# pandas

### August 9, 2024

```
[17]: # Pandas == Panel Data
      # Version Check
      import pandas as pd
     print(pd.__version__)
     2.2.2
[18]: # Sample Data Set
      data = {"Car": ["BMW", "Mercedes", "Nissan"], "Pass": [3, 7, 2]}
      myData = pd.DataFrame(data)
      print(myData)
             Car Pass
             BMW
                     3
     0
                     7
       Mercedes
                     2
          Nissan
     2
[19]: # Series --> Coloumn in a Table
      myData = pd.Series(data["Pass"])
      print(myData)
      print(type(myData))
      print(myData[0])
     0
          3
     1
          7
          2
     dtype: int64
     <class 'pandas.core.series.Series'>
     3
[20]: # Series --> Coloumn in a Table
      # Custom Indexing or Labeling
      myData = pd.Series(data["Pass"], index=["x", "y", "z"])
      print(myData)
      print(myData["y"])
     x
          3
```

```
7
     У
          2
     z
     dtype: int64
[21]: # Series For Dictionary Type Data
      myData = pd.Series(data)
      print(myData)
     Car
             [BMW, Mercedes, Nissan]
     Pass
                            [3, 7, 2]
     dtype: object
[22]: # Data Frame
      data = {"Id": [4, 7, 2, 8], "Duration": [100, 45, 98, 55]}
      myData = pd.DataFrame(data)
      print(myData)
        Id Duration
         4
                 100
     0
        7
                  45
     1
     2
                  98
         8
                  55
[25]: # Loacte Row
      data = {"Id": [4, 7, 2, 8], "Duration": [100, 45, 98, 55]}
      myData = pd.DataFrame(data)
      # Index
      print(myData.loc[0])
      # List of Index
      print(myData.loc[[0, 2]])
     Ιd
                   4
     Duration
                 100
     Name: 0, dtype: int64
        Id Duration
         4
     0
                 100
     2
         2
                  98
[29]: # Data Frame Cutom Indexing
      data = {"Id": [4, 7, 2, 8], "Duration": [100, 45, 98, 55]}
      customIndex = ["P1", "P2", "P3", "P4"]
      myData = pd.DataFrame(data, index=customIndex)
      print(myData)
      print(myData.loc["P3"])
```

```
Ρ1
          4
                   100
     P2
          7
                    45
     РЗ
          2
                    98
     P4
          8
                    55
                   2
     Ιd
     Duration
                  98
     Name: P3, dtype: int64
[34]: # Load Files Into DataFrame
      df = pd.read_csv("data.csv")
      print(df)
      print(df.loc[4])
      print(df.loc[[1, 2]])
      print(pd.Series(df.loc[4]))
          Duration
                    Pulse
                            Maxpulse
                                       Calories
     0
                 60
                       110
                                  130
                                          409.1
     1
                 60
                       117
                                  145
                                          479.0
     2
                 60
                       103
                                  135
                                          340.0
     3
                 45
                                          282.4
                       109
                                  175
     4
                 45
                       117
                                  148
                                          406.0
     . .
                       105
                                  140
                                          290.8
     164
                 60
                                          300.4
     165
                 60
                       110
                                  145
     166
                 60
                       115
                                  145
                                          310.2
                 75
     167
                       120
                                  150
                                          320.4
     168
                 75
                       125
                                  150
                                          330.4
     [169 rows x 4 columns]
     Duration
                   45.0
     Pulse
                  117.0
     Maxpulse
                  148.0
     Calories
                  406.0
     Name: 4, dtype: float64
        Duration Pulse Maxpulse Calories
     1
               60
                     117
                                145
                                        479.0
     2
                     103
                                        340.0
               60
                                135
     Duration
                   45.0
     Pulse
                  117.0
     Maxpulse
                  148.0
     Calories
                  406.0
     Name: 4, dtype: float64
[35]: # Print The Entire DataFrame
      df = pd.read_csv("data.csv")
      print(df.to_string())
```

Duration

Ιd

	Duration	Pulse	Maxpulse	Calories
0	60	110	130	409.1
1	60	117	145	479.0
2	60	103	135	340.0
3	45	109	175	282.4
4	45	117	148	406.0
5	60	102	127	300.5
6	60	110	136	374.0
7	45	104	134	253.3
8	30	109	133	195.1
9	60	98	124	269.0
10	60	103	147	329.3
11	60	100	120	250.7
12	60	106	128	345.3
13	60	104	132	379.3
14	60	98	123	275.0
15	60	98	120	215.2
16	60	100	120	300.0
17	45	90	112	NaN
18	60	103	123	323.0
19	45	97	125	243.0
20	60	108	131	364.2
21	45	100	119	282.0
22	60	130	101	300.0
23	45	105	132	246.0
24	60	102	126	334.5
25	60	100	120	250.0
26	60	92	118	241.0
27	60	103	132	NaN
28	60	100	132	280.0
29	60	102	129	380.3
30	60	92	115	243.0
31	45	90	112	180.1
32	60	101	124	299.0
33	60	93	113	223.0
34	60	107	136	361.0
35	60	114	140	415.0
36	60	102	127	300.5
37	60	100	120	300.1
38	60	100	120	300.0
39	45	104	129	266.0
40	45	90	112	180.1
41	60	98	126	286.0
42	60	100	122	329.4
43	60	111	138	400.0
44	60	111	131	397.0
45	60	99	119	273.0
46	60	109	153	387.6

47	4.5	444	400	200 0
47	45	111	136	300.0
48	45	108	129	298.0
49	60	111	139	397.6
50	60	107	136	380.2
51	80	123	146	643.1
52	60	106	130	263.0
53	60	118	151	486.0
54	30	136	175	238.0
55	60	121	146	450.7
56	60	118	121	413.0
57	45	115	144	305.0
58	20	153	172	226.4
59	45	123	152	321.0
60	210	108	160	1376.0
61	160	110	137	1034.4
62	160	109	135	853.0
63	45	118	141	341.0
64	20	110	130	131.4
65	180	90	130	800.4
66	150	105	135	873.4
67	150	107	130	816.0
68	20	106	136	110.4
69	300	108	143	1500.2
70	150	97	129	1115.0
71	60	109	153	387.6
72	90	100	127	700.0
73	150	97	127	953.2
74	45	114	146	304.0
75	90	98	125	563.2
76	45	105	134	251.0
77	45	110	141	300.0
78	120	100	130	500.4
79	270	100	131	1729.0
80	30	159	182	319.2
81	45	149	169	344.0
82	30	103	139	151.1
83	120	100	130	500.0
84	45	100	120	225.3
85	30	151	170	300.1
86	45	102	136	234.0
87	120	100	157	1000.1
88	45	129	103	242.0
89	20	83	107	50.3
90	180	101	127	600.1
91	45	107	137	NaN
92	30	90	107	105.3
93	15	80	100	50.5
94	20	150	171	127.4

96	95	20	151	168	229.4
97         25         152         168         244.2           98         30         109         131         188.2           99         90         93         124         604.1           100         20         95         112         77.7           101         90         90         110         500.0           102         90         90         100         500.0           103         90         90         100         500.0           104         30         92         108         92.7           105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         800.3           108         90         90         120         800.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45					
98         30         109         131         188.2           99         90         93         124         604.1           100         20         95         112         77.7           101         90         90         110         500.0           102         90         90         100         500.0           103         90         90         100         500.0           104         30         92         108         92.7           105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         80.2           108         90         90         120         86.2           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           112         15         124         139         124.2           113         45					
99 90 90 93 124 604.1 100 20 95 1112 77.7 101 90 90 110 500.0 102 90 90 100 500.0 103 90 90 100 500.4 104 30 92 108 92.7 105 30 93 128 124.0 106 180 90 120 800.3 107 30 90 120 86.2 108 90 90 120 500.3 109 210 137 184 1860.4 110 60 102 124 325.2 111 45 107 124 275.0 112 15 124 139 124.2 113 45 100 120 225.3 114 60 108 131 367.6 115 60 108 151 351.7 116 60 105 125 NaN 119 60 103 124 332.7 120 30 112 137 193.9 121 45 100 120 100.7 122 60 119 169 336.7 123 60 107 127 344.9 124 60 111 151 368.5 125 60 98 122 271.0 126 60 97 124 275.3 127 60 109 127 382.0 128 90 99 125 466.4 129 60 114 151 384.0 130 60 104 134 342.5 131 60 107 138 357.5 132 60 107 138 357.5 133 60 107 138 357.5 126 130 131 33 335.0 131 60 107 138 357.5 132 60 107 138 357.5 133 60 106 132 327.5 134 60 107 138 357.5 135 136 156 189.0 136 45 117 143 317.7 137 45 115 137 318.0 138 45 113 138 308.0 139 20 141 162 222.4 140 60 108 135 390.0					
100         20         95         112         77.7           101         90         90         110         500.0           102         90         90         100         500.0           103         90         90         100         500.4           104         30         92         108         92.7           105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         800.3           107         30         90         120         800.3           108         90         90         120         800.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         151         351.7           116         61					
101         90         90         110         500.0           102         90         90         100         500.0           103         90         90         100         500.4           104         30         92         108         92.7           105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         800.3           108         90         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         61         141         443.0           117         60         97					
102         90         90         100         500.0           103         90         90         100         500.4           104         30         92         108         92.7           105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         86.2           108         90         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         116         141         443.0           117         60         97         122         277.4           118         60					
103         90         90         100         500.4           104         30         92         108         92.7           105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         86.2           108         90         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         116         141         443.0           117         60         97         122         277.4           118         60         105         125         NaN           119         60					
104         30         92         108         92.7           105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         500.3           108         90         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         108         151         351.7           118         60         105         125         NaN           119         60         103         124         332.7           120         30         112         137         193.9           121         45					
105         30         93         128         124.0           106         180         90         120         800.3           107         30         90         120         86.2           108         90         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         108         151         351.7           116         60         116         141         443.0           117         60         97         122         277.4           118         60         105         125         NaN           119         60         103         124         332.7           120         30					
106         180         90         120         86.2           107         30         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         116         141         443.0           117         60         97         122         277.4           118         60         105         125         NaN           119         60         103         124         332.7           120         30         112         137         193.9           121         45         100         120         100.7           122         60         119         169         336.7           123         60 <td></td> <td></td> <td></td> <td></td> <td></td>					
107         30         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         116         141         443.0           117         60         97         122         277.4           118         60         105         125         NaN           119         60         103         124         332.7           120         30         112         137         193.9           121         45         100         120         100.7           122         60         119         169         336.7           123         60         107         127         344.9           124         60 </td <td></td> <td></td> <td></td> <td></td> <td></td>					
108         90         90         120         500.3           109         210         137         184         1860.4           110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         116         141         443.0           117         60         97         122         277.4           118         60         105         125         NaN           119         60         103         124         332.7           120         30         112         137         193.9           121         45         100         120         100.7           122         60         119         169         336.7           123         60         107         127         344.9           124         60 </td <td></td> <td></td> <td></td> <td></td> <td></td>					
110         60         102         124         325.2           111         45         107         124         275.0           112         15         124         139         124.2           113         45         100         120         225.3           114         60         108         131         367.6           115         60         108         151         351.7           116         60         116         141         443.0           117         60         97         122         277.4           118         60         105         125         NaN           119         60         103         124         332.7           120         30         112         137         193.9           121         45         100         120         100.7           122         60         119         169         336.7           123         60         107         127         344.9           124         60         111         151         368.5           125         60         98         122         271.0           126         60 <td>108</td> <td></td> <td>90</td> <td></td> <td></td>	108		90		
111       45       107       124       275.0         112       15       124       139       124.2         113       45       100       120       225.3         114       60       108       131       367.6         115       60       108       151       351.7         116       60       116       141       443.0         117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125					
112       15       124       139       124.2         113       45       100       120       225.3         114       60       108       131       367.6         115       60       108       151       351.7         116       60       116       141       443.0         117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151					
113       45       100       120       225.3         114       60       108       131       367.6         115       60       108       151       351.7         116       60       116       141       443.0         117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134					275.0
114       60       108       131       367.6         115       60       108       151       351.7         116       60       116       141       443.0         117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138	112				
114       60       108       131       367.6         115       60       108       151       351.7         116       60       116       141       443.0         117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138					225.3
115       60       108       151       351.7         116       60       116       141       443.0         117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133					
116       60       116       141       443.0         117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132	115				
117       60       97       122       277.4         118       60       105       125       NaN         119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136	116	60			
119       60       103       124       332.7         120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143 <td>117</td> <td></td> <td>97</td> <td>122</td> <td>277.4</td>	117		97	122	277.4
120       30       112       137       193.9         121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       399.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137 <td>118</td> <td>60</td> <td>105</td> <td>125</td> <td>NaN</td>	118	60	105	125	NaN
121       45       100       120       100.7         122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         139       20       141       162 <td>119</td> <td>60</td> <td>103</td> <td>124</td> <td>332.7</td>	119	60	103	124	332.7
122       60       119       169       336.7         123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162 <td>120</td> <td>30</td> <td>112</td> <td>137</td> <td>193.9</td>	120	30	112	137	193.9
123       60       107       127       344.9         124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135 <td>121</td> <td>45</td> <td>100</td> <td>120</td> <td>100.7</td>	121	45	100	120	100.7
124       60       111       151       368.5         125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127	122	60	119	169	336.7
125       60       98       122       271.0         126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	123	60	107	127	344.9
126       60       97       124       275.3         127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	124	60	111	151	368.5
127       60       109       127       382.0         128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	125	60	98	122	271.0
128       90       99       125       466.4         129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	126	60	97	124	275.3
129       60       114       151       384.0         130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	127	60	109	127	382.0
130       60       104       134       342.5         131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	128	90	99	125	466.4
131       60       107       138       357.5         132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	129	60	114	151	384.0
132       60       103       133       335.0         133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	130	60	104	134	342.5
133       60       106       132       327.5         134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	131	60	107	138	357.5
134       60       103       136       339.0         135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	132	60	103	133	335.0
135       20       136       156       189.0         136       45       117       143       317.7         137       45       115       137       318.0         138       45       113       138       308.0         139       20       141       162       222.4         140       60       108       135       390.0         141       60       97       127       NaN	133	60	106	132	327.5
136     45     117     143     317.7       137     45     115     137     318.0       138     45     113     138     308.0       139     20     141     162     222.4       140     60     108     135     390.0       141     60     97     127     NaN	134	60	103	136	339.0
137     45     115     137     318.0       138     45     113     138     308.0       139     20     141     162     222.4       140     60     108     135     390.0       141     60     97     127     NaN	135	20	136	156	189.0
138     45     113     138     308.0       139     20     141     162     222.4       140     60     108     135     390.0       141     60     97     127     NaN	136	45	117	143	317.7
139     20     141     162     222.4       140     60     108     135     390.0       141     60     97     127     NaN	137	45	115	137	318.0
140 60 108 135 390.0 141 60 97 127 NaN	138	45	113	138	308.0
141 60 97 127 NaN	139	20	141	162	222.4
	140	60	108	135	390.0
142 45 100 120 250.4	141	60	97	127	NaN
	142	45	100	120	250.4

```
143
            45
                   122
                               149
                                        335.4
144
            60
                   136
                               170
                                        470.2
145
            45
                   106
                               126
                                        270.8
146
            60
                   107
                               136
                                        400.0
147
            60
                   112
                               146
                                        361.9
148
            30
                   103
                               127
                                        185.0
149
            60
                   110
                               150
                                        409.4
150
            60
                   106
                                        343.0
                               134
151
            60
                   109
                               129
                                        353.2
152
            60
                   109
                               138
                                        374.0
153
            30
                   150
                               167
                                        275.8
154
            60
                   105
                               128
                                        328.0
155
            60
                   111
                               151
                                        368.5
            60
                    97
                                        270.4
156
                               131
157
            60
                   100
                               120
                                        270.4
            60
                                        382.8
158
                   114
                               150
159
            30
                    80
                               120
                                        240.9
160
            30
                    85
                               120
                                        250.4
161
            45
                    90
                               130
                                        260.4
162
                                        270.0
            45
                    95
                               130
163
                                        280.9
            45
                   100
                               140
164
            60
                   105
                               140
                                        290.8
            60
                               145
                                        300.4
165
                   110
166
            60
                   115
                               145
                                        310.2
167
            75
                   120
                               150
                                        320.4
168
            75
                   125
                               150
                                        330.4
```

```
[46]: # Systems Maximum Rows
df = pd.read_csv("data.csv")
print(pd.options.display.max_rows)
print(pd.options.display.max_columns)
print(df)
```

Duration Pulse Maxpulse Calories 409.1 479.0 340.0 282.4 406.0 290.8 300.4 310.2 320.4 330.4

## [169 rows x 4 columns]

```
[48]: # Increase The Max Row
df = pd.read_csv("data.csv")
pd.options.display.max_rows = 9999
print(df)
```

	Duration	Pulse	Maxpulse	Calories
0	60	110	130	409.1
1	60	117	145	479.0
2	60	103	135	340.0
3	45	109	175	282.4
4	45	117	148	406.0
5	60	102	127	300.5
6	60	110	136	374.0
7	45	104	134	253.3
8	30	109	133	195.1
9	60	98	124	269.0
10	60	103	147	329.3
11	60	100	120	250.7
12	60	106	128	345.3
13	60	104	132	379.3
14	60	98	123	275.0
15	60	98	120	215.2
16	60	100	120	300.0
17	45	90	112	NaN
18	60	103	123	323.0
19	45	97	125	243.0
20	60	108	131	364.2
21	45	100	119	282.0
22	60	130	101	300.0
23	45	105	132	246.0
24	60	102	126	334.5
25	60	100	120	250.0
26	60	92	118	241.0
27	60	103	132	NaN
28	60	100	132	280.0
29	60	102	129	380.3
30	60	92	115	243.0
31	45	90	112	180.1
32	60	101	124	299.0
33	60	93	113	223.0
34	60	107	136	361.0
35	60	114	140	415.0
36	60	102	127	300.5
37	60	100	120	300.1
38	60 45	100	120	300.0
39	45	104	129	266.0

