

In [4]: `import pandas as pd`

In [5]: `import numpy as np`

In [94]: `from sklearn import datasets
iris_load = datasets.load_iris()

iris = pd.DataFrame(data=iris_load.data, columns=iris_load.feature_names)

#iris['target'] = iris_load.target

iris['Species'] = pd.Categorical.from_codes(iris_load.target, iris_load.target_names)

print(iris.head())`

```

      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

      Species
0  setosa
1  setosa
2  setosa
3  setosa
4  setosa

```

In [96]: `iris.head()`

Out[96]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	Species
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 [97]: `sub1 = pd.concat([iris.head(9), iris.tail(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				

	Species
0	setosa
1	setosa
2	setosa
3	setosa
4	setosa
5	setosa
6	setosa
7	setosa
8	setosa
149	virginica

```
In [98]: sub2 = iris[iris['sepal width (cm)']<2.4][['sepal length (cm)', 'sepal width (cm)']]
print(sub2)
```

	sepal length (cm)	sepal width (cm)
41	4.5	2.3
53	5.5	2.3
60	5.0	2.0
62	6.0	2.2
68	6.2	2.2
87	6.3	2.3
93	5.0	2.3
119	6.0	2.2

```
In [99]: Versicolor_Is_The_Best = (iris['Species']=='versicolor').astype(int) * 100
print(Versicolor_Is_The_Best.value_counts())
```

Species	
0	100
100	50

Name: count, dtype: int64

```
In [100... sw = iris['sepal width (cm)']
print(sw.mean())
print(sw.median())
print(sw.max())
print(sw.min())
```

```
3.0573333333333337
3.0
4.4
2.0
```

```
In [101... total = 0
count = 0

for value in sw:
    total += value
    count += 1
    if total > 100:
        break

print(f"Sum: {total}")
print(f"Total loops: {count}")
```

```
Sum: 100.30000000000001
Total loops: 29
```

```
In [102... def cmtoin(cm):
    return cm / 2.54
sw_in = iris['sepal width (cm)'].apply(cmtoin)

sw_in.head(7)
```

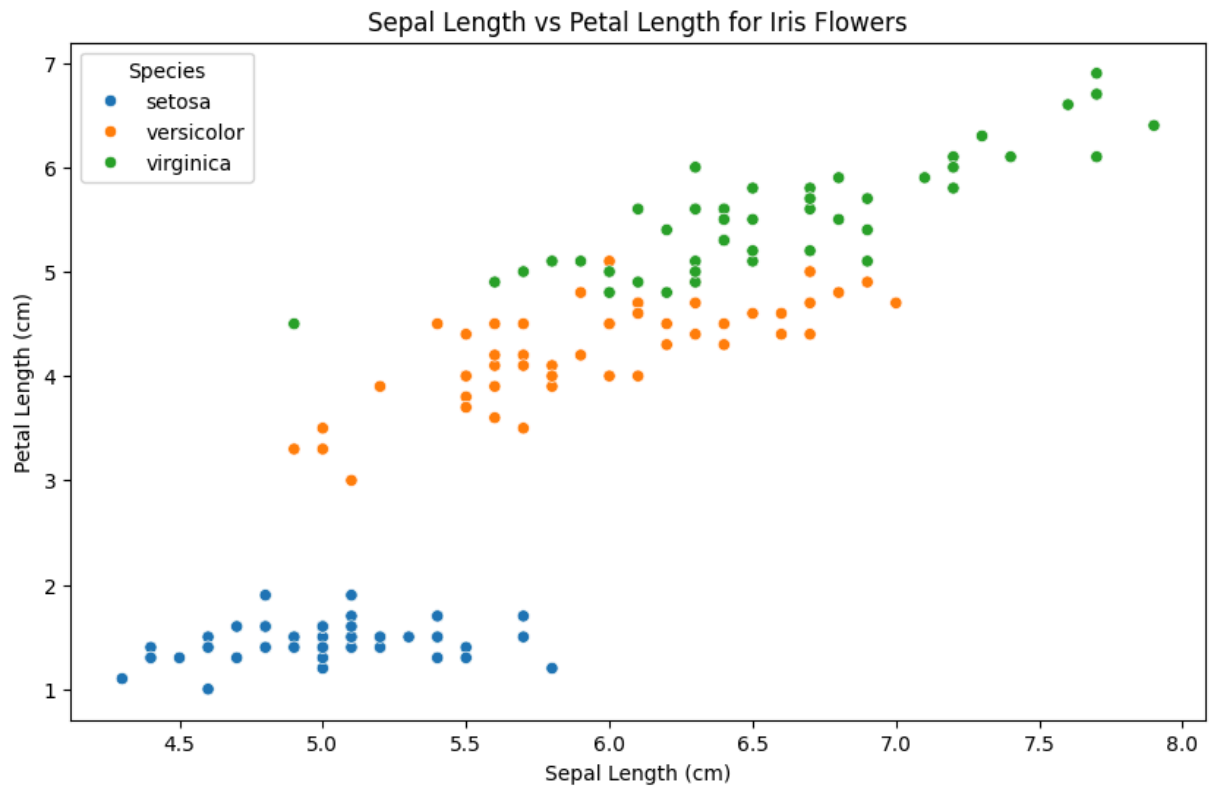
```
Out[102... 0    1.377953
1    1.181102
2    1.259843
3    1.220472
4    1.417323
5    1.535433
6    1.338583
Name: sepal width (cm), dtype: float64
```

```
In [103... import matplotlib.pyplot as plt
import seaborn as sns

plt.figure(figsize=(10,6))
scatter = sns.scatterplot(
    data=iris,
    x='sepal length (cm)',
    y='petal length (cm)',
    hue='Species'
)

plt.title('Sepal Length vs Petal Length for Iris Flowers')
plt.xlabel("Sepal Length (cm)")
plt.ylabel("Petal Length (cm)")
```

```
plt.legend(title='Species')  
plt.show()
```



In []: