```
import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd

iris = sns.load_dataset('iris')
iris.to_csv('IRIS(1).csv', index=False)

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  150 non-null    float64
 1   sepal_width   150 non-null    float64
 2   petal_length  150 non-null    float64
 3   petal_width   150 non-null    float64
 4   species       150 non-null    object 
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
```

```
iris.head()
```

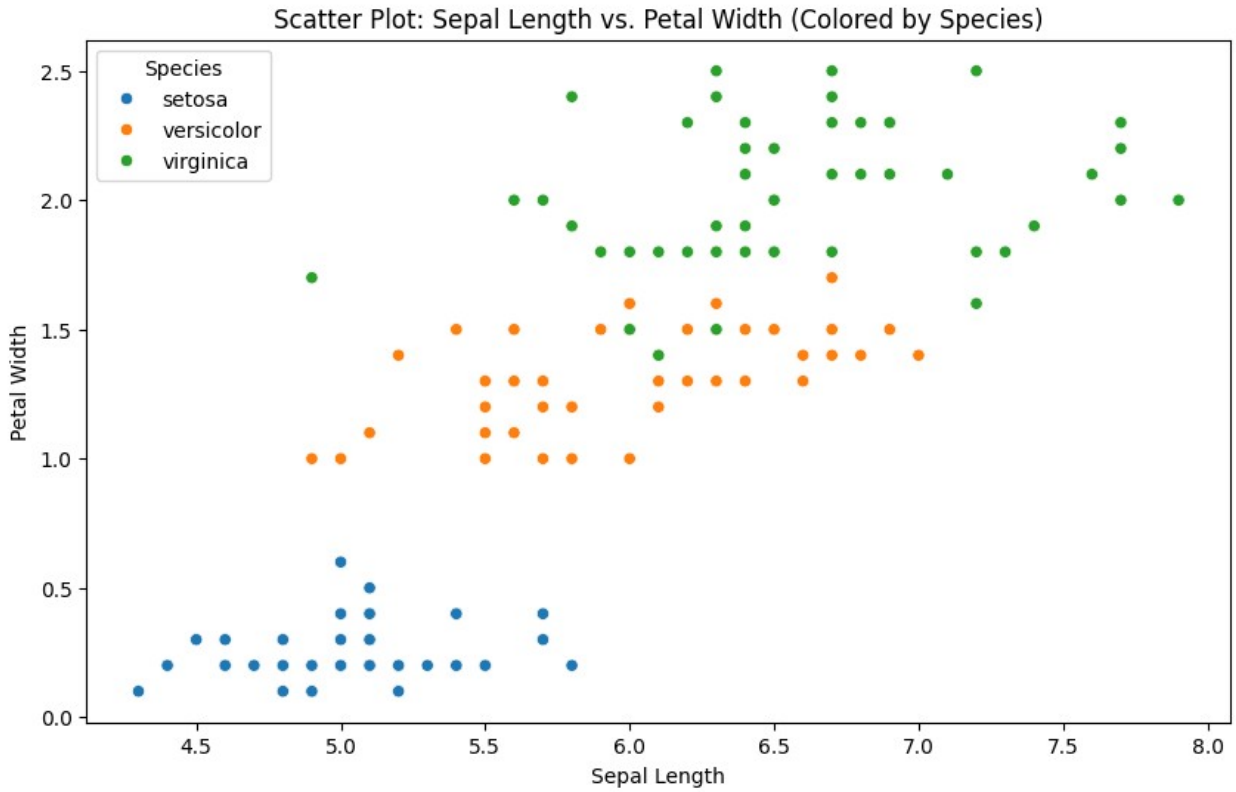

```
{"summary":"{\n  \"name\": \"iris\",\n  \"rows\": 150,\n  \"fields\":
[\n    {\n      \"column\": \"sepal_length\",\n      \"properties\":
{\n        \"dtype\": \"number\",\n        \"std\":
0.8280661279778629,\n        \"min\": 4.3,\n        \"max\": 7.9,\n
\"num_unique_values\": 35,\n        \"samples\": [\n          6.2,\n
4.5,\n          5.6\n        ],\n        \"semantic_type\": \"\",\n
\"description\": \"\"\n      }\n    },\n    {\n      \"column\":
\"sepal_width\",\n      \"properties\": {\n        \"dtype\":
\"number\",\n        \"std\": 0.435866284936698,\n        \"min\":
2.0,\n        \"max\": 4.4,\n        \"num_unique_values\": 23,\n
\"samples\": [\n          2.3,\n          4.0,\n          3.5\n
],\n        \"semantic_type\": \"\",\n        \"description\": \"\"\n
}\n    },\n    {\n      \"column\": \"petal_length\",\n
\"properties\": {\n        \"dtype\": \"number\",\n        \"std\":
1.7652982332594667,\n        \"min\": 1.0,\n        \"max\": 6.9,\n
\"num_unique_values\": 43,\n        \"samples\": [\n          6.7,\n
3.8,\n          3.7\n        ],\n        \"semantic_type\": \"\",\n
\"description\": \"\"\n      }\n    },\n    {\n      \"column\":
\"petal_width\",\n      \"properties\": {\n        \"dtype\":
\"number\",\n        \"std\": 0.7622376689603465,\n        \"min\":
0.1,\n        \"max\": 2.5,\n        \"num_unique_values\": 22,\n
\"samples\": [\n          0.2,\n          1.2,\n          1.3\n
],\n        \"semantic_type\": \"\",\n        \"description\": \"\"\n
}\n    },\n    {\n      \"column\": \"species\",\n
\"properties\": {\n        \"dtype\": \"category\",\n
\"num_unique_values\": 3,\n        \"samples\": [\n
```

