```
In [1]:  # Name: Atharv Santosh Danave
         # Roll no: 11
         # Practical no: 10
         # Academic year: 2024-25
```

```
In [2]:  import pandas as pd
```

```
In [4]:  data = pd.read_csv("/home/atharv/Downloads/iris.csv")
```

```
In [5]:  data.head()
```

Out[5]:

	sepal.length	sepal.width	petal.length	petal.width	variety
0	5.1	3.5	1.4	0.2	Setosa
1	4.9	3.0	1.4	0.2	Setosa
2	4.7	3.2	1.3	0.2	Setosa
3	4.6	3.1	1.5	0.2	Setosa
4	5.0	3.6	1.4	0.2	Setosa

```
In [6]:  data.sample(10)
```

Out[6]:

	sepal.length	sepal.width	petal.length	petal.width	variety
38	4.4	3.0	1.3	0.2	Setosa
117	7.7	3.8	6.7	2.2	Virginica
53	5.5	2.3	4.0	1.3	Versicolor
56	6.3	3.3	4.7	1.6	Versicolor
9	4.9	3.1	1.5	0.1	Setosa
11	4.8	3.4	1.6	0.2	Setosa
1	4.9	3.0	1.4	0.2	Setosa
15	5.7	4.4	1.5	0.4	Setosa
19	5.1	3.8	1.5	0.3	Setosa
111	6.4	2.7	5.3	1.9	Virginica

```
In [7]:  data.columns
```

```
Out[7]:  Index(['sepal.length', 'sepal.width', 'petal.length', 'petal.width',
                'variety'],
               dtype='object')
```

```
In [8]:  data.shape
```

```
Out[8]:  (150, 5)
```

```
In [9]:  print(data)
```

```
        sepal.length  sepal.width  petal.length  petal.width    variety
    0            5.1          3.5           1.4          0.2     Setosa
    1            4.9          3.0           1.4          0.2     Setosa
    2            4.7          3.2           1.3          0.2     Setosa
    3            4.6          3.1           1.5          0.2     Setosa
    4            5.0          3.6           1.4          0.2     Setosa
    ..           ...          ...           ...          ...        ...
    145          6.7          3.0           5.2          2.3  Virginica
    146          6.3          2.5           5.0          1.9  Virginica
    147          6.5          3.0           5.2          2.0  Virginica
    148          6.2          3.4           5.4          2.3  Virginica
    149          5.9          3.0           5.1          1.8  Virginica

    [150 rows x 5 columns]
```

In [10]:
```python
print(data[10:21])
```

```
        sepal.length  sepal.width  petal.length  petal.width variety
    10           5.4          3.7           1.5          0.2  Setosa
    11           4.8          3.4           1.6          0.2  Setosa
    12           4.8          3.0           1.4          0.1  Setosa
    13           4.3          3.0           1.1          0.1  Setosa
    14           5.8          4.0           1.2          0.2  Setosa
    15           5.7          4.4           1.5          0.4  Setosa
    16           5.4          3.9           1.3          0.4  Setosa
    17           5.1          3.5           1.4          0.3  Setosa
    18           5.7          3.8           1.7          0.3  Setosa
    19           5.1          3.8           1.5          0.3  Setosa
    20           5.4          3.4           1.7          0.2  Setosa
```

In [11]:
```python
sliced_data=data[10:21]
print(sliced_data)
```

```
        sepal.length  sepal.width  petal.length  petal.width variety
    10           5.4          3.7           1.5          0.2  Setosa
    11           4.8          3.4           1.6          0.2  Setosa
    12           4.8          3.0           1.4          0.1  Setosa
    13           4.3          3.0           1.1          0.1  Setosa
    14           5.8          4.0           1.2          0.2  Setosa
    15           5.7          4.4           1.5          0.4  Setosa
    16           5.4          3.9           1.3          0.4  Setosa
    17           5.1          3.5           1.4          0.3  Setosa
    18           5.7          3.8           1.7          0.3  Setosa
    19           5.1          3.8           1.5          0.3  Setosa
    20           5.4          3.4           1.7          0.2  Setosa
```

In [14]:
```python
specific_data=data[["variety"]]
print(specific_data.head(10))
```

```
       variety
    0   Setosa
    1   Setosa
    2   Setosa
    3   Setosa
    4   Setosa
    5   Setosa
    6   Setosa
    7   Setosa
    8   Setosa
    9   Setosa
```

```
In [15]: data.iloc[5]
```

```
Out[15]: sepal.length      5.4
         sepal.width       3.9
         petal.length      1.7
         petal.width       0.4
         variety        Setosa
         Name: 5, dtype: object
```

```
In [19]: data.loc[data["variety"] == "Setosa"]
```

Out[19]:

	sepal.length	sepal.width	petal.length	petal.width	variety
0	5.1	3.5	1.4	0.2	Setosa
1	4.9	3.0	1.4	0.2	Setosa
2	4.7	3.2	1.3	0.2	Setosa
3	4.6	3.1	1.5	0.2	Setosa
4	5.0	3.6	1.4	0.2	Setosa
5	5.4	3.9	1.7	0.4	Setosa
6	4.6	3.4	1.4	0.3	Setosa
7	5.0	3.4	1.5	0.2	Setosa
8	4.4	2.9	1.4	0.2	Setosa
9	4.9	3.1	1.5	0.1	Setosa
10	5.4	3.7	1.5	0.2	Setosa
11	4.8	3.4	1.6	0.2	Setosa
12	4.8	3.0	1.4	0.1	Setosa
13	4.3	3.0	1.1	0.1	Setosa
14	5.8	4.0	1.2	0.2	Setosa
15	5.7	4.4	1.5	0.4	Setosa
16	5.4	3.9	1.3	0.4	Setosa
17	5.1	3.5	1.4	0.3	Setosa
18	5.7	3.8	1.7	0.3	Setosa
19	5.1	3.8	1.5	0.3	Setosa
20	5.4	3.4	1.7	0.2	Setosa
21	5.1	3.7	1.5	0.4	Setosa
22	4.6	3.6	1.0	0.2	Setosa
23	5.1	3.3	1.7	0.5	Setosa
24	4.8	3.4	1.9	0.2	Setosa
25	5.0	3.0	1.6	0.2	Setosa
26	5.0	3.4	1.6	0.4	Setosa
27	5.2	3.5	1.5	0.2	Setosa
28	5.2	3.4	1.4	0.2	Setosa
29	4.7	3.2	1.6	0.2	Setosa
30	4.8	3.1	1.6	0.2	Setosa
31	5.4	3.4	1.5	0.4	Setosa
32	5.2	4.1	1.5	0.1	Setosa

	sepal.length	sepal.width	petal.length	petal.width	variety
33	5.5	4.2	1.4	0.2	Setosa
34	4.9	3.1	1.5	0.2	Setosa
35	5.0	3.2	1.2	0.2	Setosa
36	5.5	3.5	1.3	0.2	Setosa
37	4.9	3.6	1.4	0.1	Setosa
38	4.4	3.0	1.3	0.2	Setosa
39	5.1	3.4	1.5	0.2	Setosa
40	5.0	3.5	1.3	0.3	Setosa
41	4.5	2.3	1.3	0.3	Setosa
42	4.4	3.2	1.3	0.2	Setosa
43	5.0	3.5	1.6	0.6	Setosa
44	5.1	3.8	1.9	0.4	Setosa
45	4.8	3.0	1.4	0.3	Setosa
46	5.1	3.8	1.6	0.2	Setosa
47	4.6	3.2	1.4	0.2	Setosa
48	5.3	3.7	1.5	0.2	Setosa
49	5.0	3.3	1.4	0.2	Setosa

In [21]:
```python
data["variety"].value_counts()
```

Out[21]:
```
variety
Setosa        50
Versicolor    50
Virginica     50
Name: count, dtype: int64
```

In [22]:
```python
sum_data = data["sepal.length"].sum()
mean_data = data["sepal.length"].mean()
median_data = data["sepal.length"].median()
print("Sum:",sum_data, "\nMean:", mean_data, "\nMedian:",median_data)
```

```
Sum: 876.5
Mean: 5.843333333333334
Median: 5.8
```

In [24]:
```python
min_data=data["sepal.length"].min()
max_data=data["sepal.length"].max()
print("Minimum:",min_data, "\nMaximum:", max_data)
```

```
Minimum: 4.3
Maximum: 7.9
```

In [25]:
```python
cols = data.columns
print(cols)
```

```
Index(['sepal.length', 'sepal.width', 'petal.length', 'petal.width',
       'variety'],
      dtype='object')
```

In [26]:
```python
data1 = data[cols].select_dtypes(include='number')
# Create the new 'total_values' column by summing the numeric values
data["total_values"] = data1.sum(axis=1)
```

In [27]:
```python
newcols={ "Id":"id",
"sepal.length":"SepalLength",
"sepal.width":"SepalWidth"}
data.rename(columns=newcols,inplace=True)
```

In [28]:
```python
print(data.head())
```

```
   SepalLength  SepalWidth  petal.length  petal.width variety  total_value
s
0          5.1         3.5           1.4          0.2  Setosa            1
0.2
1          4.9         3.0           1.4          0.2  Setosa
9.5
2          4.7         3.2           1.3          0.2  Setosa
9.4
3          4.6         3.1           1.5          0.2  Setosa
9.4
4          5.0         3.6           1.4          0.2  Setosa            1
0.2
```

In [31]:
```python
data.style
```

Out[31]:

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
0	5.100000	3.500000	1.400000	0.200000	Setosa	10.200000
1	4.900000	3.000000	1.400000	0.200000	Setosa	9.500000
2	4.700000	3.200000	1.300000	0.200000	Setosa	9.400000
3	4.600000	3.100000	1.500000	0.200000	Setosa	9.400000
4	5.000000	3.600000	1.400000	0.200000	Setosa	10.200000
5	5.400000	3.900000	1.700000	0.400000	Setosa	11.400000
6	4.600000	3.400000	1.400000	0.300000	Setosa	9.700000
7	5.000000	3.400000	1.500000	0.200000	Setosa	10.100000
8	4.400000	2.900000	1.400000	0.200000	Setosa	8.900000
9	4.900000	3.100000	1.500000	0.100000	Setosa	9.600000
10	5.400000	3.700000	1.500000	0.200000	Setosa	10.800000
11	4.800000	3.400000	1.600000	0.200000	Setosa	10.000000
12	4.800000	3.000000	1.400000	0.100000	Setosa	9.300000
13	4.300000	3.000000	1.100000	0.100000	Setosa	8.500000
14	5.800000	4.000000	1.200000	0.200000	Setosa	11.200000
15	5.700000	4.400000	1.500000	0.400000	Setosa	12.000000
16	5.400000	3.900000	1.300000	0.400000	Setosa	11.000000
17	5.100000	3.500000	1.400000	0.300000	Setosa	10.300000
18	5.700000	3.800000	1.700000	0.300000	Setosa	11.500000
19	5.100000	3.800000	1.500000	0.300000	Setosa	10.700000
20	5.400000	3.400000	1.700000	0.200000	Setosa	10.700000
21	5.100000	3.700000	1.500000	0.400000	Setosa	10.700000
22	4.600000	3.600000	1.000000	0.200000	Setosa	9.400000
23	5.100000	3.300000	1.700000	0.500000	Setosa	10.600000
24	4.800000	3.400000	1.900000	0.200000	Setosa	10.300000
25	5.000000	3.000000	1.600000	0.200000	Setosa	9.800000
26	5.000000	3.400000	1.600000	0.400000	Setosa	10.400000
27	5.200000	3.500000	1.500000	0.200000	Setosa	10.400000
28	5.200000	3.400000	1.400000	0.200000	Setosa	10.200000
29	4.700000	3.200000	1.600000	0.200000	Setosa	9.700000
30	4.800000	3.100000	1.600000	0.200000	Setosa	9.700000
31	5.400000	3.400000	1.500000	0.400000	Setosa	10.700000
32	5.200000	4.100000	1.500000	0.100000	Setosa	10.900000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
33	5.500000	4.200000	1.400000	0.200000	Setosa	11.300000
34	4.900000	3.100000	1.500000	0.200000	Setosa	9.700000
35	5.000000	3.200000	1.200000	0.200000	Setosa	9.600000
36	5.500000	3.500000	1.300000	0.200000	Setosa	10.500000
37	4.900000	3.600000	1.400000	0.100000	Setosa	10.000000
38	4.400000	3.000000	1.300000	0.200000	Setosa	8.900000
39	5.100000	3.400000	1.500000	0.200000	Setosa	10.200000
40	5.000000	3.500000	1.300000	0.300000	Setosa	10.100000
41	4.500000	2.300000	1.300000	0.300000	Setosa	8.400000
42	4.400000	3.200000	1.300000	0.200000	Setosa	9.100000
43	5.000000	3.500000	1.600000	0.600000	Setosa	10.700000
44	5.100000	3.800000	1.900000	0.400000	Setosa	11.200000
45	4.800000	3.000000	1.400000	0.300000	Setosa	9.500000
46	5.100000	3.800000	1.600000	0.200000	Setosa	10.700000
47	4.600000	3.200000	1.400000	0.200000	Setosa	9.400000
48	5.300000	3.700000	1.500000	0.200000	Setosa	10.700000
49	5.000000	3.300000	1.400000	0.200000	Setosa	9.900000
50	7.000000	3.200000	4.700000	1.400000	Versicolor	16.300000
51	6.400000	3.200000	4.500000	1.500000	Versicolor	15.600000
52	6.900000	3.100000	4.900000	1.500000	Versicolor	16.400000
53	5.500000	2.300000	4.000000	1.300000	Versicolor	13.100000
54	6.500000	2.800000	4.600000	1.500000	Versicolor	15.400000
55	5.700000	2.800000	4.500000	1.300000	Versicolor	14.300000
56	6.300000	3.300000	4.700000	1.600000	Versicolor	15.900000
57	4.900000	2.400000	3.300000	1.000000	Versicolor	11.600000
58	6.600000	2.900000	4.600000	1.300000	Versicolor	15.400000
59	5.200000	2.700000	3.900000	1.400000	Versicolor	13.200000
60	5.000000	2.000000	3.500000	1.000000	Versicolor	11.500000
61	5.900000	3.000000	4.200000	1.500000	Versicolor	14.600000
62	6.000000	2.200000	4.000000	1.000000	Versicolor	13.200000
63	6.100000	2.900000	4.700000	1.400000	Versicolor	15.100000
64	5.600000	2.900000	3.600000	1.300000	Versicolor	13.400000
65	6.700000	3.100000	4.400000	1.400000	Versicolor	15.600000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
66	5.600000	3.000000	4.500000	1.500000	Versicolor	14.600000
67	5.800000	2.700000	4.100000	1.000000	Versicolor	13.600000
68	6.200000	2.200000	4.500000	1.500000	Versicolor	14.400000
69	5.600000	2.500000	3.900000	1.100000	Versicolor	13.100000
70	5.900000	3.200000	4.800000	1.800000	Versicolor	15.700000
71	6.100000	2.800000	4.000000	1.300000	Versicolor	14.200000
72	6.300000	2.500000	4.900000	1.500000	Versicolor	15.200000
73	6.100000	2.800000	4.700000	1.200000	Versicolor	14.800000
74	6.400000	2.900000	4.300000	1.300000	Versicolor	14.900000
75	6.600000	3.000000	4.400000	1.400000	Versicolor	15.400000