40	45	90	112	180.1
41	60	98	126	286.0
42	60	100	122	329.4
43	60	111	138	400.0
44	60	111	131	397.0
45	60	99	119	273.0
46	60	109	153	387.6
47	45	111	136	300.0
48	45	108	129	298.0
49	60	111	139	397.6
50	60	107	136	380.2
51	80	123	146	643.1
52	60	106	130	263.0
53	60	118	151	486.0
54	30	136	175	238.0
55	60	121	146	450.7
56	60	118	121	413.0
57	45	115	144	305.0
58	20	153	172	226.4
59	45	123	152	321.0
60	210	108	160	1376.0
61	160	110	137	1034.4
62	160	109	135	853.0
63	45	118	141	341.0
64	20	110	130	131.4
65	180	90	130	800.4
66	150	105	135	873.4
67	150	107	130	816.0
68	20	106	136	110.4
69	300	108	143	1500.2
70	150	97	129	1115.0
71	60	109	153	387.6
72	90	100	127	700.0
73	150	97	127	953.2
74	45	114	146	304.0
75	90	98	125	563.2
76	45	105	134	251.0
77	45	110	141	300.0
78	120	100	130	500.4
79	270	100	131	1729.0
80	30	159	182	319.2
81	45	149	169	344.0
82	30	103	139	151.1
83	120	100	130	500.0
84	45	100	120	225.3
85	30	151	170	300.1
86	45	102	136	234.0
87	120	100	157	1000.1

88	45	129	103	242.0
89	20	83	107	50.3
90	180	101	127	600.1
91	45	107	137	NaN
92	30	90	107	105.3
93	15	80	100	50.5
94	20	150	171	127.4
95	20	151	168	229.4
96	30	95	128	128.2
97	25	152	168	244.2
98	30	109	131	188.2
99	90	93	124	604.1
100	20	95	112	77.7
101	90	90	110	500.0
102	90	90	100	500.0
103	90	90	100	500.4
104	30	92	108	92.7
105	30	93	128	124.0
106	180	90	120	800.3
107	30	90	120	86.2
108	90	90	120	500.3
109	210	137	184	1860.4
110	60	102	124	325.2
111	45	107	124	275.0
112	15	124	139	124.2
113	45	100	120	225.3
114	60	108	131	367.6
115	60	108	151	351.7
116	60	116	141	443.0
117	60	97	122	277.4
118	60	105	125	NaN
119	60	103	124	332.7
120	30	112	137	193.9
121	45	100	120	100.7
122	60	119	169	336.7
123	60	107	127	344.9
124	60	111	151	368.5
125	60	98	122	271.0
126	60	97	124	275.3
127	60	109	127	382.0
128	90	99	125	466.4
129	60	114	151	384.0
130	60	104	134	342.5
131	60	107	138	357.5
132	60	103	133	335.0
133	60	106	132	327.5
134	60	103	136	339.0
135	20	136	156	189.0

```
136
            45
                   117
                              143
                                       317.7
137
            45
                   115
                              137
                                       318.0
138
            45
                   113
                              138
                                       308.0
139
            20
                   141
                              162
                                       222.4
            60
                   108
                                       390.0
140
                              135
141
            60
                    97
                              127
                                         NaN
142
            45
                   100
                              120
                                       250.4
                                       335.4
143
            45
                   122
                              149
144
            60
                   136
                              170
                                       470.2
145
            45
                   106
                              126
                                       270.8
                   107
                                       400.0
146
            60
                              136
147
            60
                   112
                              146
                                       361.9
            30
                   103
                                       185.0
148
                              127
149
            60
                   110
                              150
                                       409.4
150
            60
                   106
                              134
                                       343.0
151
            60
                   109
                              129
                                       353.2
152
            60
                   109
                              138
                                       374.0
153
            30
                   150
                              167
                                       275.8
154
            60
                   105
                              128
                                       328.0
155
                                       368.5
            60
                   111
                              151
156
            60
                    97
                              131
                                       270.4
157
            60
                   100
                              120
                                       270.4
158
            60
                   114
                              150
                                       382.8
159
            30
                              120
                                       240.9
                    80
160
            30
                    85
                              120
                                       250.4
            45
                    90
                              130
                                       260.4
161
162
            45
                    95
                              130
                                       270.0
            45
163
                   100
                              140
                                       280.9
164
            60
                   105
                              140
                                       290.8
165
            60
                   110
                              145
                                       300.4
166
            60
                   115
                              145
                                       310.2
167
            75
                   120
                              150
                                       320.4
            75
168
                   125
                              150
                                       330.4
```

```
[52]: # Read JSON

df = pd.read_json("data.json")
print(df)
```

	Duration	Pulse	Maxpulse	Calories
0	60	110	130	409.1
1	60	117	145	479.0
2	60	103	135	340.0
3	45	109	175	282.4
4	45	117	148	406.0
5	60	102	127	300.5
6	60	110	136	374.0
7	45	104	134	253.3
8	30	109	133	195.1

9	60	98	124	269.0
10	60	103	147	329.3
11	60	100	120	250.7
12	60	106	128	345.3
13	60	104	132	379.3
14	60	98	123	275.0
15	60	98	120	215.2
16	60	100	120	300.0
17	45	90	112	NaN
18	60	103	123	323.0
19	45	97	125	243.0
20	60	108	131	364.2
21	45	100	119	282.0
22	60	130	101	300.0
23	45	105	132	246.0
24	60	102	126	334.5
25	60	100	120	250.0
26	60	92	118	241.0
27	60	103	132	NaN
28	60	100	132	280.0
29	60	102	129	380.3
30	60	92	115	243.0
31	45	90	112	180.1
32	60	101	124	299.0
33	60	93	113	223.0
34	60	107	136	361.0
35	60	114	140	415.0
36	60	102	127	300.5
37	60	100	120	300.1
38	60	100	120	300.0
39	45	104	129	266.0
40	45	90	112	180.1
41	60	98	126	286.0
42	60	100	122	329.4
43	60	111	138	400.0
44	60	111	131	397.0
45	60	99	119	273.0
46	60	109	153	387.6
47	45	111	136	300.0
48	45	108	129	298.0
49	60	111	139	397.6
50	60	107	136	380.2
51	80	123	146	643.1
52	60	106	130	263.0
53	60	118	151	486.0
54	30	136	175	238.0
55	60	121	146	450.7
56	60	118	121	413.0