\"setosa\",\n   \"versicolor\",\n   \"virginica\"\n   ],\n   \"semantic_type\": \"\",\n   \"description\": \"\"\n   }\n   }\n]\n}","type":"dataframe","variable_name":"iris"}

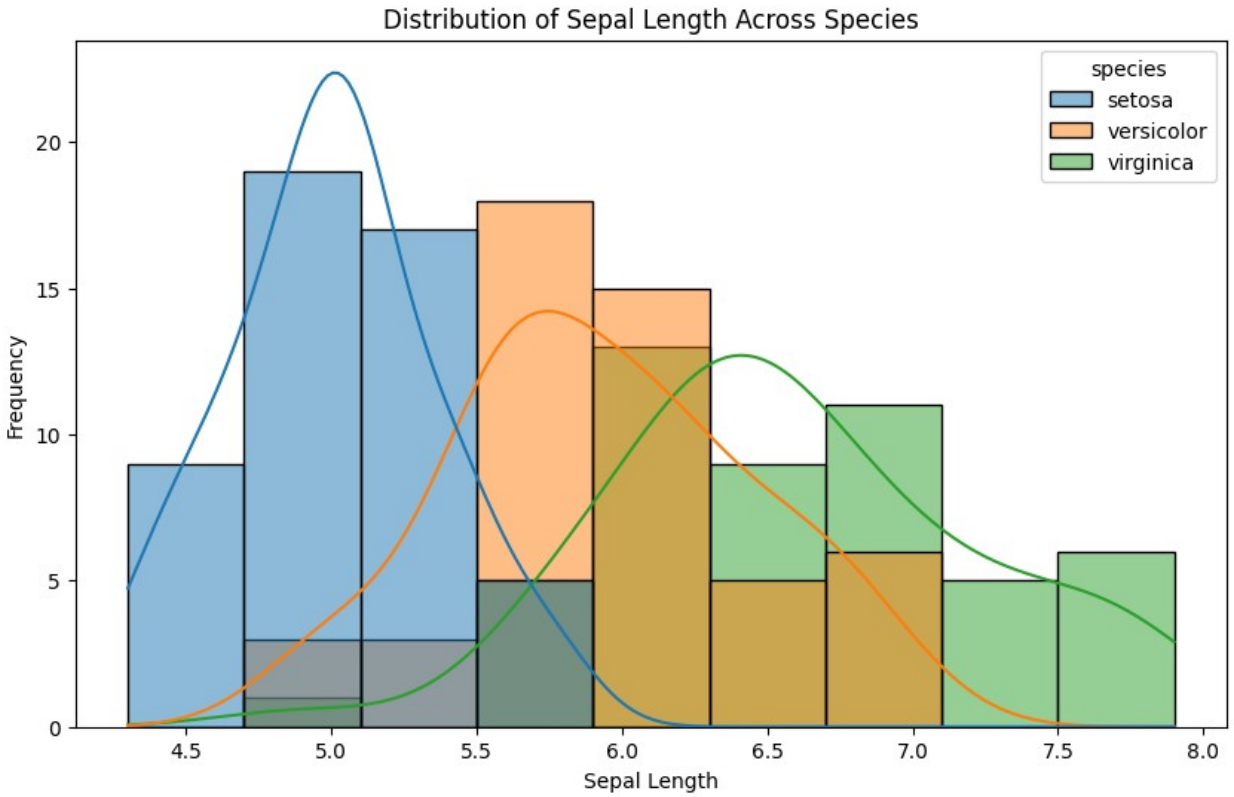
```
iris.shape
```

```
(150, 5)
```

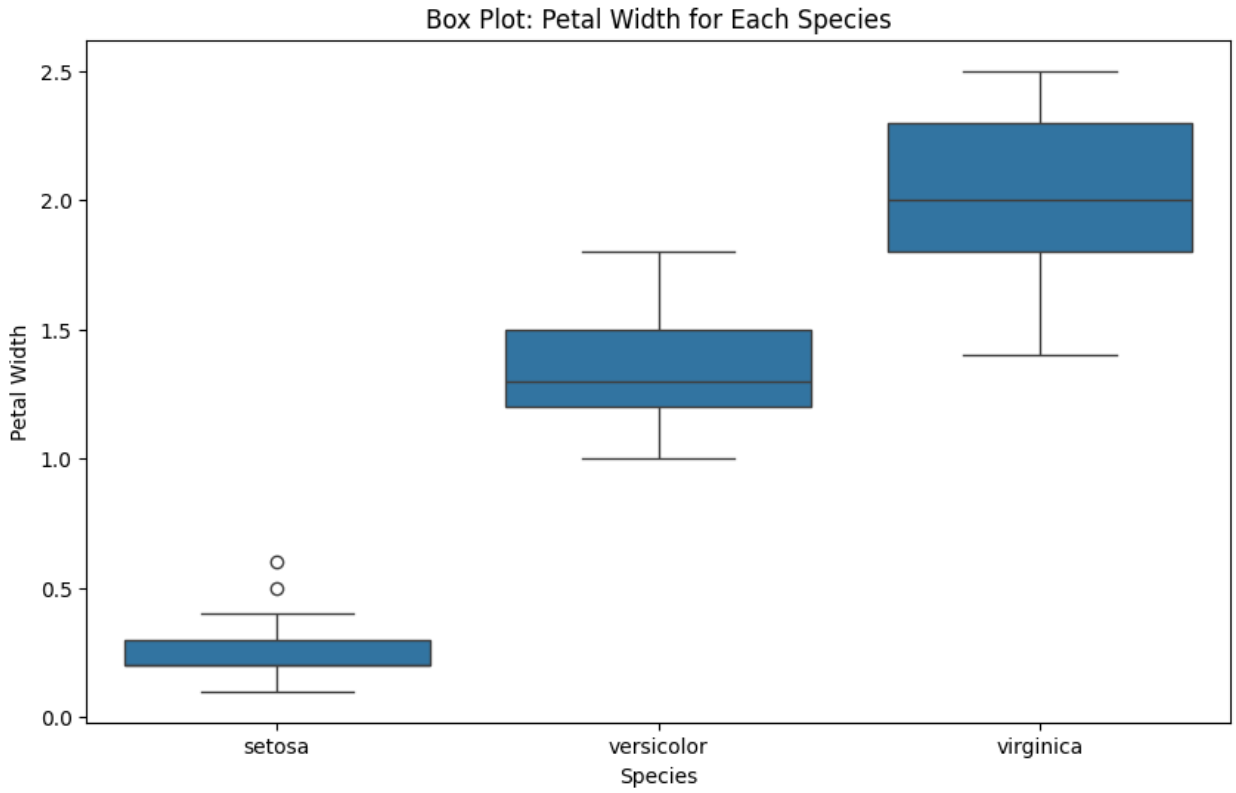
```
plt.figure(figsize=(10, 6))
sns.scatterplot(x='sepal_length', y='petal_width', hue='species',
data=iris)
plt.title('Scatter Plot: Sepal Length vs. Petal Width (Colored by
Species)')
plt.xlabel('Sepal Length')
plt.ylabel('Petal Width')
plt.legend(title='Species')
plt.show()
```



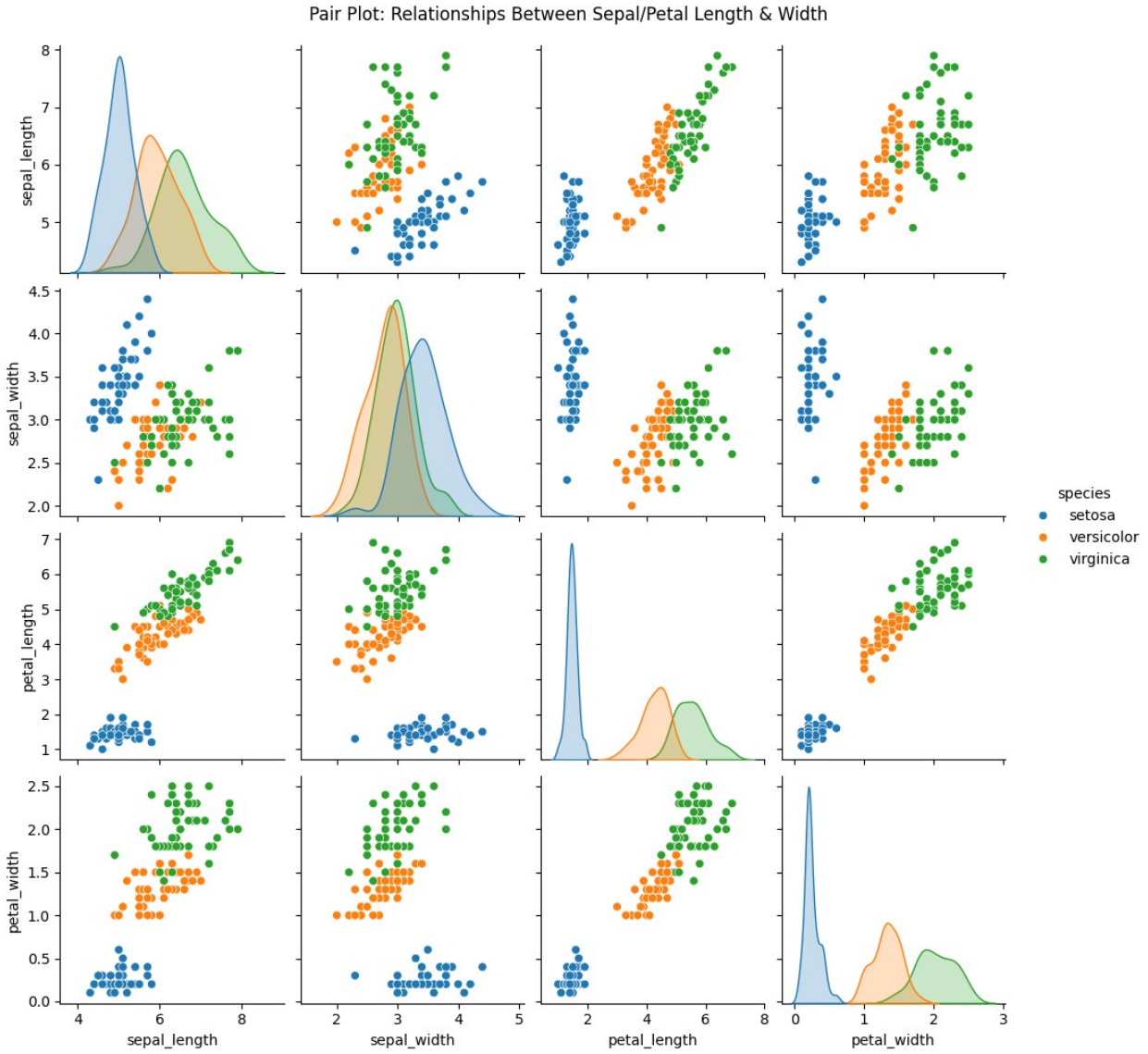

```
plt.figure(figsize=(10, 6))
sns.histplot(data=iris, x='sepal_length', hue='species', kde=True)
plt.title('Distribution of Sepal Length Across Species')
plt.xlabel('Sepal Length')