76	6.800000	2.800000	4.800000	1.400000	Versicolor	15.800000
77	6.700000	3.000000	5.000000	1.700000	Versicolor	16.400000
78	6.000000	2.900000	4.500000	1.500000	Versicolor	14.900000
79	5.700000	2.600000	3.500000	1.000000	Versicolor	12.800000
80	5.500000	2.400000	3.800000	1.100000	Versicolor	12.800000
81	5.500000	2.400000	3.700000	1.000000	Versicolor	12.600000
82	5.800000	2.700000	3.900000	1.200000	Versicolor	13.600000
83	6.000000	2.700000	5.100000	1.600000	Versicolor	15.400000
84	5.400000	3.000000	4.500000	1.500000	Versicolor	14.400000
85	6.000000	3.400000	4.500000	1.600000	Versicolor	15.500000
86	6.700000	3.100000	4.700000	1.500000	Versicolor	16.000000
87	6.300000	2.300000	4.400000	1.300000	Versicolor	14.300000
88	5.600000	3.000000	4.100000	1.300000	Versicolor	14.000000
89	5.500000	2.500000	4.000000	1.300000	Versicolor	13.300000
90	5.500000	2.600000	4.400000	1.200000	Versicolor	13.700000
91	6.100000	3.000000	4.600000	1.400000	Versicolor	15.100000
92	5.800000	2.600000	4.000000	1.200000	Versicolor	13.600000
93	5.000000	2.300000	3.300000	1.000000	Versicolor	11.600000
94	5.600000	2.700000	4.200000	1.300000	Versicolor	13.800000
95	5.700000	3.000000	4.200000	1.200000	Versicolor	14.100000
96	5.700000	2.900000	4.200000	1.300000	Versicolor	14.100000
97	6.200000	2.900000	4.300000	1.300000	Versicolor	14.700000
98	5.100000	2.500000	3.000000	1.100000	Versicolor	11.700000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
99	5.700000	2.800000	4.100000	1.300000	Versicolor	13.900000
100	6.300000	3.300000	6.000000	2.500000	Virginica	18.100000
101	5.800000	2.700000	5.100000	1.900000	Virginica	15.500000
102	7.100000	3.000000	5.900000	2.100000	Virginica	18.100000
103	6.300000	2.900000	5.600000	1.800000	Virginica	16.600000
104	6.500000	3.000000	5.800000	2.200000	Virginica	17.500000
105	7.600000	3.000000	6.600000	2.100000	Virginica	19.300000
106	4.900000	2.500000	4.500000	1.700000	Virginica	13.600000
107	7.300000	2.900000	6.300000	1.800000	Virginica	18.300000
108	6.700000	2.500000	5.800000	1.800000	Virginica	16.800000
109	7.200000	3.600000	6.100000	2.500000	Virginica	19.400000
110	6.500000	3.200000	5.100000	2.000000	Virginica	16.800000
111	6.400000	2.700000	5.300000	1.900000	Virginica	16.300000
112	6.800000	3.000000	5.500000	2.100000	Virginica	17.400000
113	5.700000	2.500000	5.000000	2.000000	Virginica	15.200000
114	5.800000	2.800000	5.100000	2.400000	Virginica	16.100000
115	6.400000	3.200000	5.300000	2.300000	Virginica	17.200000
116	6.500000	3.000000	5.500000	1.800000	Virginica	16.800000
117	7.700000	3.800000	6.700000	2.200000	Virginica	20.400000
118	7.700000	2.600000	6.900000	2.300000	Virginica	19.500000
119	6.000000	2.200000	5.000000	1.500000	Virginica	14.700000
120	6.900000	3.200000	5.700000	2.300000	Virginica	18.100000
121	5.600000	2.800000	4.900000	2.000000	Virginica	15.300000
122	7.700000	2.800000	6.700000	2.000000	Virginica	19.200000
123	6.300000	2.700000	4.900000	1.800000	Virginica	15.700000
124	6.700000	3.300000	5.700000	2.100000	Virginica	17.800000
125	7.200000	3.200000	6.000000	1.800000	Virginica	18.200000
126	6.200000	2.800000	4.800000	1.800000	Virginica	15.600000
127	6.100000	3.000000	4.900000	1.800000	Virginica	15.800000
128	6.400000	2.800000	5.600000	2.100000	Virginica	16.900000
129	7.200000	3.000000	5.800000	1.600000	Virginica	17.600000
130	7.400000	2.800000	6.100000	1.900000	Virginica	18.200000
131	7.900000	3.800000	6.400000	2.000000	Virginica	20.100000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
132	6.400000	2.800000	5.600000	2.200000	Virginica	17.000000
133	6.300000	2.800000	5.100000	1.500000	Virginica	15.700000
134	6.100000	2.600000	5.600000	1.400000	Virginica	15.700000
135	7.700000	3.000000	6.100000	2.300000	Virginica	19.100000
136	6.300000	3.400000	5.600000	2.400000	Virginica	17.700000
137	6.400000	3.100000	5.500000	1.800000	Virginica	16.800000
138	6.000000	3.000000	4.800000	1.800000	Virginica	15.600000
139	6.900000	3.100000	5.400000	2.100000	Virginica	17.500000
140	6.700000	3.100000	5.600000	2.400000	Virginica	17.800000
141	6.900000	3.100000	5.100000	2.300000	Virginica	17.400000
142	5.800000	2.700000	5.100000	1.900000	Virginica	15.500000
143	6.800000	3.200000	5.900000	2.300000	Virginica	18.200000
144	6.700000	3.300000	5.700000	2.500000	Virginica	18.200000
145	6.700000	3.000000	5.200000	2.300000	Virginica	17.200000
146	6.300000	2.500000	5.000000	1.900000	Virginica	15.700000
147	6.500000	3.000000	5.200000	2.000000	Virginica	16.700000
148	6.200000	3.400000	5.400000	2.300000	Virginica	17.300000
149	5.900000	3.000000	5.100000	1.800000	Virginica	15.800000