57	45	115	144	305.0
5 <i>1</i>	20	115 153	172	226.4
59	45	123	152	321.0
60	210	108	160	1376.0
61	160	110	137	1034.4
62	160	109	135	853.0
63	45	118	141	341.0
64	20	110	130	131.4
65	180	90	130	800.4
66	150	105	135	873.4
67	150	107	130	816.0
68	20	106	136	110.4
69	300	108	143	1500.2
70	150	97	129	1115.0
71	60	109	153	387.6
72	90	100	127	700.0
73	150	97	127	953.2
74	45	114	146	304.0
75	90	98	125	563.2
76	45	105	134	251.0
77	45	110	141	300.0
78	120	100	130	500.4
79	270	100	131	1729.0
80	30	159	182	319.2
81	45	149	169	344.0
82	30	103	139	151.1
83	120	100	130	500.0
84	45	100	120	225.3
85	30	151	170	300.1
86	45	102	136	234.0
87	120	100	157	1000.1
88	45	129	103	242.0
89	20	83	107	50.3
90	180	101	127	600.1
91	45	107	137	NaN
92	30	90	107	105.3
93	15	80	100	50.5
94	20	150	171	127.4
95	20	151	168	229.4
96	30	95	128	128.2
97	25	152	168	244.2
98	30	109	131	188.2
99	90	93	124	604.1
100	20	95	112	77.7
101	90	90	110	500.0
102	90	90	100	500.0
103	90	90	100	500.4
104	30	92	108	92.7

105	30	93	128	124.0
106	180	90	120	800.3
107	30	90	120	86.2
108	90	90	120	500.3
109	210	137	184	1860.4
	60			
110		102	124	325.2
111 112	45 15	107 124	124	275.0
113	15 45	100	139 120	124.2
			131	225.3
114	60	108	151	367.6
115	60	108		351.7
116	60	116	141	443.0
117	60	97	122	277.4
118	60	105	125	NaN
119	60	103	124	332.7
120	30	112	137	193.9
121	45	100	120	100.7
122	60	119	169	336.7
123	60	107	127	344.9
124	60	111	151	368.5
125	60	98	122	271.0
126	60	97	124	275.3
127	60	109	127	382.0
128	90	99	125	466.4
129	60	114	151	384.0
130	60	104	134	342.5
131	60	107	138	357.5
132	60	103	133	335.0
133	60	106	132	327.5
134	60	103	136	339.0
135	20	136	156	189.0
136	45	117	143	317.7
137	45	115	137	318.0
138	45	113	138	308.0
139	20	141	162	222.4
140	60	108	135	390.0
141	60	97	127	NaN
142	45	100	120	250.4
143	45	122	149	335.4
144	60	136	170	470.2
145	45	106	126	270.8
146	60	107	136	400.0
147	60	112	146	361.9
148	30	103	127	185.0
149	60	110	150	409.4
150	60	106	134	343.0
151	60	109	129	353.2
152	60	109	138	374.0

```
153
            30
                   150
                              167
                                       275.8
154
            60
                   105
                              128
                                       328.0
155
            60
                   111
                              151
                                       368.5
                   97
156
            60
                              131
                                       270.4
157
            60
                   100
                              120
                                       270.4
                                       382.8
158
            60
                   114
                              150
159
            30
                   80
                              120
                                       240.9
160
            30
                    85
                              120
                                       250.4
161
            45
                   90
                              130
                                       260.4
162
            45
                   95
                              130
                                       270.0
163
            45
                   100
                              140
                                       280.9
164
            60
                   105
                              140
                                       290.8
165
            60
                              145
                                       300.4
                   110
166
            60
                              145
                                       310.2
                   115
167
            75
                   120
                              150
                                       320.4
168
            75
                   125
                              150
                                       330.4
```

```
[63]: # Analyzing Data Frames
df = pd.read_json("data.json")
print(df.head())
print(df.head(10))
print(df.tail())
print(df.tail(10))
```

	Duration	Pulse	Maxpulse	Calories
0	60	110	130	409.1
1	60	117	145	479.0
2	60	103	135	340.0
3	45	109	175	282.4
4	45	117	148	406.0
	Duration	Pulse	Maxpulse	Calories
0	60	110	130	409.1
1	60	117	145	479.0
2	60	103	135	340.0
3	45	109	175	282.4
4	45	117	148	406.0
5	60	102	127	300.5
6	60	110	136	374.0
7	45	104	134	253.3
8	30	109	133	195.1
9	60	98	124	269.0
	Duratio	n Puls	e Maxpuls	se Calories
164	4 6	0 10	5 14	10 290.8
16	5 6	0 11	0 14	300.4
166	6 6	0 11	5 14	45 310.2
16	7 7	5 12	0 15	320.4
168	8 7	5 12	5 15	330.4
	Duratio	n Puls	e Maxpuls	se Calories

```
159
           30
                   80
                             120
                                     240.9
160
           30
                   85
                             120
                                     250.4
161
           45
                   90
                             130
                                     260.4
162
           45
                   95
                             130
                                     270.0
163
           45
                  100
                             140
                                     280.9
164
           60
                  105
                             140
                                     290.8
165
           60
                  110
                             145
                                     300.4
           60
                                     310.2
166
                  115
                             145
167
           75
                  120
                             150
                                     320.4
168
           75
                  125
                             150
                                     330.4
```

```
[66]: # Data Frame Info
df = pd.read_csv("data.csv")
print(df.info())
```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 169 entries, 0 to 168
Data columns (total 4 columns):

