In [2]: import pandas as pd
 df=pd.read\_csv("F:\\New folder\\ML\\CSV files\\placement.csv")

In [3]: df

## Out[3]:

	cgpa	resume_score	placed
0	8.14	6.52	1
1	6.17	5.17	0
2	8.27	8.86	1
3	6.88	7.27	1
4	7.52	7.30	1
95	6.33	6.38	0
96	8.23	7.76	1
97	6.65	7.78	0
98	8.14	5.63	1
99	6.09	6.61	0

100 rows × 3 columns

# In [4]: | df.head()

## Out[4]:

	cgpa	resume_score	placed
0	8.14	6.52	1
1	6.17	5.17	0
2	8.27	8.86	1
3	6.88	7.27	1
4	7.52	7.30	1

## In [5]: df.tail()

## Out[5]:

	cgpa	resume_score	placed
95	6.33	6.38	0
96	8.23	7.76	1
97	6.65	7.78	0
98	8.14	5.63	1
99	6.09	6.61	0

```
df.describe()
 In [6]:
 Out[6]:
                    cgpa resume_score
                                           placed
           count 100.0000
                             100.000000 100.000000
                              6.930500
                                         0.500000
                   6.9422
           mean
                   1.1192
                              0.979608
                                         0.502519
             std
             min
                   5.2700
                              4.950000
                                         0.000000
            25%
                   5.9800
                              6.190000
                                         0.000000
            50%
                   6.6200
                              7.055000
                                         0.500000
            75%
                   8.0450
                              7.640000
                                         1.000000
                   9.4000
                              9.060000
                                         1.000000
            max
 In [7]: df.info()
          <class 'pandas.core.frame.DataFrame'>
          RangeIndex: 100 entries, 0 to 99
          Data columns (total 3 columns):
           #
                               Non-Null Count Dtype
                Column
                ----
                               100 non-null
                                                float64
           0
                cgpa
                resume_score 100 non-null
           1
                                                float64
                                                int64
           2
               placed
                               100 non-null
          dtypes: float64(2), int64(1)
          memory usage: 2.5 KB
In [10]: top_left_corner_df=df.iloc[:5,:3]
          top_left_corner_df
Out[10]:
             cgpa resume_score placed
           0
              8.14
                           6.52
                                     1
           1
              6.17
                           5.17
                                     0
           2
              8.27
                           8.86
                                     1
           3
              6.88
                           7.27
                                     1
              7.52
                           7.30
                                     1
In [12]:
          s=df.axes # we can take the rows
Out[12]: [RangeIndex(start=0, stop=100, step=1),
           Index(['cgpa', 'resume_score', 'placed'], dtype='object')]
In [13]: df.dtypes
Out[13]: cgpa
                           float64
                           float64
          resume_score
          placed
                              int64
```

dtype: object

```
In [17]: df.empty # checks the empty values
Out[17]: False
In [18]: df.ndim # number of dimension
Out[18]: 2
In [19]: df.shape
Out[19]: (100, 3)
In [20]: df.size
```

