likes And Dislikes To Customers Review:-


```
In [18]: LikesDislikes = Soup.find_all(class_="_3c3Px5")
LikesDislikes
```

```
Out[18]: [<span class="_3c3Px5">1060</span>,
<span class="_3c3Px5">198</span>,
<span class="_3c3Px5">173</span>,
<span class="_3c3Px5">25</span>,
<span class="_3c3Px5">1088</span>,
<span class="_3c3Px5">213</span>,
<span class="_3c3Px5">133</span>,
<span class="_3c3Px5">20</span>,
<span class="_3c3Px5">85</span>,
<span class="_3c3Px5">11</span>,
<span class="_3c3Px5">370</span>,
<span class="_3c3Px5">74</span>,
<span class="_3c3Px5">64</span>,
<span class="_3c3Px5">8</span>,
<span class="_3c3Px5">161</span>,
<span class="_3c3Px5">29</span>,
<span class="_3c3Px5">50</span>,
<span class="_3c3Px5">6</span>,
<span class="_3c3Px5">63</span>,
<span class="_3c3Px5">9</span>,
<span class="_3c3Px5">229</span>,
<span class="_3c3Px5">71</span>,
<span class="_3c3Px5">111</span>,
<span class="_3c3Px5">32</span>,
<span class="_3c3Px5">19</span>,
<span class="_3c3Px5">5</span>,
<span class="_3c3Px5">5</span>,
<span class="_3c3Px5">0</span>,
<span class="_3c3Px5">17</span>,
<span class="_3c3Px5">6</span>,
<span class="_3c3Px5">4</span>,
<span class="_3c3Px5">0</span>,
<span class="_3c3Px5">5</span>,
<span class="_3c3Px5">0</span>,
<span class="_3c3Px5">156</span>,
<span class="_3c3Px5">129</span>,
<span class="_3c3Px5">7</span>,
<span class="_3c3Px5">1</span>,
<span class="_3c3Px5">12</span>,
<span class="_3c3Px5">4</span>]
```

(11) Get All The Likes And Dislikes To Customers Review In List Form:-

```
In [22]: Product_LikesDislikes = []  
         for i in range(10, len(LikesDislikes)):  
             Product_LikesDislikes.append(LikesDislikes[i].get_text())  
         Product_LikesDislikes
```

```
Out[22]: ['370',  
          '74',  
          '64',  
          '8',  
          '161',  
          '29',  
          '50',  
          '6',  
          '63',  
          '9',  
          '229',  
          '71',  
          '111',  
          '32',  
          '19',  
          '5',  
          '5',  
          '0',  
          '17',  
          '6',  
          '4',  
          '0',  
          '5',  
          '0',  
          '156',  
          '129',  
          '7',  
          '1',  
          '12',  
          '4']
```

```
In [24]: like=[]
dislike=[]
for i in range(10,len(Product_LikesDislikes)):
    print(i)
    if i%2==0:
        like.append(Product_LikesDislikes[i])
    elif i%2!=0:
        dislike.append(Product_LikesDislikes[i])

print(like)
print(dislike)
```

```
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
['229', '111', '19', '5', '17', '4', '5', '156', '7', '12']
['71', '32', '5', '0', '6', '0', '0', '129', '1', '4']
```

Applying a Tabular Data Structure

```
In [25]: import pandas as pd
```

```
In [26]: Consolidated_data = pd.DataFrame({"Customers_Name": cust_name, "Review_Comme
print(Consolidated_data)
```

	Customers_Name	Review_Comment	Review_Stars	\
101	Vishal Roy	Brilliant	5	
102	Suryakanta Prusty	Good	3	
103	Rohith A S	Terrific purchase	5	
104	Wazahat Ali	Delightful	4	
105	aditya mandor	Great product	5	
106	Masud Rana	Good choice	4	
107	Risha Kashyap	Terrific	5	
108	Lissiyas Antony	Excellent	5	
109	Azar H	Super!	5	
110	Yash Jangra	Pretty good	4	