#	Column	Non-Null Count	Dtype
0	Duration	169 non-null	int64
1	Pulse	169 non-null	int64
2	Maxpulse	169 non-null	int64
3	Calories	164 non-null	float64

dtypes: float64(1), int64(3)

memory usage: 5.4 KB

None

```
[69]: # Cleaning Empty Cells
df = pd.read_csv("new_data.csv")

# This Will Remove The Empty Cell Containing Rows
new_df = df.dropna()
# Here new_df is a copy of df
print(new_df)
```

	Duration	Date	Pulse	Maxpulse	Calories
0	60	'2020/12/01'	110	130	409.1
1	60	'2020/12/02'	117	145	479.0
2	60	'2020/12/03'	103	135	340.0
3	45	'2020/12/04'	109	175	282.4
4	45	'2020/12/05'	117	148	406.0
5	60	'2020/12/06'	102	127	300.0
6	60	'2020/12/07'	110	136	374.0
7	450	'2020/12/08'	104	134	253.3
8	30	'2020/12/09'	109	133	195.1
9	60	'2020/12/10'	98	124	269.0
10	60	'2020/12/11'	103	147	329.3

```
100
                                          120
                                                   250.7
11
          60 '2020/12/12'
12
          60
               '2020/12/12'
                                100
                                          120
                                                   250.7
13
              '2020/12/13'
                                106
                                          128
                                                   345.3
          60
14
          60
               '2020/12/14'
                                104
                                          132
                                                   379.3
15
              '2020/12/15'
                                 98
          60
                                          123
                                                   275.0
16
          60
              '2020/12/16'
                                 98
                                          120
                                                   215.2
17
          60
              '2020/12/17'
                                100
                                          120
                                                   300.0
19
              '2020/12/19'
                                103
                                          123
                                                   323.0
          60
20
          45
               '2020/12/20'
                                97
                                          125
                                                   243.0
21
          60
              '2020/12/21'
                                108
                                          131
                                                   364.2
23
               '2020/12/23'
                                                   300.0
          60
                                130
                                          101
24
          45
              '2020/12/24'
                                105
                                          132
                                                   246.0
25
          60
              '2020/12/25'
                                102
                                          126
                                                   334.5
                                100
                                                   250.0
26
          60
                 2020/12/26
                                          120
27
          60
              '2020/12/27'
                                 92
                                          118
                                                   241.0
29
              '2020/12/29'
                                100
                                                   280.0
          60
                                          132
30
          60
              '2020/12/30'
                                102
                                          129
                                                   380.3
31
          60
              '2020/12/31'
                                92
                                          115
                                                   243.0
```

```
[71]: # Cleaning Empty Cells
df = pd.read_csv("new_data.csv")

# This Will Remove The Empty Cell Containing Rows
df.dropna(inplace=True)
print(df)
```

	Duration	Date	Pulse	Maxpulse	Calories
0	60	'2020/12/01'	110	130	409.1
1	60	'2020/12/02'	117	145	479.0
2	60	'2020/12/03'	103	135	340.0
3	45	'2020/12/04'	109	175	282.4
4	45	'2020/12/05'	117	148	406.0
5	60	'2020/12/06'	102	127	300.0
6	60	'2020/12/07'	110	136	374.0
7	450	'2020/12/08'	104	134	253.3
8	30	'2020/12/09'	109	133	195.1
9	60	'2020/12/10'	98	124	269.0
10	60	'2020/12/11'	103	147	329.3
11	60	'2020/12/12'	100	120	250.7
12	60	'2020/12/12'	100	120	250.7
13	60	'2020/12/13'	106	128	345.3
14	60	'2020/12/14'	104	132	379.3
15	60	'2020/12/15'	98	123	275.0
16	60	'2020/12/16'	98	120	215.2
17	60	'2020/12/17'	100	120	300.0
19	60	'2020/12/19'	103	123	323.0
20	45	'2020/12/20'	97	125	243.0
21	60	'2020/12/21'	108	131	364.2

```
23
          60 '2020/12/23'
                              130
                                        101
                                                300.0
24
          45 '2020/12/24'
                              105
                                        132
                                                246.0
                                                334.5
25
          60 '2020/12/25'
                              102
                                        126
26
          60
                2020/12/26
                              100
                                        120
                                                250.0
27
          60 '2020/12/27'
                               92
                                                241.0
                                        118
29
          60 '2020/12/29'
                                                280.0
                              100
                                        132
30
          60 '2020/12/30'
                              102
                                                380.3
                                        129
31
          60 '2020/12/31'
                                                243.0
                               92
                                        115
```

```
[72]: # Replace Empty Values
df = pd.read_csv("new_data.csv")

# This Will Replace The Empty Values With 130
df.fillna(130, inplace=True)
print(df)
```

	Duration	Date	Pulse	Maxpulse	Calories
0	60	'2020/12/01'	110	130	409.1
1	60	'2020/12/02'	117	145	479.0
2	60	'2020/12/03'	103	135	340.0
3	45	'2020/12/04'	109	175	282.4
4	45	'2020/12/05'	117	148	406.0
5	60	'2020/12/06'	102	127	300.0
6	60	'2020/12/07'	110	136	374.0
7	450	'2020/12/08'	104	134	253.3
8	30	'2020/12/09'	109	133	195.1
9	60	'2020/12/10'	98	124	269.0
10	60	'2020/12/11'	103	147	329.3
11	60	'2020/12/12'	100	120	250.7
12	60	'2020/12/12'	100	120	250.7
13	60	'2020/12/13'	106	128	345.3
14	60	'2020/12/14'	104	132	379.3
15	60	'2020/12/15'	98	123	275.0
16	60	'2020/12/16'	98	120	215.2
17	60	'2020/12/17'	100	120	300.0
18	45	'2020/12/18'	90	112	130.0
19	60	'2020/12/19'	103	123	323.0
20	45	'2020/12/20'	97	125	243.0
21	60	'2020/12/21'	108	131	364.2
22	45	130	100	119	282.0
23	60	'2020/12/23'	130	101	300.0
24	45	'2020/12/24'	105	132	246.0
25	60	'2020/12/25'	102	126	334.5
26	60	2020/12/26	100	120	250.0
27	60	'2020/12/27'	92	118	241.0
28	60	'2020/12/28'	103	132	130.0
29	60	'2020/12/29'	100	132	280.0
30	60	'2020/12/30'	102	129	380.3