plt.ylabel('Frequency')
plt.show()
```




```
plt.figure(figsize=(10, 6))
sns.boxplot(x='species', y='petal_width', data=iris)
plt.title('Box Plot: Petal Width for Each Species')
plt.xlabel('Species')
plt.ylabel('Petal Width')
plt.show()
```

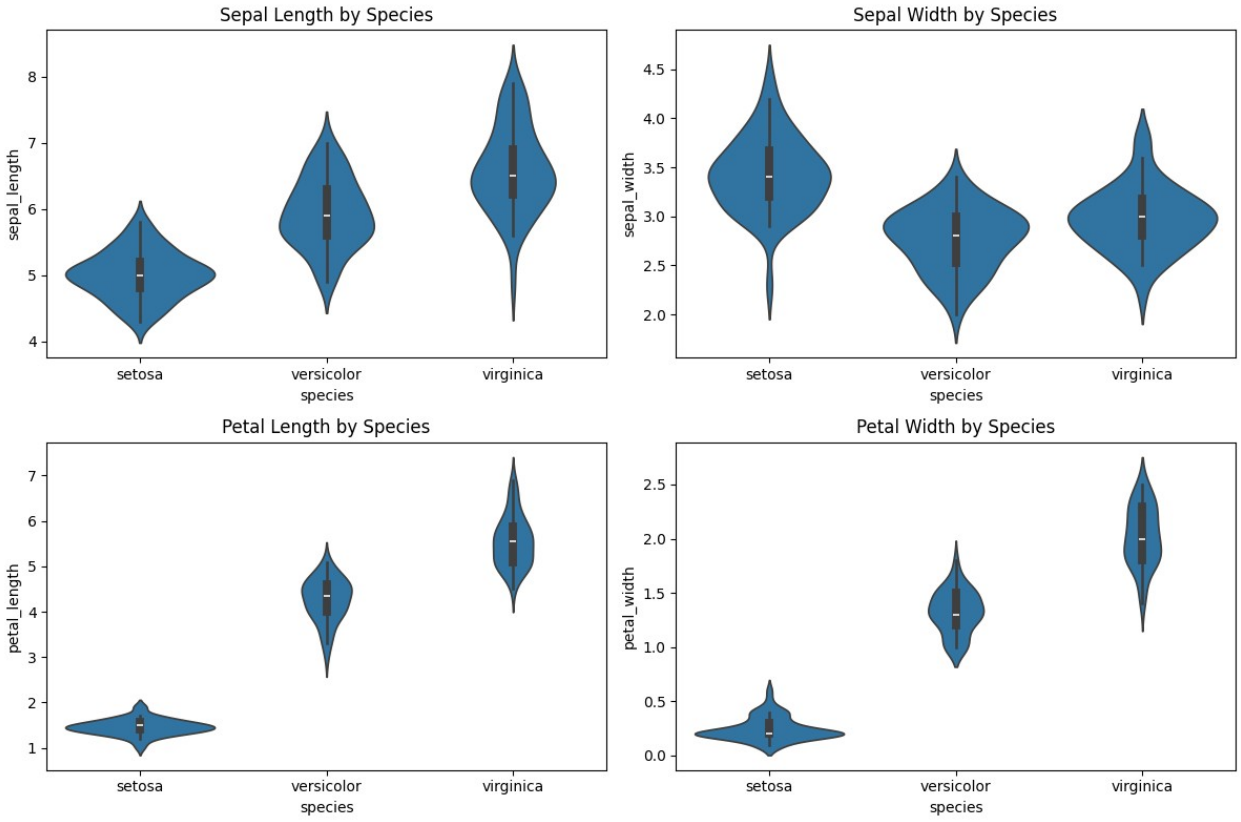



```
sns.pairplot(iris, hue='species')
plt.suptitle('Pair Plot: Relationships Between Sepal/Petal Length &
Width', y=1.02)
plt.show()
```

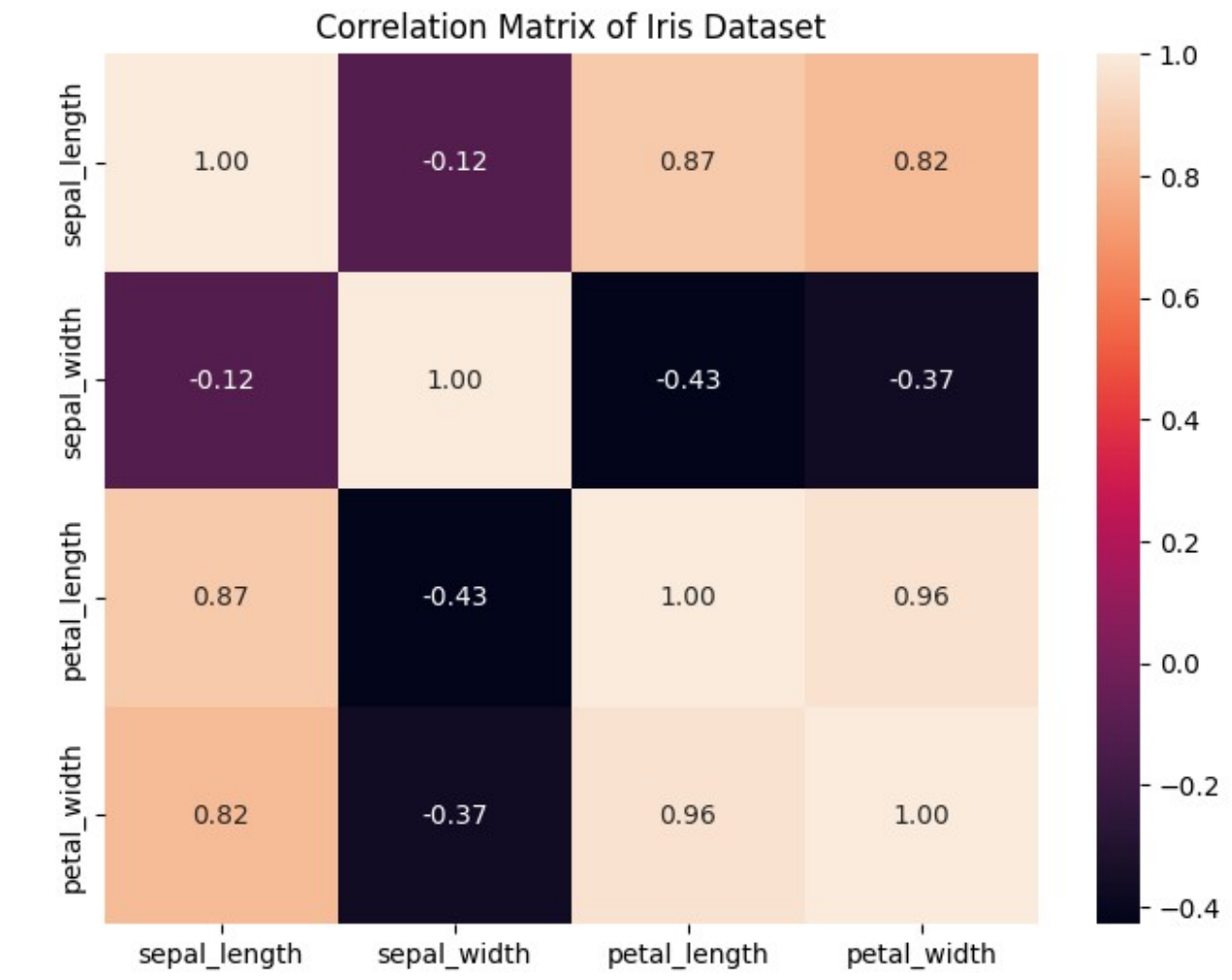



```
plt.figure(figsize=(12, 8))
plt.subplot(2, 2, 1)
sns.violinplot(x='species', y='sepal_length', data=iris)
plt.title('Sepal Length by Species')

plt.subplot(2, 2, 2)
sns.violinplot(x='species', y='sepal_width', data=iris)
plt.title('Sepal Width by Species')

plt.subplot(2, 2, 3)
sns.violinplot(x='species', y='petal_length', data=iris)
plt.title('Petal Length by Species')

plt.subplot(2, 2, 4)
```

```
sns.violinplot(x='species', y='petal_width', data=iris)
plt.title('Petal Width by Species')

plt.tight_layout()
plt.show()
```




```
plt.figure(figsize=(8, 6))
correlation_matrix = iris.corr(numeric_only=True)
sns.heatmap(correlation_matrix, annot=True, fmt='.2f')
plt.title('Correlation Matrix of Iris Dataset')
plt.show()
```


Correlation Matrix of Iris Dataset
sepal_length
sepal_width
petal_length
petal_width
1.00
-0.12
0.87
0.82
-0.12
1.00
-0.43
-0.37
0.87
-0.43
1.00
0.96
0.82
-0.37
0.96
1.00
sepal_length
sepal_width
petal_length
petal_width
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4