Out[20]: 300

In [22]: df.values # get the numpy are for dataframe

```
Out[22]: array([[8.14, 6.52, 1.
                  [6.17, 5.17, 0.
                                     ],
                  [8.27, 8.86, 1.
                                     ],
                  [6.88, 7.27, 1.
                                     ],
                  [7.52, 7.3, 1.
                                     ],
                  [8.77, 6.19, 1.
                                     ],
                  [5.34, 7.09, 0.
                                     ],
                  [6.56, 6.29, 0.
                                     ],
                  [6.32, 6.71, 0.
                                     ],
                  [7.69, 7.12, 1.
                                     ],
                  [6.18, 6.35, 0.
                                     ],
                  [5.44, 6.54, 0.
                                     ],
                                     ],
                  [6.09, 7.01, 0.
                  [8.5, 5.09, 1.
                                     ],
                  [7.51, 6.25, 1.
                                     ],
                  [8.88, 5.93, 1.
                                     ],
                  [8.04, 7.64, 1.
                                     ],
                  [7.81, 8.71, 1.
                                     ],
                  [5.94, 5.88, 0.
                                     ],
                  [6.75, 8.11, 1.
                                     ],
                  [5.8, 8.06, 0.
                                     ],
                  [6.53, 7.64, 0.
                                     ],
                  [6.16, 5.77, 0.
                                     ],
                  [6.05, 7.13, 0.
                                     ],
                  [8.22, 6.18, 1.
                                     ],
                  [7.76, 5.68, 1.
                                     ],
                  [6.27, 6.47, 0.
                                     ],
                  [5.51, 6.15, 0.
                                     ],
                  [7.46, 7.67, 1.
                                     ],
                  [6.19, 7.3, 0.
                                     ],
                  [7.36, 7.15, 1.
                                     ],
                  [5.92, 7.02, 0.
                                     ],
                  [5.87, 7.96, 0.
                                     ],
                  [8.43, 7.73, 1.
                                     ],
                  [8.87, 7.19, 1.
                                     ],
                  [8.07, 7.48, 1.
                                     ],
                  [8.16, 7.56, 1.
                                     ],
                  [9.05, 8.21, 1.
                                     ],
                  [6., 8.72, 0.
                                     ],
                  [7.5, 6.19, 1.
                                     ],
                  [8.25, 5.32, 1.
                                     ],
                  [8.68, 5.15, 1.
                                     ],
                  [6.9, 6.91, 1.
                                     ],
                  [8.21, 7.95, 1.
                                     ],
                  [5.47, 5.92, 0.
                                     ],
                  [8.1, 5.44, 1.
                                     ],
                  [5.83, 5.21, 0.
                                     ],
                  [7.05, 8.14, 1.
                                     ],
                  [5.54, 6.57, 0.
                                     ],
                                     ],
                  [5.46, 6.73, 0.
                  [8.22, 6.74, 1.
                                     ],
                  [6.54, 7.39, 0.
                                     ],
                  [5.9, 7.5, 0.
                                     ],
                  [6. , 7.16, 0.
                                     ],
                  [5.92, 7.18, 0.
                                     ],
                  [6.94, 6.87, 1.
                                     ],
                  [6.13, 6.43, 0.
                                     ],
                  [6.34, 7.21, 0.
                                     ],
                  [6.47, 7.37, 0.
                                     ],
                  [5.95, 7.57, 0.
                                     ],
                  [5.87, 6.64, 0.
                                     ],
```

```
[6.89, 7.96, 1.
                  ],
[5.75, 8.43, 0.
                  ],
[8.65, 7.58, 1.
                  ],
[7.93, 8.09, 1.
                  ],
[6.04, 8.75, 0.
                  ],
[8.35, 8.02, 1.
                  ],
[6.59, 6.81, 1.
                  ],
[6.01, 7.49, 0.
                  ],
[8.06, 9.06, 1.
                  ],
[7.12, 7.41, 1.
                  ],
[7.34, 8.22, 1.
                  ],
[7.63, 7.98, 1.
                  ],
[5.76, 6.48, 0.
                  ],
[5.54, 7.36, 0.
                  ],
[6.34, 7.94, 1.
                  ],
[9.4, 5.5, 1.
                  ],
[5.88, 6.92, 0.
                  ],
[5.79, 5.66, 0.
                  ],
[5.27, 7.28, 0.
                  ],
[7.83, 7.7, 1.
                  ],
[6.12, 6.72, 0.
                  ],
[7.92, 6.06, 1.
                  ],
[7.6 , 8.08, 1.
                  ],
[5.76, 6.49, 0.
                  ],
[6.72, 5.46, 0.
                  ],
[6.18, 5.76, 0.
                  ],
[5.62, 5.05, 0.
                  ],
[8.07, 6.07, 1.
                  ],
[5.99, 7.49, 0.
                  ],
[5.85, 5.56, 0.
                  ],
[8.28, 6.3, 1.
                  ],
[5.43, 6.18, 0.
                  ],
[9.31, 7.39, 1.
                  ],
[8.01, 4.95, 1.
                  ],
[6.33, 6.38, 0.
                  ],
[8.23, 7.76, 1.
                  ],
[6.65, 7.78, 0.
                  ],
[8.14, 5.63, 1.
                  ],
[6.09, 6.61, 0.
                  ]])
```

```
In [23]: a=df.copy()
```

In [24]: df.sort\_values(by='resume\_score')

## Out[24]:

	cgpa	resume_score	placed
94	8.01	4.95	1
87	5.62	5.05	0
13	8.50	5.09	1
41	8.68	5.15	1
1	6.17	5.17	0
17	7.81	8.71	1
38	6.00	8.72	0
65	6.04	8.75	0
2	8.27	8.86	1
69	8.06	9.06	1

100 rows × 3 columns

In [26]: df.sort\_index() # to sort the data index wise

## Out[26]:

	cgpa	resume_score	placed
0	8.14	6.52	1
1	6.17	5.17	0
2	8.27	8.86	1
3	6.88	7.27	1
4	7.52	7.30	1
95	6.33	6.38	0
96	8.23	7.76	1
97	6.65	7.78	0
98	8.14	5.63	1
99	6.09	6.61	0

100 rows × 3 columns

In [27]: b=df.astype(int) #tupe cov=nversion
# b=df["cgpa"].astype(int)
b

Out[27]:

	cgpa	resume_score	placed
0	8	6	1
1	6	5	0
2	8	8	1
3	6	7	1
4	7	7	1
95	6	6	0
96	8	7	1
97	6	7	0
98	8	5	1
99	6	6	0

100 rows × 3 columns

In [30]: df.add(4)
#df['cgpa']=df['cgpa'].add(4)

Out[30]: c

	cgpa	resume_score	placed
0	12.14	10.52	5
1	10.17	9.17	4
2	12.27	12.86	5
3	10.88	11.27	5
4	11.52	11.30	5
95	10.33	10.38	4
96	12.23	11.76	5
97	10.65	11.78	4
98	12.14	9.63	5
99	10.09	10.61	4