31 60 '2020/12/31' 92 115 243.0

```
[74]: # Replace Empty Values
df = pd.read_csv("new_data.csv")

# This Will Replace The Empty Values With 130
df ["Calories"].fillna(130, inplace=True)
print(df)
```

	Duration	Date	Pulse	Maxpulse	Calories
0	60	'2020/12/01'	110	130	409.1
1	60	'2020/12/02'	117	145	479.0
2	60	'2020/12/03'	103	135	340.0
3	45	'2020/12/04'	109	175	282.4
4	45	'2020/12/05'	117	148	406.0
5	60	'2020/12/06'	102	127	300.0
6	60	'2020/12/07'	110	136	374.0
7	450	'2020/12/08'	104	134	253.3
8	30	'2020/12/09'	109	133	195.1
9	60	'2020/12/10'	98	124	269.0
10	60	'2020/12/11'	103	147	329.3
11	60	'2020/12/12'	100	120	250.7
12	60	'2020/12/12'	100	120	250.7
13	60	'2020/12/13'	106	128	345.3
14	60	'2020/12/14'	104	132	379.3
15	60	'2020/12/15'	98	123	275.0
16	60	'2020/12/16'	98	120	215.2
17	60	'2020/12/17'	100	120	300.0
18	45	'2020/12/18'	90	112	130.0
19	60	'2020/12/19'	103	123	323.0
20	45	'2020/12/20'	97	125	243.0
21	60	'2020/12/21'	108	131	364.2
22	45	NaN	100	119	282.0
23	60	'2020/12/23'	130	101	300.0
24	45	'2020/12/24'	105	132	246.0
25	60	'2020/12/25'	102	126	334.5
26	60	2020/12/26	100	120	250.0
27	60	'2020/12/27'	92	118	241.0
28	60	'2020/12/28'	103	132	130.0
29	60	'2020/12/29'	100	132	280.0
30	60	'2020/12/30'	102	129	380.3
31	60	'2020/12/31'	92	115	243.0

C:\Users\Md Abdullah Emon\AppData\Local\Temp\ipykernel\_12740\877189009.py:5: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as

#### a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

### df["Calories"].fillna(130,inplace=True)

```
[76]: # Replace Empty Values
df = pd.read_csv("new_data.csv")

# This Will Replace The Empty Values With 130
x = df["Calories"].mean()
print(x)
df["Calories"].fillna(x, inplace=True)
print(df)
```

#### 304.68

	Duration	Date	Pulse	Maxpulse	Calories
0	60	'2020/12/01'	110	130	409.10
1	60	'2020/12/02'	117	145	479.00
2	60	'2020/12/03'	103	135	340.00
3	45	'2020/12/04'	109	175	282.40
4	45	'2020/12/05'	117	148	406.00
5	60	'2020/12/06'	102	127	300.00
6	60	'2020/12/07'	110	136	374.00
7	450	'2020/12/08'	104	134	253.30
8	30	'2020/12/09'	109	133	195.10
9	60	'2020/12/10'	98	124	269.00
10	60	'2020/12/11'	103	147	329.30
11	60	'2020/12/12'	100	120	250.70
12	60	'2020/12/12'	100	120	250.70
13	60	'2020/12/13'	106	128	345.30
14	60	'2020/12/14'	104	132	379.30
15	60	'2020/12/15'	98	123	275.00
16	60	'2020/12/16'	98	120	215.20
17	60	'2020/12/17'	100	120	300.00
18	45	'2020/12/18'	90	112	304.68
19	60	'2020/12/19'	103	123	323.00
20	45	'2020/12/20'	97	125	243.00
21	60	'2020/12/21'	108	131	364.20
22	45	NaN	100	119	282.00
23	60	'2020/12/23'	130	101	300.00
24	45	'2020/12/24'	105	132	246.00
25	60	'2020/12/25'	102	126	334.50
26	60	2020/12/26	100	120	250.00
27	60	'2020/12/27'	92	118	241.00

```
304.68
28
          60 '2020/12/28'
                              103
                                         132
29
          60 '2020/12/29'
                              100
                                         132
                                                280.00
                                                380.30
30
          60 '2020/12/30'
                              102
                                         129
31
          60 '2020/12/31'
                               92
                                         115
                                                243.00
```

C:\Users\Md Abdullah Emon\AppData\Local\Temp\ipykernel\_12740\2859649932.py:7: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.

The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the original object.