	Review	Likes	Dislikes
101	Google need to fix the battery issue and heati...	229	71
102	I'm using pixel since 4months, camera is aweso...	111	32
103	Nice design and colour camer is at its peak as...	19	5
104	Nice PhoneREAD MORE	5	0
105	Using it for two days now, I can see why peopl...	17	6
106	Its extraordinary, something new, everything t...	4	0
107	A great camera phone. The colour science is pr...	5	0
108	Update:Heats a Lot , if you are living in a st...	156	129
109	Very good phone camera is next level 🥰🔥 READ MORE	7	1
110	Camera Is Excellent. Processor is good for lig...	12	4

Exporting The DataSet Into a CSV File

```
In [27]: Consolidated_data.to_csv("Google_Pixel_7a_Review.csv")
```

```
In [28]: import os
os.getcwd()
```

```
Out[28]: 'C:\\Users\\acer\\Downloads'
```

```
In [30]: df1 = pd.read_csv("Google_Pixel_7a_Review.csv")
df1.head()
```

Out[30]:

	Unnamed: 0	Customers_Name	Review_Comment	Review_Stars	Review	Likes	Dislike
0	101	Vishal Roy	Brilliant	5	Google need to fix the battery issue and heati...	229	7
1	102	Suryakanta Prusty	Good	3	I'm using pixel since 4months, camera is aweso...	111	3
2	103	Rohith A S	Terrific purchase	5	Nice design and colour camer is at its peak as...	19	!
3	104	Wazahat Ali	Delightful	4	Nice PhoneREAD MORE	5	(
4	105	aditya mandor	Great product	5	Using it for two days now, I can see why peopl...	17	(

```
In [31]: df1.describe()
```

Out[31]:

	Unnamed: 0	Review_Stars	Likes	Dislikes
count	10.00000	10.000000	10.000000	10.000000
mean	105.50000	4.500000	56.500000	24.800000
std	3.02765	0.707107	80.335754	42.990438
min	101.00000	3.000000	4.000000	0.000000
25%	103.25000	4.000000	5.500000	0.250000
50%	105.50000	5.000000	14.500000	4.500000
75%	107.75000	5.000000	88.000000	25.500000
max	110.00000	5.000000	229.000000	129.000000

(12) Use .head() To Find First Five Data From DataSet:-

```
In [32]: df1.head()
```

Out[32]:

	Unnamed: 0	Customers_Name	Review_Comment	Review_Stars	Review	Likes	Dislike:
0	101	Vishal Roy	Brilliant	5	Google need to fix the battery issue and heati...	229	7
1	102	Suryakanta Prusty	Good	3	I'm using pixel since 4months, camera is aweso...	111	3:
2	103	Rohith A S	Terrific purchase	5	Nice design and colour camer is at its peak as...	19	!
3	104	Wazahat Ali	Delightful	4	Nice PhoneREAD MORE	5	(
4	105	aditya mandor	Great product	5	Using it for two days now, I can see why peopl...	17	(

```
(13) Use .tail() To Find Last Five Data From DataSet:-
```

In [33]: df1.tail()

Out[33]:

	Unnamed: 0	Customers_Name	Review_Comment	Review_Stars	Review	Likes	Dislike
5	106	Masud Rana	Good choice	4	Its extraordinary, something new, everything t...	4	
6	107	Risha Kashyap	Terrific	5	A great camera phone. The colour science is pr...	5	
7	108	Lissiyas Antony	Excellent	5	Update:Heats a Lot , if you are living in a st...	156	12
8	109	Azar H	Super!	5	Very good phone camera is next level 🥰 🔥 READ MORE	7	
9	110	Yash Jangra	Pretty good	4	Camera Is Excellnt. Processor is good for lig...	12	

(14) Use .info() To Get The Information Of DataSet:-

In [34]: df1.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 7 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Unnamed: 0      10 non-null    int64
1   Customers_Name  10 non-null    object
2   Review_Comment  10 non-null    object
3   Review_Stars    10 non-null    int64
4   Review          10 non-null    object
5   Likes          10 non-null    int64
6   Dislikes        10 non-null    int64
dtypes: int64(4), object(3)
memory usage: 692.0+ bytes
```

SORTING THE DATASET FILE

(15) Sorting The Names With Ascending Orders:-

```
In [35]: df1.Customers_Name.sort_values()
```

```
Out[35]: 8          Azar H
7    Lissiyas Antony
5          Masud Rana
6    Risha Kashyap
2    Rohith A S
1    Suryakanta Prusty
0    Vishal Roy
3    Wazahat Ali
9    Yash Jangra
4    aditya mandor
Name: Customers_Name, dtype: object
```

(16) Sorting The Names With Descending Orders:-

