

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

```
data1 = pd.read_csv(r"C:\Users\Jayditya\Downloads\Lab-
20250210T092855Z-001\Lab\Experiments\Datasets\13Iris.csv")
data1.head()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

```
print(data1.columns)
```

```
Index(['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm',
      'PetalWidthCm',
      'species'],
      dtype='object')
```

```
#anotherway
```

```
column = list(data1)
print(column)
```

```
['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm',
 'PetalWidthCm', 'species']
```

```
data1.info()
```

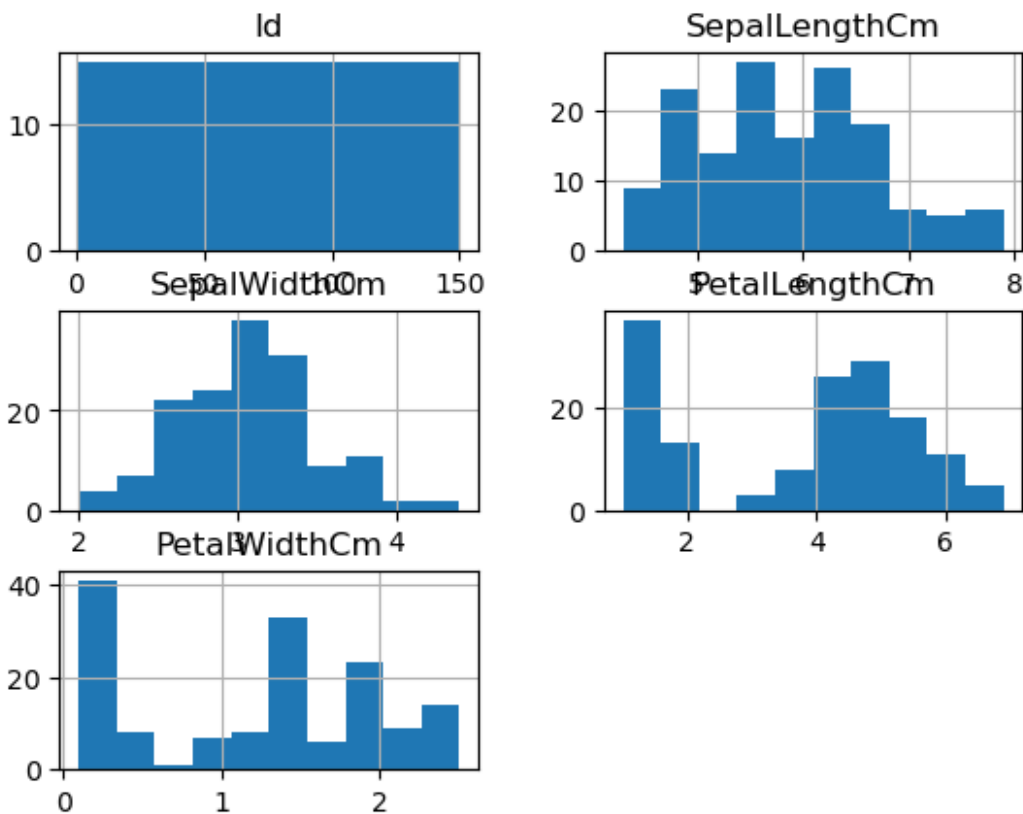
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
#   Column          Non-Null Count  Dtype
---  ---
0   Id              150 non-null   int64
1   SepalLengthCm   150 non-null   float64
2   SepalWidthCm    150 non-null   float64
3   PetalLengthCm   150 non-null   float64
4   PetalWidthCm    150 non-null   float64
5   species         150 non-null   object
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

```
data1.dtypes
```

```
Id                int64
SepalLengthCm     float64
SepalWidthCm      float64
PetalLengthCm     float64
PetalWidthCm      float64
species           object
dtype: object
```

```
data1.hist()
```

```
array([[<Axes: title={'center': 'Id'}>,
        <Axes: title={'center': 'SepalLengthCm'}>],
       [<Axes: title={'center': 'SepalWidthCm'}>,
        <Axes: title={'center': 'PetalLengthCm'}>],
       [<Axes: title={'center': 'PetalWidthCm'}>, <Axes: >]],
      dtype=object)
```



```
fig, axes = plt.subplots(2, 2, figsize=(16, 8))
```

```
axes[0,0].set_title("Distribution of Sepal Length")
axes[0,0].hist(data1["SepalLengthCm"])
```