In [32]:
```python
data.head(10).style.highlight_max(color='lightgreen', axis=0)
```

Out[32]:

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
0	5.100000	3.500000	1.400000	0.200000	Setosa	10.200000
1	4.900000	3.000000	1.400000	0.200000	Setosa	9.500000
2	4.700000	3.200000	1.300000	0.200000	Setosa	9.400000
3	4.600000	3.100000	1.500000	0.200000	Setosa	9.400000
4	5.000000	3.600000	1.400000	0.200000	Setosa	10.200000
5	5.400000	3.900000	1.700000	0.400000	Setosa	11.400000
6	4.600000	3.400000	1.400000	0.300000	Setosa	9.700000
7	5.000000	3.400000	1.500000	0.200000	Setosa	10.100000
8	4.400000	2.900000	1.400000	0.200000	Setosa	8.900000
9	4.900000	3.100000	1.500000	0.100000	Setosa	9.600000

In [33]:
```python
# Highlight max values only in numeric columns
data.style.highlight_max(subset=data.select_dtypes(include='number').colu
```

Out[33]:

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
0	5.100000	3.500000	1.400000	0.200000	Setosa	10.200000
1	4.900000	3.000000	1.400000	0.200000	Setosa	9.500000
2	4.700000	3.200000	1.300000	0.200000	Setosa	9.400000
3	4.600000	3.100000	1.500000	0.200000	Setosa	9.400000
4	5.000000	3.600000	1.400000	0.200000	Setosa	10.200000
5	5.400000	3.900000	1.700000	0.400000	Setosa	11.400000
6	4.600000	3.400000	1.400000	0.300000	Setosa	9.700000
7	5.000000	3.400000	1.500000	0.200000	Setosa	10.100000
8	4.400000	2.900000	1.400000	0.200000	Setosa	8.900000
9	4.900000	3.100000	1.500000	0.100000	Setosa	9.600000
10	5.400000	3.700000	1.500000	0.200000	Setosa	10.800000
11	4.800000	3.400000	1.600000	0.200000	Setosa	10.000000
12	4.800000	3.000000	1.400000	0.100000	Setosa	9.300000
13	4.300000	3.000000	1.100000	0.100000	Setosa	8.500000
14	5.800000	4.000000	1.200000	0.200000	Setosa	11.200000
15	5.700000	4.400000	1.500000	0.400000	Setosa	12.000000
16	5.400000	3.900000	1.300000	0.400000	Setosa	11.000000
17	5.100000	3.500000	1.400000	0.300000	Setosa	10.300000
18	5.700000	3.800000	1.700000	0.300000	Setosa	11.500000
19	5.100000	3.800000	1.500000	0.300000	Setosa	10.700000
20	5.400000	3.400000	1.700000	0.200000	Setosa	10.700000
21	5.100000	3.700000	1.500000	0.400000	Setosa	10.700000
22	4.600000	3.600000	1.000000	0.200000	Setosa	9.400000
23	5.100000	3.300000	1.700000	0.500000	Setosa	10.600000
24	4.800000	3.400000	1.900000	0.200000	Setosa	10.300000
25	5.000000	3.000000	1.600000	0.200000	Setosa	9.800000
26	5.000000	3.400000	1.600000	0.400000	Setosa	10.400000
27	5.200000	3.500000	1.500000	0.200000	Setosa	10.400000
28	5.200000	3.400000	1.400000	0.200000	Setosa	10.200000
29	4.700000	3.200000	1.600000	0.200000	Setosa	9.700000
30	4.800000	3.100000	1.600000	0.200000	Setosa	9.700000
31	5.400000	3.400000	1.500000	0.400000	Setosa	10.700000
32	5.200000	4.100000	1.500000	0.100000	Setosa	10.900000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
33	5.500000	4.200000	1.400000	0.200000	Setosa	11.300000
34	4.900000	3.100000	1.500000	0.200000	Setosa	9.700000
35	5.000000	3.200000	1.200000	0.200000	Setosa	9.600000
36	5.500000	3.500000	1.300000	0.200000	Setosa	10.500000
37	4.900000	3.600000	1.400000	0.100000	Setosa	10.000000
38	4.400000	3.000000	1.300000	0.200000	Setosa	8.900000
39	5.100000	3.400000	1.500000	0.200000	Setosa	10.200000
40	5.000000	3.500000	1.300000	0.300000	Setosa	10.100000
41	4.500000	2.300000	1.300000	0.300000	Setosa	8.400000
42	4.400000	3.200000	1.300000	0.200000	Setosa	9.100000
43	5.000000	3.500000	1.600000	0.600000	Setosa	10.700000
44	5.100000	3.800000	1.900000	0.400000	Setosa	11.200000
45	4.800000	3.000000	1.400000	0.300000	Setosa	9.500000
46	5.100000	3.800000	1.600000	0.200000	Setosa	10.700000
47	4.600000	3.200000	1.400000	0.200000	Setosa	9.400000
48	5.300000	3.700000	1.500000	0.200000	Setosa	10.700000
49	5.000000	3.300000	1.400000	0.200000	Setosa	9.900000
50	7.000000	3.200000	4.700000	1.400000	Versicolor	16.300000
51	6.400000	3.200000	4.500000	1.500000	Versicolor	15.600000
52	6.900000	3.100000	4.900000	1.500000	Versicolor	16.400000
53	5.500000	2.300000	4.000000	1.300000	Versicolor	13.100000
54	6.500000	2.800000	4.600000	1.500000	Versicolor	15.400000
55	5.700000	2.800000	4.500000	1.300000	Versicolor	14.300000
56	6.300000	3.300000	4.700000	1.600000	Versicolor	15.900000
57	4.900000	2.400000	3.300000	1.000000	Versicolor	11.600000
58	6.600000	2.900000	4.600000	1.300000	Versicolor	15.400000
59	5.200000	2.700000	3.900000	1.400000	Versicolor	13.200000
60	5.000000	2.000000	3.500000	1.000000	Versicolor	11.500000