#### df["Calories"].fillna(x,inplace=True)

```
[90]: # Cleaning Data of Wrong Format

df = pd.read_csv("new_data.csv")
# df["Date"] = pd.to_datetime(df["Date"])
# print(df)
```

```
[96]: # Replace Value
df = pd.read_csv("new_data.csv")

df.loc[0, "Duration"] = 1
print(df.loc[0])

# Info of Index
print(df.index)

# Setting The Value of Duration >45 by 100
for x in df.index:
    if df.loc[x, "Duration"] > 45:
        df.loc[x, "Duration"] = 100
print(df)
```

```
Duration 1
Date '2020/12/01'
Pulse 110
Maxpulse 130
Calories 409.1
Name: 0, dtype: object
RangeIndex(start=0, stop=32, step=1)
Duration Date Pulse Maxpulse Calories
```

```
0
               '2020/12/01'
                                 110
                                             130
                                                      409.1
            1
1
                                                      479.0
          100
               '2020/12/02'
                                 117
                                             145
2
          100
               '2020/12/03'
                                 103
                                             135
                                                      340.0
3
           45
                '2020/12/04'
                                 109
                                                      282.4
                                             175
4
           45
               '2020/12/05'
                                 117
                                             148
                                                      406.0
5
          100
               '2020/12/06'
                                 102
                                                      300.0
                                             127
6
          100
               '2020/12/07'
                                 110
                                             136
                                                      374.0
7
          100
               '2020/12/08'
                                 104
                                             134
                                                      253.3
8
           30
               '2020/12/09'
                                 109
                                             133
                                                      195.1
9
          100
               '2020/12/10'
                                  98
                                             124
                                                      269.0
10
                                             147
          100
               '2020/12/11'
                                 103
                                                      329.3
          100
                                 100
                                             120
11
               '2020/12/12'
                                                      250.7
12
          100
               '2020/12/12'
                                 100
                                             120
                                                      250.7
13
          100
               '2020/12/13'
                                 106
                                             128
                                                      345.3
14
          100
               '2020/12/14'
                                 104
                                             132
                                                      379.3
15
          100
               '2020/12/15'
                                  98
                                             123
                                                      275.0
16
          100
               '2020/12/16'
                                  98
                                             120
                                                      215.2
17
          100
               '2020/12/17'
                                 100
                                             120
                                                      300.0
18
           45
               '2020/12/18'
                                  90
                                                        NaN
                                             112
19
          100
               '2020/12/19'
                                 103
                                             123
                                                      323.0
20
           45
               '2020/12/20'
                                  97
                                             125
                                                      243.0
21
                '2020/12/21'
                                 108
          100
                                             131
                                                      364.2
22
           45
                         {\tt NaN}
                                 100
                                             119
                                                      282.0
23
          100
               '2020/12/23'
                                 130
                                             101
                                                      300.0
24
           45
               '2020/12/24'
                                 105
                                             132
                                                      246.0
25
          100
                                 102
               '2020/12/25'
                                             126
                                                      334.5
26
          100
                                 100
                 2020/12/26
                                             120
                                                      250.0
27
                                  92
          100
               '2020/12/27'
                                             118
                                                      241.0
28
                                 103
          100
               '2020/12/28'
                                             132
                                                        NaN
29
          100
               '2020/12/29'
                                 100
                                             132
                                                      280.0
30
          100
               '2020/12/30'
                                 102
                                             129
                                                      380.3
31
          100
               '2020/12/31'
                                  92
                                             115
                                                      243.0
```

```
[103]: # Removing The Rows Which Has A Greater Calorie Than 300
df = pd.read_csv("new_data.csv")

for i in df.index:
    if df.loc[i, "Calories"] > 300:
        df.drop(i, inplace=True)
    print(df)
```

	Duration	Date	Pulse	Maxpulse	Calories
3	45	'2020/12/04'	109	175	282.4
5	60	'2020/12/06'	102	127	300.0
7	450	'2020/12/08'	104	134	253.3
8	30	'2020/12/09'	109	133	195.1
9	60	'2020/12/10'	98	124	269.0
11	60	'2020/12/12'	100	120	250.7

```
12
                                 100
                                            120
                                                     250.7
           60
               '2020/12/12'
15
           60
               '2020/12/15'
                                  98
                                            123
                                                     275.0
16
               '2020/12/16'
                                  98
                                            120
                                                     215.2
           60
17
           60
               '2020/12/17'
                                 100
                                            120
                                                     300.0
                                  90
                                                       NaN
18
           45
               '2020/12/18'
                                            112
                                                     243.0
20
           45
               '2020/12/20'
                                  97
                                            125
22
                                                     282.0
           45
                         NaN
                                 100
                                            119
23
               '2020/12/23'
                                 130
                                            101
                                                     300.0
           60
24
           45
               '2020/12/24'
                                 105
                                            132
                                                     246.0
26
           60
                 2020/12/26
                                 100
                                            120
                                                     250.0
27
                                                     241.0
           60
               '2020/12/27'
                                  92
                                            118
28
           60
               '2020/12/28'
                                 103
                                            132
                                                       {\tt NaN}
29
           60
               '2020/12/29'
                                 100
                                            132
                                                     280.0
31
           60
               '2020/12/31'
                                  92
                                                     243.0
                                            115
```

```
[107]: # Removing Duplicates
       df = pd.read_csv("new_data.csv")
       print(df.duplicated())
       df.drop_duplicates(inplace=True)
       print(df)
```

- 0 False 1 False
- 2 False
- 3 False 4 False
- 5 False
- 6 False
- 7 False
- 8 False
- 9 False
- 10 False
- 11 False
- 12 True
- 13 False False 14
- False 15
- 16 False 17 False
- 18 False
- 19 False 20 False
- 21 False
- 22 False
- 23 False
- 24 False
- 25 False

26	False
27	False
28	False
29	False
30	False
31	False
dtype	: bool
Dı	uratio

adypo	. 5001				
D	uration	Date	Pulse	Maxpulse	Calories
0	60	'2020/12/01'	110	130	409.1
1	60	'2020/12/02'	117	145	479.0
2	60	'2020/12/03'	103	135	340.0
3	45	'2020/12/04'	109	175	282.4
4	45	'2020/12/05'	117	148	406.0
5	60	'2020/12/06'	102	127	300.0
6	60	'2020/12/07'	110	136	374.0
7	450	'2020/12/08'	104	134	253.3
8	30	'2020/12/09'	109	133	195.1
9	60	'2020/12/10'	98	124	269.0
10	60	'2020/12/11'	103	147	329.3
11	60	'2020/12/12'	100	120	250.7
13	60	'2020/12/13'	106	128	345.3
14	60	'2020/12/14'	104	132	379.3
15	60	'2020/12/15'	98	123	275.0
16	60	'2020/12/16'	98	120	215.2
17	60	'2020/12/17'	100	120	300.0
18	45	'2020/12/18'	90	112	NaN
19	60	'2020/12/19'	103	123	323.0
20	45	'2020/12/20'	97	125	243.0
21	60	'2020/12/21'	108	131	364.2
22	45	NaN	100	119	282.0
23	60	'2020/12/23'	130	101	300.0
24	45	'2020/12/24'	105	132	246.0
25	60	'2020/12/25'	102	126	334.5
26	60	2020/12/26	100	120	250.0
27	60	'2020/12/27'	92	118	241.0
28	60	'2020/12/28'	103	132	NaN
29	60	'2020/12/29'	100	132	280.0
30	60	'2020/12/30'	102	129	380.3
31	60	'2020/12/31'	92	115	243.0