```

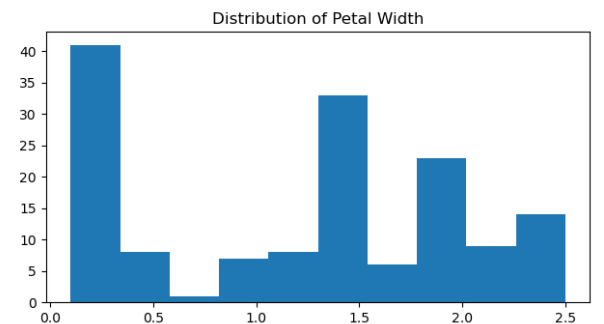
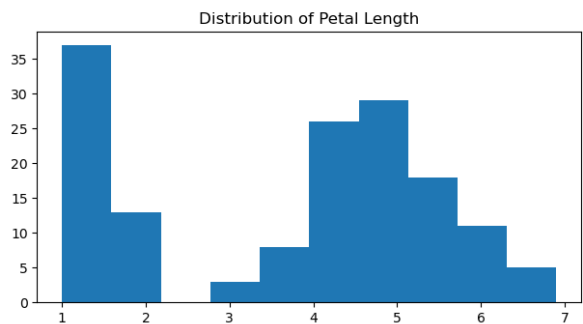
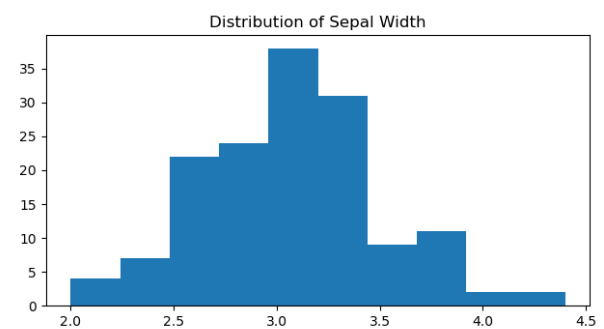
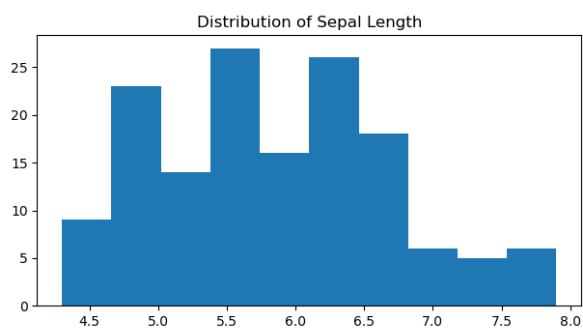
axes[0,1].set_title("Distribution of Sepal Width")
axes[0,1].hist(data1["SepalWidthCm"])

axes[1,0].set_title("Distribution of Petal Length")
axes[1,0].hist(data1["PetalLengthCm"])

axes[1,1].set_title("Distribution of Petal Width")
axes[1,1].hist(data1["PetalWidthCm"])

(array([41., 8., 1., 7., 8., 33., 6., 23., 9., 14.]),
 array([0.1 , 0.34, 0.58, 0.82, 1.06, 1.3 , 1.54, 1.78, 2.02, 2.26,
        2.5 ]),
 <BarContainer object of 10 artists>)

```



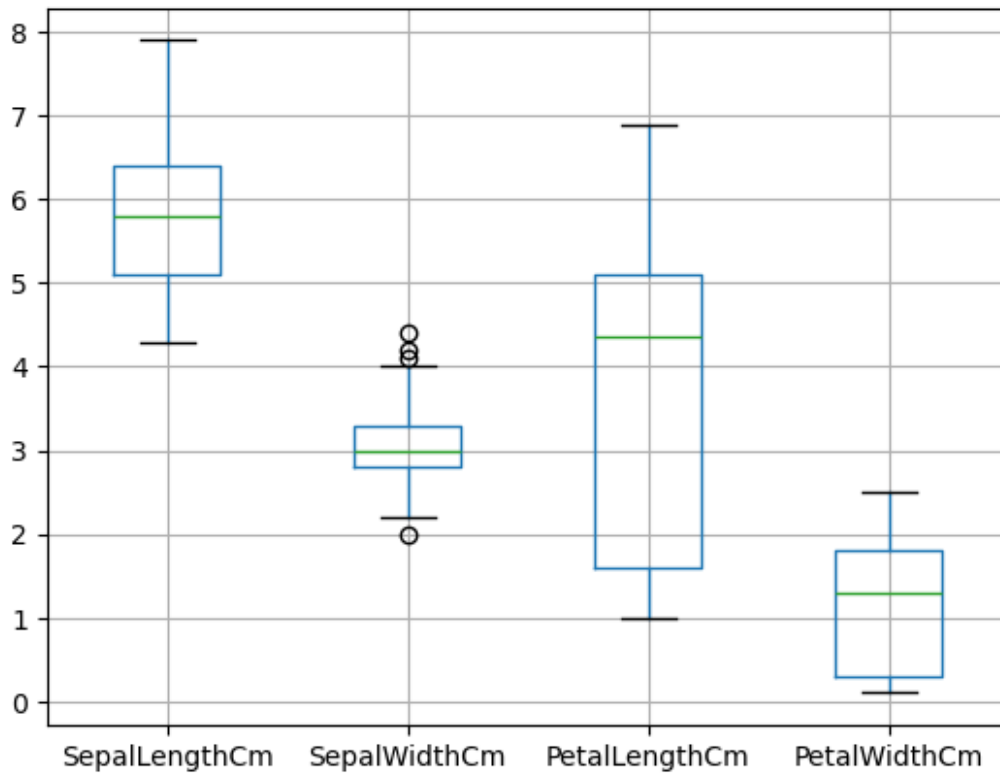
```

if 'Id' in data1.columns:
    data1.drop(columns=['Id'], inplace=True)