61	5.900000	3.000000	4.200000	1.500000	Versicolor	14.600000
62	6.000000	2.200000	4.000000	1.000000	Versicolor	13.200000
63	6.100000	2.900000	4.700000	1.400000	Versicolor	15.100000
64	5.600000	2.900000	3.600000	1.300000	Versicolor	13.400000
65	6.700000	3.100000	4.400000	1.400000	Versicolor	15.600000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
66	5.600000	3.000000	4.500000	1.500000	Versicolor	14.600000
67	5.800000	2.700000	4.100000	1.000000	Versicolor	13.600000
68	6.200000	2.200000	4.500000	1.500000	Versicolor	14.400000
69	5.600000	2.500000	3.900000	1.100000	Versicolor	13.100000
70	5.900000	3.200000	4.800000	1.800000	Versicolor	15.700000
71	6.100000	2.800000	4.000000	1.300000	Versicolor	14.200000
72	6.300000	2.500000	4.900000	1.500000	Versicolor	15.200000
73	6.100000	2.800000	4.700000	1.200000	Versicolor	14.800000
74	6.400000	2.900000	4.300000	1.300000	Versicolor	14.900000
75	6.600000	3.000000	4.400000	1.400000	Versicolor	15.400000
76	6.800000	2.800000	4.800000	1.400000	Versicolor	15.800000
77	6.700000	3.000000	5.000000	1.700000	Versicolor	16.400000
78	6.000000	2.900000	4.500000	1.500000	Versicolor	14.900000
79	5.700000	2.600000	3.500000	1.000000	Versicolor	12.800000
80	5.500000	2.400000	3.800000	1.100000	Versicolor	12.800000
81	5.500000	2.400000	3.700000	1.000000	Versicolor	12.600000
82	5.800000	2.700000	3.900000	1.200000	Versicolor	13.600000
83	6.000000	2.700000	5.100000	1.600000	Versicolor	15.400000
84	5.400000	3.000000	4.500000	1.500000	Versicolor	14.400000
85	6.000000	3.400000	4.500000	1.600000	Versicolor	15.500000
86	6.700000	3.100000	4.700000	1.500000	Versicolor	16.000000
87	6.300000	2.300000	4.400000	1.300000	Versicolor	14.300000
88	5.600000	3.000000	4.100000	1.300000	Versicolor	14.000000
89	5.500000	2.500000	4.000000	1.300000	Versicolor	13.300000
90	5.500000	2.600000	4.400000	1.200000	Versicolor	13.700000
91	6.100000	3.000000	4.600000	1.400000	Versicolor	15.100000
92	5.800000	2.600000	4.000000	1.200000	Versicolor	13.600000
93	5.000000	2.300000	3.300000	1.000000	Versicolor	11.600000
94	5.600000	2.700000	4.200000	1.300000	Versicolor	13.800000
95	5.700000	3.000000	4.200000	1.200000	Versicolor	14.100000
96	5.700000	2.900000	4.200000	1.300000	Variolety	14.100000
97	6.200000	2.900000	4.300000	1.300000	Versicolor	14.700000
98	5.100000	2.500000	3.000000	1.100000	Versicolor	11.700000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
99	5.700000	2.800000	4.100000	1.300000	Versicolor	13.900000
100	6.300000	3.300000	6.000000	2.500000	Virginica	18.100000
101	5.800000	2.700000	5.100000	1.900000	Virginica	15.500000
102	7.100000	3.000000	5.900000	2.100000	Virginica	18.100000
103	6.300000	2.900000	5.600000	1.800000	Virginica	16.600000
104	6.500000	3.000000	5.800000	2.200000	Virginica	17.500000
105	7.600000	3.000000	6.600000	2.100000	Virginica	19.300000
106	4.900000	2.500000	4.500000	1.700000	Virginica	13.600000
107	7.300000	2.900000	6.300000	1.800000	Virginica	18.300000
108	6.700000	2.500000	5.800000	1.800000	Virginica	16.800000
109	7.200000	3.600000	6.100000	2.500000	Virginica	19.400000
110	6.500000	3.200000	5.100000	2.000000	Virginica	16.800000
111	6.400000	2.700000	5.300000	1.900000	Virginica	16.300000
112	6.800000	3.000000	5.500000	2.100000	Virginica	17.400000
113	5.700000	2.500000	5.000000	2.000000	Virginica	15.200000
114	5.800000	2.800000	5.100000	2.400000	Virginica	16.100000
115	6.400000	3.200000	5.300000	2.300000	Virginica	17.200000
116	6.500000	3.000000	5.500000	1.800000	Virginica	16.800000
117	7.700000	3.800000	6.700000	2.200000	Virginica	20.400000
118	7.700000	2.600000	6.900000	2.300000	Virginica	19.500000
119	6.000000	2.200000	5.000000	1.500000	Virginica	14.700000
120	6.900000	3.200000	5.700000	2.300000	Virginica	18.100000
121	5.600000	2.800000	4.900000	2.000000	Virginica	15.300000
122	7.700000	2.800000	6.700000	2.000000	Virginica	19.200000
123	6.300000	2.700000	4.900000	1.800000	Virginica	15.700000
124	6.700000	3.300000	5.700000	2.100000	Virginica	17.800000
125	7.200000	3.200000	6.000000	1.800000	Virginica	18.200000
126	6.200000	2.800000	4.800000	1.800000	Virginica	15.600000
127	6.100000	3.000000	4.900000	1.800000	Virginica	15.800000
128	6.400000	2.800000	5.600000	2.100000	Virginica	16.900000
129	7.200000	3.000000	5.800000	1.600000	Virginica	17.600000
130	7.400000	2.800000	6.100000	1.900000	Virginica	18.200000
131	7.900000	3.800000	6.400000	2.000000	Virginica	20.100000