```
In [36]: df1.Customers_Name.sort_values(ascending=False)
```

```
Out[36]: 4    aditya mandor
9    Yash Jangra
3    Wazahat Ali
0    Vishal Roy
1    Suryakanta Prusty
2    Rohith A S
6    Risha Kashyap
5    Masud Rana
7    Lissiyas Antony
8    Azar H
Name: Customers_Name, dtype: object
```

FILTERING THE DATA

(17) Find The Customers Who Gives This Product 5 Stars:-

```
In [37]: df1[df1.Review_Stars==5]["Customers_Name"]
```

```
Out[37]: 0    Vishal Roy
2    Rohith A S
4    aditya mandor
6    Risha Kashyap
7    Lissiyas Antony
8    Azar H
Name: Customers_Name, dtype: object
```

(18) Find The Customers Who Gives This Product Less Than 5 stars:-

```
In [38]: df1[df1.Review_Stars<5]["Customers_Name"]
```

```
Out[38]: 1    Suryakanta Prusty
3    Wazahat Ali
5    Masud Rana
9    Yash Jangra
Name: Customers_Name, dtype: object
```


MULTIPLE FILTERING

(19) Check Only The Data Who Gives 5 Stars To This Product:-

```
In [41]: df1[(df1.Review_Stars>=5) & (df1.Customers_Name)]
```

Out[41]:

	Unnamed: 0	Customers_Name	Review_Comment	Review_Stars	Review	Likes	Dislike
0	101	Vishal Roy	Brilliant	5	Google need to fix the battery issue and heati...	229	7
2	103	Rohith A S	Terrific purchase	5	Nice design and colour camer is at its peak as...	19	
4	105	aditya mandor	Great product	5	Using it for two days now, I can see why peopl...	17	
6	107	Risha Kashyap	Terrific	5	A great camera phone. The colour science is pr...	5	
7	108	Lissiyas Antony	Excellent	5	Update:Heats a Lot , if you are living in a st...	156	12
8	109	Azar H	Super!	5	Very good phone camera is next level 🥰🔥 👉 READ MORE	7	

(20) Check Only The Data Who Gives Less Than 5 Stars To This Product:-

```
In [42]: df1[(df1.Review_Stars<5) & (df1.Customers_Name)]
```

```
Out[42]:
```

	Unnamed: 0	Customers_Name	Review_Comment	Review_Stars	Review	Likes	Dislike
1	102	Suryakanta Prusty	Good	3	I'm using pixel since 4months, camera is aweso...	111	3
3	104	Wazahat Ali	Delightful	4	Nice PhoneREAD MORE	5	
5	106	Masud Rana	Good choice	4	Its extraordinary, something new, everything t...	4	
9	110	Yash Jangra	Pretty good	4	Camera Is Excellent. Processor is good for lig...	12	

WE CAN APPLY STRING METHODS ALSO

(21) .upper() Method Convert All The LETTERS Into CAPITAL LETTERS:-

```
In [44]: df1.Customers_Name.str.upper()
```

```
Out[44]: 0      VISHAL ROY
1    SURYAKANTA PRUSTY
2      ROHITH A S
3     WAZAHAT ALI
4     ADITYA MANDOR
5      MASUD RANA
6     RISHA KASHYAP
7    LISSIIYAS ANTONY
8        AZAR H
9     YASH JANGRA
Name: Customers_Name, dtype: object
```

(22) .lower() Method Convert All The LETTERS Into Small LETTERS:-

```
In [45]: df1.Customers_Name.str.lower()
```

```
Out[45]: 0      vishal  roy
1  suryakanta prusty
2      rohith  a s
3      wazahat ali
4      aditya  mandor
5      masud  rana
6      risha  kashyap
7  lissiyas  antony
8      azar  h
9      yash  jangra
Name: Customers_Name, dtype: object
```

SLICING OPERATION IN DATASET

(23) Find Names AND Review Of The Location We Have Given:-

```
In [47]: df1.loc[[3,9,6],["Customers_Name","Review_Comment"]]
```

```
Out[47]:
```

	Customers_Name	Review_Comment
3	Wazahat Ali	Delightful
9	Yash Jangra	Pretty good
6	Risha Kashyap	Terrific