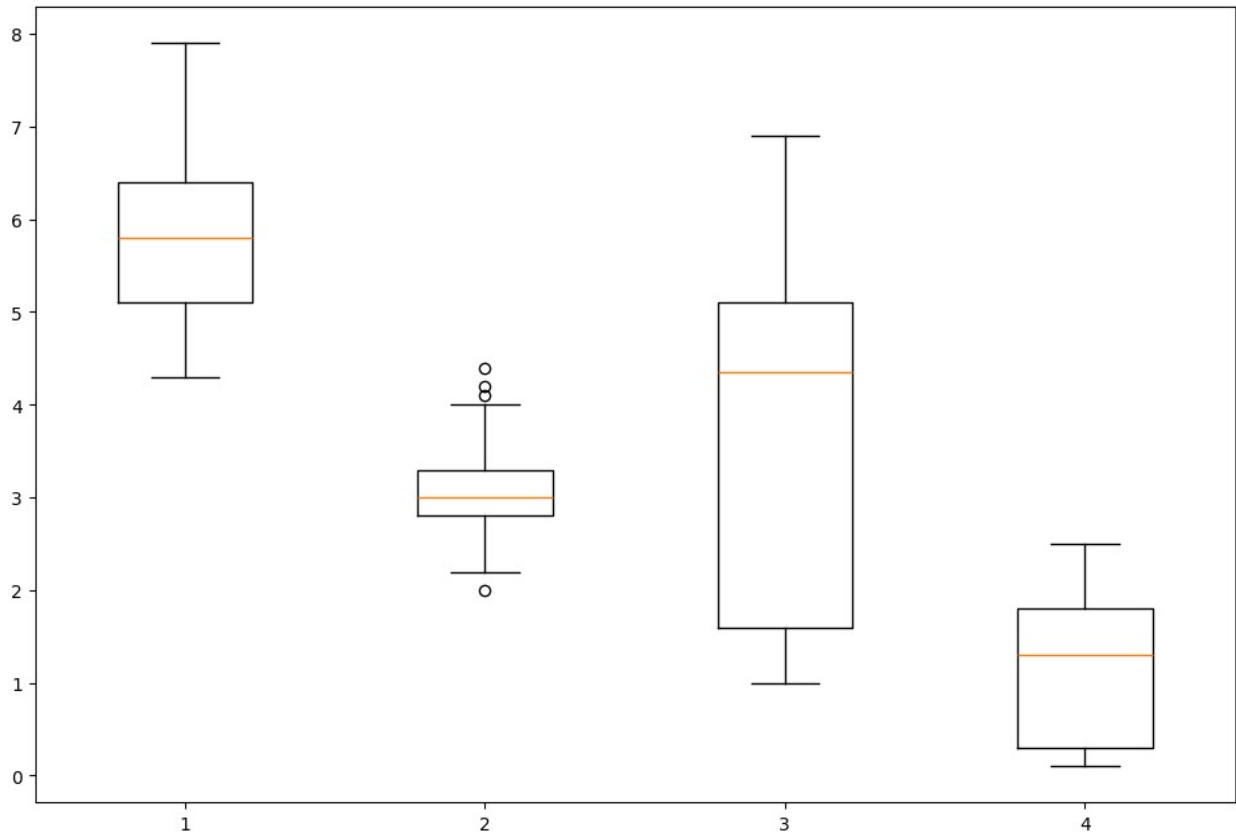
data1.boxplot()

<Axes: >

```



```
data_to_plot =
[data1["SepalLengthCm"],data1["SepalWidthCm"],data1["PetalLengthCm"],d
ata1["PetalWidthCm"]]
# Creating a figure instance
fig = plt.figure(1, figsize=(12,8))
# Creating an axes instance
ax = fig.add_subplot(111)
# Creating the boxplot
bp = ax.boxplot(data_to_plot);
```



OR

```
def graph(y):  
    sns.boxplot(x='species',y=y , data=data1)  
    plt.title(f"Boxplot of {y} by species")  
plt.figure(figsize=(10,10))  
plt.subplot(221)  
graph('SepalLengthCm')  
plt.subplot(222)  
graph('SepalWidthCm')  
plt.subplot(223)  
graph('PetalLengthCm')  
plt.subplot(224)  
graph('PetalWidthCm')  
plt.tight_layout()  
plt.show()
```