	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
132	6.400000	2.800000	5.600000	2.200000	Virginica	17.000000
133	6.300000	2.800000	5.100000	1.500000	Virginica	15.700000
134	6.100000	2.600000	5.600000	1.400000	Virginica	15.700000
135	7.700000	3.000000	6.100000	2.300000	Virginica	19.100000
136	6.300000	3.400000	5.600000	2.400000	Virginica	17.700000
137	6.400000	3.100000	5.500000	1.800000	Virginica	16.800000
138	6.000000	3.000000	4.800000	1.800000	Virginica	15.600000
139	6.900000	3.100000	5.400000	2.100000	Virginica	17.500000
140	6.700000	3.100000	5.600000	2.400000	Virginica	17.800000
141	6.900000	3.100000	5.100000	2.300000	Virginica	17.400000
142	5.800000	2.700000	5.100000	1.900000	Virginica	15.500000
143	6.800000	3.200000	5.900000	2.300000	Virginica	18.200000
144	6.700000	3.300000	5.700000	2.500000	Virginica	18.200000
145	6.700000	3.000000	5.200000	2.300000	Virginica	17.200000
146	6.300000	2.500000	5.000000	1.900000	Virginica	15.700000
147	6.500000	3.000000	5.200000	2.000000	Virginica	16.700000
148	6.200000	3.400000	5.400000	2.300000	Virginica	17.300000
149	5.900000	3.000000	5.100000	1.800000	Virginica	15.800000