100 rows × 3 columns

In [31]:	df.abs()					
Out[31]:	cgpa	resume_score	placed			
	<b>0</b> 8.14	6.52	1			
	<b>1</b> 6.17	5.17	0			
	<b>2</b> 8.27	8.86	1			
	<b>3</b> 6.88	7.27	1			
	<b>4</b> 7.52	7.30	1			
	<b>95</b> 6.33	6.38	0			
	<b>96</b> 8.23	7.76	1			
	<b>97</b> 6.65	7.78	0			
	<b>98</b> 8.14	5.63	1			
	<b>99</b> 6.09	6.61	0			
	100 rows	× 3 columns				
In [32]:	df.count	:()				
Out[32]:	cgpa	100				
	resume_s placed	score 100 100				
	dtype: i	int64				
In [33]:	df.max()					
Out[33]:	cgpa	9.40				
	resume_s placed	score 9.06 1.00				
	dtype: f					
In [34]:	df.min()	<u> </u>				
Out[34]:	cgpa	5.27				
	resume_s	score 4.95 0.00				
	dtype: f					
In [35]:	df.media	an()				
Out[35]:	cgpa	6.62				
	resume_s placed	score 7.055 0.500				
	dtype: f		,			
In [36]:	df.mean(	()				
Out[36]:		6.94	22			
046[50].	cgpa resume_s	score 6.930	<b>9</b> 5			
	<pre>placed dtype: f</pre>	0.500 Float64	90			
	acype. I	10000				

```
In [37]: df.sum()
Out[37]: cgpa
                           694.22
          resume_score
                           693.05
                             50.00
          placed
          dtype: float64
In [39]: df.filter(items=['cgpa','placed'])
Out[39]:
              cgpa placed
            0 8.14
                        1
            1
               6.17
                        0
            2 8.27
                        1
            3
              6.88
                        1
               7.52
                        1
                ...
           95
               6.33
                        0
           96 8.23
                        1
           97
               6.65
                        0
           98 8.14
                        1
           99
               6.09
                        0
          100 rows × 2 columns
In [41]: df[['cgpa','placed']]
Out[41]:
              cgpa placed
            0 8.14
                        1
            1
               6.17
                        0
            2 8.27
                        1
            3 6.88
                        1
              7.52
                        1
           95
               6.33
                        0
           96
               8.23
                        1
           97
               6.65
                        0
```

98

99

8.14

6.09

100 rows × 2 columns

1

In [42]: df.filter(items=[5,6], axis=0) # for row=0 and column=1

Out[42]: cgpa res

	cgpa	resume_score	placed
5	8.77	6.19	1
6	5 34	7 09	0

In [43]: df.filter(like='5',axis=0) # return the data with index 5

Out[43]:

	cgpa	resume_score	placed
5	8.77	6.19	1
15	8.88	5.93	1
25	7.76	5.68	1
35	8.07	7.48	1
45	8.10	5.44	1
50	8.22	6.74	1
51	6.54	7.39	0
52	5.90	7.50	0
53	6.00	7.16	0
54	5.92	7.18	0
55	6.94	6.87	1
56	6.13	6.43	0
57	6.34	7.21	0
58	6.47	7.37	0
59	5.95	7.57	0
65	6.04	8.75	0
75	6.34	7.94	1
85	6.72	5.46	0
95	6.33	6.38	0

```
In [44]: df.to_dict() # to save in dictionary
Out[44]: {'cgpa': {0: 8.14,
            1: 6.17,
            2: 8.27,
            3: 6.88,
            4: 7.52,
            5: 8.77,
            6: 5.34,
            7: 6.56,
            8: 6.32,
            9: 7.69,
            10: 6.18,
            11: 5.44,
            12: 6.09,
            13: 8.5,
            14: 7.51,
            15: 8.88,
            16: 8.04,
            17: 7.81,
            18: 5.94,
```

