

```
from sklearn import datasets
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import math
```

```
iris = datasets.load_iris(as_frame=True)
iris = iris.frame #reassigning iris from a sklearn bunch to pandas df
type(iris)
```

```
iris.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
#   Column                Non-Null Count  Dtype
---  -
0   sepal length (cm)      150 non-null   float64
1   sepal width (cm)       150 non-null   float64
2   petal length (cm)      150 non-null   float64
3   petal width (cm)       150 non-null   float64
4   target                 150 non-null   int64
dtypes: float64(4), int64(1)
memory usage: 6.0 KB
```

```
print("Rows in dataset: " + str(iris.shape[0]))
print("Columns in dataset: " + str(iris.shape[1]))
```

```
print("Rows in dataset: " + str(iris.shape[0]))
print("Columns in dataset: " + str(iris.shape[1]))
```

```
sub1 = iris.iloc[list(range(9))+[-1]]
print(sub1)
```

```
      sepal length (cm)  sepal width (cm)  petal length (cm)  petal width
(cm) \
```

0	5.1	3.5	1.4
0.2			
1	4.9	3.0	1.4
0.2			
2	4.7	3.2	1.3
0.2			
3	4.6	3.1	1.5
0.2			
4	5.0	3.6	1.4
0.2			
5	5.4	3.9	1.7
0.4			
6	4.6	3.4	1.4
0.3			
7	5.0	3.4	1.5
0.2			
8	4.4	2.9	1.4
0.2			
149	5.9	3.0	5.1
1.8			

target

0	0
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
149	2

```
sub2 = iris.loc[
    iris['sepal width (cm)'] > 2.4,
    ['sepal length (cm)', 'sepal width (cm)', 'target']
]
sub2
```

	sepal length (cm)	sepal width (cm)	target
0	5.1 3.5 0		
1	4.9 3.0 0		
2	4.7 3.2 0		
3	4.6 3.1 0		
4	5.0 3.6 0		
...
145	6.7 3.0 2		
146	6.3 2.5 2		
147	6.5 3.0 2		

```
148 6.2 3.4 2
149 5.9 3.0 2
139 rows × 3 columns
```

```
Versicolor_Is_The_Best = (iris["target"] == 1).astype(int) * 100
Versicolor_Is_The_Best
```

```
0      0
1      0
2      0
3      0
4      0
..
145    0
146    0
147    0
148    0
149    0
Name: target, Length: 150, dtype: int64
```

```
sw = (iris['sepal width (cm)'])
print(sw.min())
print(sw.median())
print(sw.max())
```

```
2.0
3.0
4.4
```

```
counter = 0
for i in range(0, len(sw)):
    if(counter >= 100):
        print(i)
        break
    counter = counter + sw[i]
```

```
29
```

```
def cmtoin(cm):  
    return cm/2.54
```

```
sw_in = iris['sepal width (cm)'].transform(lambda x: cmtoin(x))
```

```
sw_in[0:7]
```

```
0    1.377953  
1    1.181102  
2    1.259843  
3    1.220472  
4    1.417323  
5    1.535433  
6    1.338583  
Name: sepal width (cm), dtype: float64
```

```
fig, ax = plt.subplots()  
scatter = ax.scatter(x=iris['sepal length (cm)'],  
y=iris['petal length (cm)'],  
c=iris['target'],  
s=iris['petal width (cm)']*20)  
ax.set_xlabel('Sepal Length (cm)')  
ax.set_ylabel('Petal Length (cm)')  
ax.grid(True)  
plt.title('Iris Dataset Scatter Plot')  
plt.show()
```