In [34]:
```
data.isnull()
```

Out[34]:

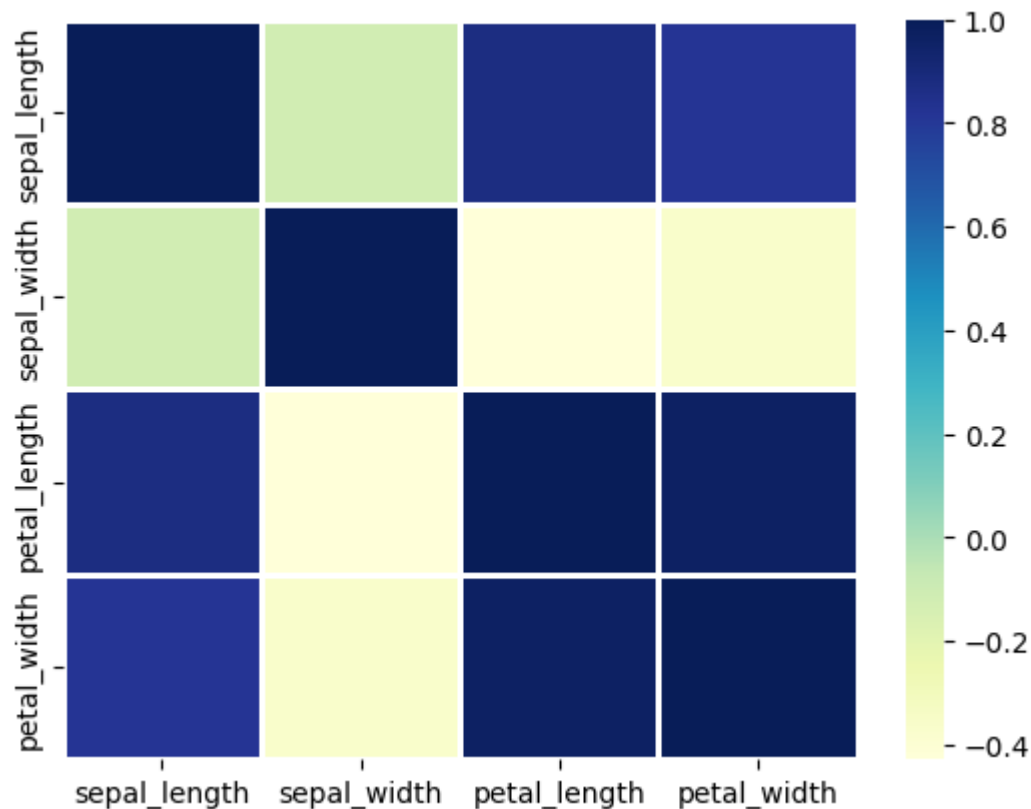|	SepalLength	SepalWidth	petal.length	petal.width	variety	total_values
0	False	False	False	False	False	False
1	False	False	False	False	False	False
2	False	False	False	False	False	False
3	False	False	False	False	False	False
4	False	False	False	False	False	False
...	...	...	...	...	...	...
145	False	False	False	False	False	False
146	False	False	False	False	False	False
147	False	False	False	False	False	False
148	False	False	False	False	False	False
149	False	False	False	False	False	False

150 rows × 6 columns

In [35]:
```python
null_values = data.isnull().sum()
print(null_values)
```

```
SepalLength      0
SepalWidth       0
petal.length     0
petal.width      0
variety          0
total_values     0
dtype: int64
```

In [36]:
```python
import ssl
import seaborn as sns
ssl._create_default_https_context = ssl._create_unverified_context
iris = sns.load_dataset("iris")
sns.heatmap(iris.select_dtypes(include='number').corr(), cmap="YlGnBu",
            linecolor='white', linewidths=1)
```

Out[36]:   <Axes: >

In [37]:
```python
data.select_dtypes(include='number').corr(method='pearson')
```

Out[37]:

	SepalLength	SepalWidth	petal.length	petal.width	total_values
SepalLength	1.000000	-0.117570	0.871754	0.817941	0.940914
SepalWidth	-0.117570	1.000000	-0.428440	-0.366126	-0.223093
petal.length	0.871754	-0.428440	1.000000	0.962865	0.971379
petal.width	0.817941	-0.366126	0.962865	1.000000	0.953885
total_values	0.940914	-0.223093	0.971379	0.953885	1.000000

In [39]:
```python
g=sns.pairplot(data,hue="variety")
```