In [45]: df.to\_string() # to save in string

Out[45]:         ' cgpa									
5.17         0\n2         8.27         8.86         1\n3         6.88         7.27           1\n4         7.52         7.30         1\n5         8.77         6.19         1\n6         5.3           6.71         0\n9         7.69         7.12         1\n10         6.18         6.32           0\n11         5.44         6.54         0\n12         6.09         7.01         0\n13         8.5           0\n11         5.44         6.54         0\n12         6.09         7.01         0\n13         8.5           0         5.09         1\n14         7.51         6.25         1\n15         8.88         8.5           1\n18         5.94         5.88         0\n19         6.75         1.11         1\n20         5.8           0         8.06         0\n21         6.53         7.64         0\n22         6.18           1\n25         7.76         5.68         1\n26         6.27         6.47         0\n27         5.5           1         6.15         0\n28         7.46         7.67         1\n29         6.19         7.13         1\n26         6.47         0\n27         5.5           1         6.13         7.46<	Out[45]:	' c	gpa resume	_score pla	ced\n0 8	3.14	6.52	1\n1 6	5.17
1\n4		5.17	0\n2	8.27	8.86	1\n3	6.88	7.27	
4         7.09         0\n7         6.56         6.29         0\n8         6.32           6.71         0\n9         7.69         7.12         1\n10         6.18         6.35           0\n11         5.44         6.54         0\n12         6.09         7.01         0\n13         8.5           0         5.09         1\n14         7.51         6.25         1\n15         8.88           5.93         1\n16         8.04         7.64         1\n17         7.81         8.71           1\n18         5.94         5.88         0\n12         6.75         8.11         1\n20         5.8           0         8.06         0\n21         6.53         7.64         0\n22         6.18           5.77         0\n23         6.05         7.13         0\n24         8.22         6.18           1\n25         7.76         5.68         1\n26         6.27         6.47         0\n27         5.5           1         6.15         0\n28         7.46         7.67         1\n29         6.19           7.30         0\n30         7.36         7.15         1\n31         5.92         7.02           0\n32         5.87         7.		1\n4	7.52	7.30	1\n5	8.77	6.19	1\n6	5.3
0\n11         5.44         6.54         0\n12         6.09         7.01         0\n13         8.5           0         5.09         1\n14         7.51         6.25         1\n15         8.88           5.93         1\n16         8.04         7.64         1\n17         7.81         8.71           1\n18         5.94         5.88         0\n19         6.75         8.11         1\n20         5.8           0         8.06         0\n21         6.53         7.64         0\n22         6.16         5.8           5.77         0\n25         7.15         0\n28         7.46         7.67         1\n29         6.19           7,30         0\n30         7.36         7.15         1\n31         5.92         7.62           0\n32         5.87         7.96         0\n33         8.43         7.73         1\n34         8.8           7         7.19         1\n35         8.07         7.48         1\n36         8.16           7.56         1\n37         9.05         8.21         1\n38         6.09         6.91         1\n43         8.21           7.95         1\n44         5.47         5.92         0\n54         8.10		4	7.09	0\n7	6.56	6.29	0\n8	6.32	
5.93         1\n16         8.04         7.64         1\n17         7.81         8.71           1\n18         5.84         5.88         0\n19         6.75         8.11         1\n20         5.8           0         8.06         0\n21         6.53         7.64         0\n22         6.16           5.77         0\n23         6.05         7.13         0\n24         8.22         6.18           1\n25         7.76         5.68         1\n26         6.27         6.47         0\n29         5.5           1         6.15         0\n28         7.46         7.67         1\n29         6.19           7.30         0\n30         7.36         7.15         1\n31         5.92         7.02           0\n32         5.87         7.96         0\n33         8.43         7.73         1\n34         8.8           7.50         1\n37         9.05         8.21         1\n38         6.00         8.72           0\n39         7.50         6.19         1\n40         8.25         5.32         1\n41         8.6           7.95         1\n44         5.47         5.92         0\n45         8.14         1\n44         8.2									
5.93         1\n16         8.04         7.64         1\n17         7.81         8.71           1\n18         5.84         5.88         0\n19         6.75         8.11         1\n20         5.8           0         8.06         0\n21         6.53         7.64         0\n22         6.16           5.77         0\n23         6.05         7.13         0\n24         8.22         6.18           1\n25         7.76         5.68         1\n26         6.27         6.47         0\n29         5.5           1         6.15         0\n28         7.46         7.67         1\n29         6.19           7.30         0\n30         7.36         7.15         1\n31         5.92         7.02           0\n32         5.87         7.96         0\n33         8.43         7.73         1\n34         8.8           7.50         1\n37         9.05         8.21         1\n38         6.00         8.72           0\n39         7.50         6.19         1\n40         8.25         5.32         1\n41         8.6           7.95         1\n44         5.47         5.92         0\n45         8.14         1\n44         8.2		0\n11	5.44	6.54	0\n12	6.09	7.01	0\n13	8.5
5.93         1\n16         8.04         7.64         1\n17         7.81         8.71           1\n18         5.84         5.88         0\n19         6.75         8.11         1\n20         5.8           0         8.06         0\n21         6.53         7.64         0\n22         6.16           5.77         0\n23         6.05         7.13         0\n24         8.22         6.18           1\n25         7.76         5.68         1\n26         6.27         6.47         0\n29         5.5           1         6.15         0\n28         7.46         7.67         1\n29         6.19           7.30         0\n30         7.36         7.15         1\n31         5.92         7.02           0\n32         5.87         7.96         0\n33         8.43         7.73         1\n34         8.8           7.50         1\n37         9.05         8.21         1\n38         6.00         8.72           0\n39         7.50         6.19         1\n40         8.25         5.32         1\n41         8.6           7.95         1\n44         5.47         5.92         0\n45         8.14         1\n44         8.2		0	5.09	1\n14	7.51	6.25	1\n15	8.88	
5.77         0 \n23         6.05         7.13         0 \n24         8.22         6.18           1 \n25         7.76         5.68         1 \n26         6.27         6.47         0 \n27         5.5           1         6.15         0 \n28         7.46         7.67         1 \n29         6.19           7.30         0 \n30         7.36         7.15         1 \n31         5.92         7.02           0 \n32         5.87         7.96         0 \n33         8.43         7.73         1 \n34         8.8           7         7.19         1 \n35         8.07         7.48         1 \n36         8.16           7.56         1 \n37         9.05         8.21         1 \n38         6.00         8.72           0 \n39         7.50         6.19         1 \n40         8.25         5.32         1 \n41         8.6           8         5.15         1 \n42         6.90         6.91         1 \n43         8.21           1 \n46         5.83         5.21         0 \n47         7.05         8.14         1 \n48         5.5           4         6.57         0 \n49         5.46         6.73         0 \n50         8.22		5.93	1\n16	8 04	7.64	1\n17	7.81	8.71	
5.77         0 \n23         6.05         7.13         0 \n24         8.22         6.18           1 \n25         7.76         5.68         1 \n26         6.27         6.47         0 \n27         5.5           1         6.15         0 \n28         7.46         7.67         1 \n29         6.19           7.30         0 \n30         7.36         7.15         1 \n31         5.92         7.02           0 \n32         5.87         7.96         0 \n33         8.43         7.73         1 \n34         8.8           7         7.19         1 \n35         8.07         7.48         1 \n36         8.16           7.56         1 \n37         9.05         8.21         1 \n38         6.00         8.72           0 \n39         7.50         6.19         1 \n40         8.25         5.32         1 \n41         8.6           8         5.15         1 \n42         6.90         6.91         1 \n43         8.21           1 \n46         5.83         5.21         0 \n47         7.05         8.14         1 \n48         5.5           4         6.57         0 \n49         5.46         6.73         0 \n50         8.22		1\n18	5.94	5.88	0\n19	6.75	8.11	1\n20	5.8
5.77         0 \n23         6.05         7.13         0 \n24         8.22         6.18           1 \n25         7.76         5.68         1 \n26         6.27         6.47         0 \n27         5.5           1         6.15         0 \n28         7.46         7.67         1 \n29         6.19           7.30         0 \n30         7.36         7.15         1 \n31         5.92         7.02           0 \n32         5.87         7.96         0 \n33         8.43         7.73         1 \n34         8.8           7         7.19         1 \n35         8.07         7.48         1 \n36         8.16           7.56         1 \n37         9.05         8.21         1 \n38         6.00         8.72           0 \n39         7.50         6.19         1 \n40         8.25         5.32         1 \n41         8.6           8         5.15         1 \n42         6.90         6.91         1 \n43         8.21           1 \n46         5.83         5.21         0 \n47         7.05         8.14         1 \n48         5.5           4         6.57         0 \n49         5.46         6.73         0 \n50         8.22		0	8.06	0\n21	6.53	7.64	0\n22	6.16	
1\n25       7.76       5.68       1\n26       6.27       6.47       0\n27       5.5         1       6.15       0\n30       7.36       0\n30       7.36       7.15       1\n31       5.92       7.02         0\n32       5.87       7.96       0\n33       8.43       7.73       1\n34       8.8         7       7.19       1\n35       8.07       7.48       1\n36       8.16         7.56       1\n37       9.05       8.21       1\n36       6.00       8.72         0\n39       7.50       6.19       1\n40       8.25       5.32       1\n41       8.6         8       5.15       1\n42       6.90       6.91       1\n43       8.21         7.95       1\n44       5.47       5.92       0\n45       8.10       5.44         1\n46       5.83       5.21       0\n47       7.05       8.14       1\n48       5.5         4       6.57       0\n49       5.46       6.73       0\n59       8.22       6.44       1\n50       6.44       6.87       1\n50       6.13       6.43       0\n57       6.9         4       6.87       1\n56       6.13       6.13		5.77	0\n23	6.05	7.13	0\n24	8.22	6.18	
7.30         0\n30         7.36         7.15         1\n31         5.92         7.02           0\n32         5.87         7.96         0\n33         8.43         7.73         1\n34         8.8           7         7.19         1\n35         8.07         7.48         1\n36         8.16           7.56         1\n37         9.05         8.21         1\n38         6.00         8.72           0\n39         7.50         6.19         1\n40         8.25         5.32         1\n41         8.6           8         5.15         1\n42         6.90         6.91         1\n43         8.21           7.95         1\n44         5.47         5.92         0\n45         8.10         5.44           1\n46         5.83         5.21         0\n47         7.05         8.14         1\n48         5.5           4         6.57         0\n49         5.46         6.73         0\n50         8.22           6.74         1\n51         6.54         7.39         0\n52         5.90         7.50           0\n53         6.00         7.16         0\n54         5.92         7.18         0\n55         6.9           4									
0\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		1	6.15	0\n28	7.46	7.67	1\n29	6.19	
7 7.19 1\n35 8.07 7.48 1\n36 8.16 7.56 1\n37 9.05 8.21 1\n38 6.00 8.72 0\n39 7.50 6.19 1\n40 8.25 5.32 1\n41 8.6 8 5.15 1\n42 6.90 6.91 1\n43 8.21 7.95 1\n44 5.47 5.92 0\n45 8.10 5.44 1\n46 5.83 5.21 0\n47 7.05 8.14 1\n48 5.5 4 6.57 0\n49 5.46 6.73 0\n50 8.22 6.74 1\n51 6.54 7.39 0\n52 5.90 7.50 0\n53 6.00 7.16 0\n54 5.92 7.18 0\n55 6.9 4 6.87 1\n56 6.13 6.43 0\n57 6.34 7.21 0\n58 6.47 7.37 0\n59 5.95 7.57 0\n60 5.87 6.64 0\n61 6.89 7.96 1\n62 5.7 5 8.43 0\n63 8.65 7.58 1\n64 7.93 8.09 1\n65 6.04 8.75 0\n66 8.35 8.02 1\n67 6.59 6.81 1\n68 6.01 7.49 0\n69 8.0 6 9.06 1\n70 7.12 7.41 1\n71 7.34 8.22 1\n72 7.63 7.98 1\n73 5.76 6.48 0\n74 5.54 7.36 0\n75 6.34 7.94 1\n76 9.4 0 5.50 1\n77 5.88 6.92 0\n78 5.79 5.66 0\n79 5.27 7.28 0\n80 7.83 7.70 1\n81 6.12 6.72 0\n82 7.92 6.06 1\n83 7.6 0 8.08 1\n84 5.76 6.49 0\n85 6.72 5.46 0\n86 6.18 5.76 0\n87 5.99 7.49 0\n90 5.8 5 5.56 0\n91 8.28 6.30 1\n92 5.43 6.18 0\n93 9.31 7.39 1\n94 8.01 4.95 1\n95 6.33 6.38 0\n96 8.23 7.76 1\n99 6.09		7.30	0\n30	7.36	7.15	1\n31	5.92	7.02	
7 7.19 1\n35 8.07 7.48 1\n36 8.16 7.56 1\n37 9.05 8.21 1\n38 6.00 8.72 0\n39 7.50 6.19 1\n40 8.25 5.32 1\n41 8.6 8 5.15 1\n42 6.90 6.91 1\n43 8.21 7.95 1\n44 5.47 5.92 0\n45 8.10 5.44 1\n46 5.83 5.21 0\n47 7.05 8.14 1\n48 5.5 4 6.57 0\n49 5.46 6.73 0\n50 8.22 6.74 1\n51 6.54 7.39 0\n52 5.90 7.50 0\n53 6.00 7.16 0\n54 5.92 7.18 0\n55 6.9 4 6.87 1\n56 6.13 6.43 0\n57 6.34 7.21 0\n58 6.47 7.37 0\n59 5.95 7.57 0\n60 5.87 6.64 0\n61 6.89 7.96 1\n62 5.7 5 8.43 0\n63 8.65 7.58 1\n64 7.93 8.09 1\n65 6.04 8.75 0\n66 8.35 8.02 1\n67 6.59 6.81 1\n68 6.01 7.49 0\n69 8.0 6 9.06 1\n70 7.12 7.41 1\n71 7.34 8.22 1\n72 7.63 7.98 1\n73 5.76 6.48 0\n74 5.54 7.36 0\n75 6.34 7.94 1\n76 9.4 0 5.50 1\n77 5.88 6.92 0\n78 5.79 5.66 0\n79 5.27 7.28 0\n80 7.83 7.70 1\n81 6.12 6.72 0\n82 7.92 6.06 1\n83 7.6 0 8.08 1\n84 5.76 6.49 0\n85 6.72 5.46 0\n86 6.18 5.76 0\n87 5.99 7.49 0\n90 5.8 5 5.56 0\n91 8.28 6.30 1\n92 5.43 6.18 0\n93 9.31 7.39 1\n94 8.01 4.95 1\n95 6.33 6.38 0\n96 8.23 7.76 1\n99 6.09		0\n32	5.87	7.96	0\n33	8.43	7.73	1\n34	8.8
7.56		7	7 19	1\n35	8 07	7 /18	1\n36	8 16	
8       5.15       1\n44       6.90       6.91       1\n43       8.21         7.95       1\n44       5.47       5.92       0\n45       8.10       5.44         1\n46       5.83       5.21       0\n47       7.05       8.14       1\n48       5.5         4       6.57       0\n49       5.46       6.73       0\n50       8.22         6.74       1\n51       6.54       7.39       0\n52       5.90       7.50         0\n53       6.00       7.16       0\n54       5.92       7.18       0\n55       6.9         4       6.87       1\n56       6.13       6.43       0\n57       6.34         7.21       0\n58       6.47       7.37       0\n59       5.95       7.57         0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7         5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6 <t< td=""><td></td><td>7.56</td><td>1\n37</td><td>9.05</td><td>8.21</td><td>1\n38</td><td>6.00</td><td>8.72</td><td></td></t<>		7.56	1\n37	9.05	8.21	1\n38	6.00	8.72	
8       5.15       1\n44       6.90       6.91       1\n43       8.21         7.95       1\n44       5.47       5.92       0\n45       8.10       5.44         1\n46       5.83       5.21       0\n47       7.05       8.14       1\n48       5.5         4       6.57       0\n49       5.46       6.73       0\n50       8.22         6.74       1\n51       6.54       7.39       0\n52       5.90       7.50         0\n53       6.00       7.16       0\n54       5.92       7.18       0\n55       6.9         4       6.87       1\n56       6.13       6.43       0\n57       6.34         7.21       0\n58       6.47       7.37       0\n59       5.95       7.57         0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7         5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6 <t< td=""><td></td><td>0\n39</td><td>7.50</td><td>6.19</td><td>1\n40</td><td>8.25</td><td>5.32</td><td>1\n41</td><td>8.6</td></t<>		0\n39	7.50	6.19	1\n40	8.25	5.32	1\n41	8.6
7.95         1\n44         5.47         5.92         0\n45         8.10         5.44           1\n46         5.83         5.21         0\n47         7.05         8.14         1\n48         5.5           4         6.57         0\n49         5.46         6.73         0\n50         8.22           6.74         1\n51         6.54         7.39         0\n52         5.90         7.50           0\n53         6.00         7.16         0\n54         5.92         7.18         0\n55         6.9           4         6.87         1\n56         6.13         6.43         0\n57         6.34           7.21         0\n58         6.47         7.37         0\n59         5.95         7.57           0\n60         5.87         6.64         0\n61         6.89         7.96         1\n62         5.7           5         8.43         0\n63         8.65         7.58         1\n64         7.93         8.02           1\n67         6.59         6.81         1\n68         6.01         7.49         0\n69         8.0           6         9.06         1\n70         7.12         7.41         1\n71         7.34		8	5.15	1\n42	6.90	6.91	1\n43	8.21	
1\n46       5.83       5.21       0\n47       7.05       8.14       1\n48       5.5         4       6.57       0\n49       5.46       6.73       0\n50       8.22         6.74       1\n51       6.54       7.39       0\n52       5.90       7.50         0\n53       6.00       7.16       0\n54       5.92       7.18       0\n55       6.9         4       6.87       1\n56       6.13       6.43       0\n57       6.34       7.57       0\n55       6.9         4       6.87       1\n56       6.13       6.43       0\n57       6.34       7.57       0\n50       5.95       7.57       7.57       0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7       5       8.43       0\n63       8.65       7.58       1\n64       7.93       8.02       1\n62       5.7       5       8.02       1\n62       5.7       5       8.02       1\n62       5.7       5       8.02       1\n69       8.02       1\n69       8.0       6       9.06       1\n70       7.12       7.41       1\n71       7.34       8.0       8.0       1\n72       7.88       1\n73       5.76									
4       6.57       0\n49       5.46       6.73       0\n50       8.22         6.74       1\n51       6.54       7.39       0\n52       5.90       7.50         0\n53       6.00       7.16       0\n54       5.92       7.18       0\n55       6.9         4       6.87       1\n56       6.13       6.43       0\n57       6.34         7.21       0\n58       6.47       7.37       0\n59       5.95       7.57         0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7         5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34       8.2       1\n72       7.63       7.98       1\n73       5.76       6.48       0\n74       5.54       7.36       0\n75       6.34       7.94       1\n76       9.4         0       5.50       1\n77									
6.74		4	6.57	0\n49	5.46	6.73	0\n50	8.22	
0\n53       6.00       7.16       0\n54       5.92       7.18       0\n55       6.9         4       6.87       1\n56       6.13       6.43       0\n57       6.34         7.21       0\n58       6.47       7.37       0\n59       5.95       7.57         0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7         5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34       8.22       1\n72       7.63       7.98       1\n73       5.76       6.48         0\n74       5.54       7.36       0\n75       6.34       7.94       1\n76       9.4         0       5.50       1\n77       5.88       6.92       0\n78       5.79         5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12		6.74	1\n51	6.54	7.39	0\n52	5.90	7.50	
0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7         5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34       7.34       8.0       8.0       8.0       9\n72       7.41       1\n71       7.34       7.34       8.0       9\n72       7.41       1\n71       7.34       9.4       9\n72       9.4       9\n72       9.4 <td< td=""><td></td><td>0\n53</td><td>6.00</td><td>7.16</td><td>0\n54</td><td>5.92</td><td>7.18</td><td>0\n55</td><td>6.9</td></td<>		0\n53	6.00	7.16	0\n54	5.92	7.18	0\n55	6.9
0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7         5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34       7.34       8.0       8.0       8.0       9\n72       7.41       1\n71       7.34       7.34       8.0       9\n72       7.41       1\n71       7.34       9.4       9\n72       9.4       9\n72       9.4 <td< td=""><td></td><td>4</td><td>6.87</td><td>1\n56</td><td>6.13</td><td>6.43</td><td>0\n57</td><td>6.34</td><td></td></td<>		4	6.87	1\n56	6.13	6.43	0\n57	6.34	
0\n60       5.87       6.64       0\n61       6.89       7.96       1\n62       5.7         5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34       7.34       8.0       8.0       8.0       9\n72       7.41       1\n71       7.34       7.34       8.0       9\n72       7.41       1\n71       7.34       9.4       9\n72       9.4       9\n72       9.4 <td< td=""><td></td><td>7.21</td><td>0\n58</td><td>6.47</td><td>7.37</td><td>0\n59</td><td>5<b>.</b>95</td><td>7.57</td><td></td></td<>		7.21	0\n58	6.47	7.37	0\n59	5 <b>.</b> 95	7.57	
5       8.43       0\n63       8.65       7.58       1\n64       7.93         8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34         8.22       1\n72       7.63       7.98       1\n73       5.76       6.48         0\n74       5.54       7.36       0\n75       6.34       7.94       1\n76       9.4         0       5.50       1\n77       5.88       6.92       0\n78       5.79         5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18 <t< td=""><td></td><td>0\n60</td><td>5.87</td><td>6.64</td><td>0\n61</td><td>6.89</td><td>7.96</td><td>1\n62</td><td>5.7</td></t<>		0\n60	5.87	6.64	0\n61	6.89	7.96	1\n62	5.7
8.09       1\n65       6.04       8.75       0\n66       8.35       8.02         1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34         8.22       1\n72       7.63       7.98       1\n73       5.76       6.48         0\n74       5.54       7.36       0\n75       6.34       7.94       1\n76       9.4         0       5.50       1\n77       5.88       6.92       0\n78       5.79         5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95		5	8.43	0\n63	8.65	7.58	1\n64	7.93	
1\n67       6.59       6.81       1\n68       6.01       7.49       0\n69       8.0         6       9.06       1\n70       7.12       7.41       1\n71       7.34         8.22       1\n72       7.63       7.98       1\n73       5.76       6.48         0\n74       5.54       7.36       0\n75       6.34       7.94       1\n76       9.4         0       5.50       1\n77       5.88       6.92       0\n78       5.79         5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6									
6 9.06 1\n70 7.12 7.41 1\n71 7.34 8.22 1\n72 7.63 7.98 1\n73 5.76 6.48 0\n74 5.54 7.36 0\n75 6.34 7.94 1\n76 9.4 0 5.50 1\n77 5.88 6.92 0\n78 5.79 5.66 0\n79 5.27 7.28 0\n80 7.83 7.70 1\n81 6.12 6.72 0\n82 7.92 6.06 1\n83 7.6 0 8.08 1\n84 5.76 6.49 0\n85 6.72 5.46 0\n86 6.18 5.76 0\n87 5.62 5.05 0\n88 8.07 6.07 1\n89 5.99 7.49 0\n90 5.8 5 5.56 0\n91 8.28 6.30 1\n92 5.43 6.18 0\n93 9.31 7.39 1\n94 8.01 4.95 1\n95 6.33 6.38 0\n96 8.23 7.76 1\n97 6.6 5 7.78 0\n98 8.14 5.63 1\n99 6.09									
8.22       1\n72       7.63       7.98       1\n73       5.76       6.48         0\n74       5.54       7.36       0\n75       6.34       7.94       1\n76       9.4         0       5.50       1\n77       5.88       6.92       0\n78       5.79         5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       0\n87       5.62       5.05         5.46       0\n86       6.18       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09		6	9.06	1\n70	7.12	7.41	1\n71	7.34	
0\n74       5.54       7.36       0\n75       6.34       7.94       1\n76       9.4         0       5.50       1\n77       5.88       6.92       0\n78       5.79         5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       6.49       0\n85       6.72         5.46       0\n86       6.18       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09		8 22	1\n72	7.63	7.98	1\n73	5.76	6.48	
5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       6.49       0\n85       6.72         5.46       0\n86       6.18       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09		0\n74	5.54	7.36	0\n75	6.34	7.94	1\n76	9.4
5.66       0\n79       5.27       7.28       0\n80       7.83       7.70         1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       6.49       0\n85       6.72         5.46       0\n86       6.18       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09		0	5.50	1\n77	5.88	6.92	0\n78	5.79	
1\n81       6.12       6.72       0\n82       7.92       6.06       1\n83       7.6         0       8.08       1\n84       5.76       6.49       0\n85       6.72         5.46       0\n86       6.18       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09		5.66	0\n79	5.27	7.28	0\n80	7.83	7.70	
0       8.08       1\n84       5.76       6.49       0\n85       6.72         5.46       0\n86       6.18       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09									
5.46       0\n86       6.18       5.76       0\n87       5.62       5.05         0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09									
0\n88       8.07       6.07       1\n89       5.99       7.49       0\n90       5.8         5       5.56       0\n91       8.28       6.30       1\n92       5.43         6.18       0\n93       9.31       7.39       1\n94       8.01       4.95         1\n95       6.33       6.38       0\n96       8.23       7.76       1\n97       6.6         5       7.78       0\n98       8.14       5.63       1\n99       6.09									
5 5.56 0\n91 8.28 6.30 1\n92 5.43 6.18 0\n93 9.31 7.39 1\n94 8.01 4.95 1\n95 6.33 6.38 0\n96 8.23 7.76 1\n97 6.6 5 7.78 0\n98 8.14 5.63 1\n99 6.09		0\n88	8 07	6 07	1\n20	5 00	7 /10	a\ n9a	5 Q
5 7.78 0\n98 8.14 5.63 1\n99 6.09		5	5.56	0\n91	8.28	6.30	1\n92	5.43	3.0
5 7.78 0\n98 8.14 5.63 1\n99 6.09		6.18	0\n93	9.31	7.39	1\n94	8.01	4.95	
5 7.78 0\n98 8.14 5.63 1\n99 6.09		1\n95	6.33	6.38	0\n96	8.23	7.76	1\n97	6.6
		5	7.78	0\n98	8.14	5.63	1\n99	6.09	0.0
0.01				5 (1120	<b>J•</b> ± -r	J.05	± \1122	3.02	
		0.01	J						

```
In [46]: idx=df.columns
idx
```

```
Out[46]: Index(['cgpa', 'resume_score', 'placed'], dtype='object')
```

```
In [47]: df.columns[0]
```

Out[47]: 'cgpa'

```
In [49]: df.columns.tolist() # list of column labels
Out[49]: ['cgpa', 'resume_score', 'placed']
          df.columns.values #3 array of colums labels
In [53]:
Out[53]: array(['cgpa', 'resume_score', 'placed'], dtype=object)
In [54]:
         df.rename(columns={'cgpa':'half_yearly_marks','resume_score':'semester_marks
Out[54]:
               half_yearly_marks semester_marks placed
            0
                           8.14
                                          6.52
                                                    1
            1
                                                    0
                           6.17
                                          5.17
            2
                           8.27
                                          8.86
                                                    1
            3
                           6.88
                                          7.27
                                                    1
            4
                           7.52
                                          7.30
                                                    1
           95
                           6.33
                                          6.38
                                                    0
           96
                           8.23
                                          7.76
                                                    1
           97
                                          7.78
                                                    0
                           6.65
           98
                           8.14
                                          5.63
                                                    1
                                                    0
           99
                           6.09
                                          6.61
          100 rows × 3 columns
In [58]:
          df['half']=df['cgpa'].where(df['cgpa']>5.00, other=0)
          df.head(10)
Out[58]:
              cgpa resume_score placed half
                                      1 8.14
           0
              8.14
                            6.52
           1
              6.17
                            5.17
                                      0 6.17
              8.27
                            8.86
                                      1 8.27
           3
              6.88
                            7.27
                                      1 6.88
           4
              7.52
                            7.30
                                      1 7.52
           5
              8.77
                            6.19
                                      1 8.77
              5.34
                            7.09
                                      0 5.34
           7
              6.56
                            6.29
                                      0 6.56
           8
              6.32
                                      0 6.32
                            6.71
           9
              7.69
                            7.12
                                      1 7.69
 In [ ]:
```