ASSIGNMENT - 10

In [9]:
```
import pandas as pd
```

In [10]:
```
df = pd.read_csv("Iris.csv")
```

In [11]:
```
df
```

Out[11]:

	Id	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	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
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

In [13]:
```
import numpy as np
from numpy import array
```

In [14]:
```
df.head(5)
```

Out[14]:

	Id	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	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

In [15]:
```
df.tail(2)
```

Out[15]:

	Id	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	Species
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

In [16]:
```
column = len(list(df))
column
```

Out[16]: 6

In [17]:
```
df.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    Sepal Length (cm)  150 non-null    float64
 2   Sepal Width (cm)    150 non-null    float64
 3   Petal Length (cm)   150 non-null    float64
 4   Petal Width (cm)    150 non-null    float64
 5   Species           150 non-null    object 
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

In [18]:
```
np.unique(df["Species"])
array(['Iris-setosa', 'Iris-versicolor', 'Iris-virginica'], dtype=object)
```

Out[18]: array(['Iris-setosa', 'Iris-versicolor', 'Iris-virginica'], dtype=object)

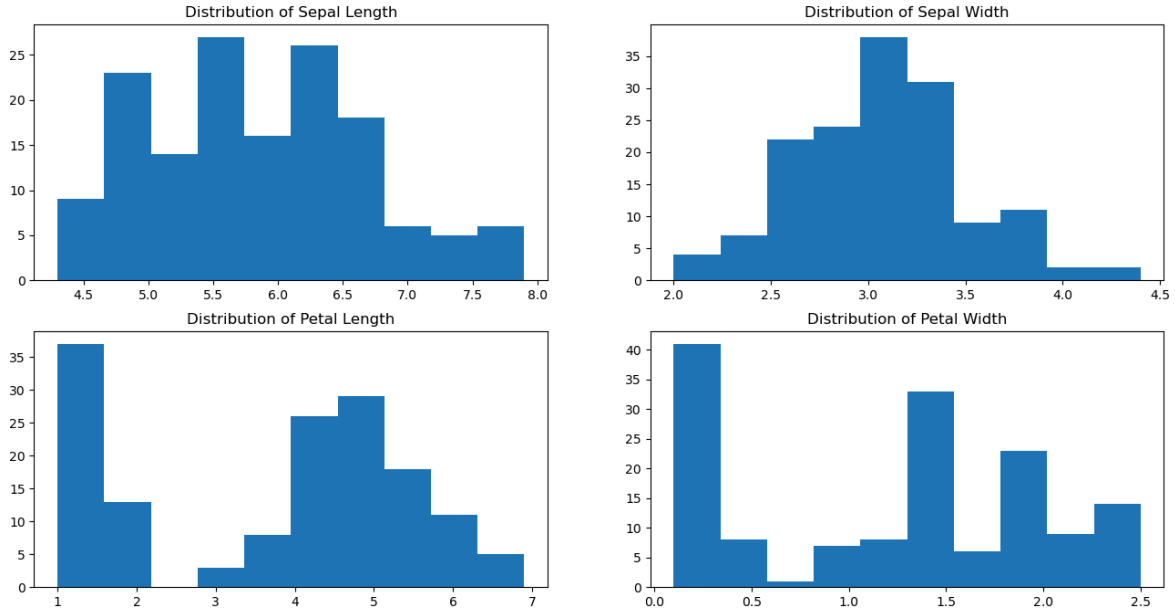
In [19]:
```
df.describe()
```

Out[19]:

	Id	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	75.500000	5.843333	3.054000	3.758667	1.198667
std	43.445368	0.828066	0.433594	1.764420	0.763161
min	1.000000	4.300000	2.000000	1.000000	0.100000
25%	38.250000	5.100000	2.800000	1.600000	0.300000
50%	75.500000	5.800000	3.000000	4.350000	1.300000
75%	112.750000	6.400000	3.300000	5.100000	1.800000
max	150.000000	7.900000	4.400000	6.900000	2.500000

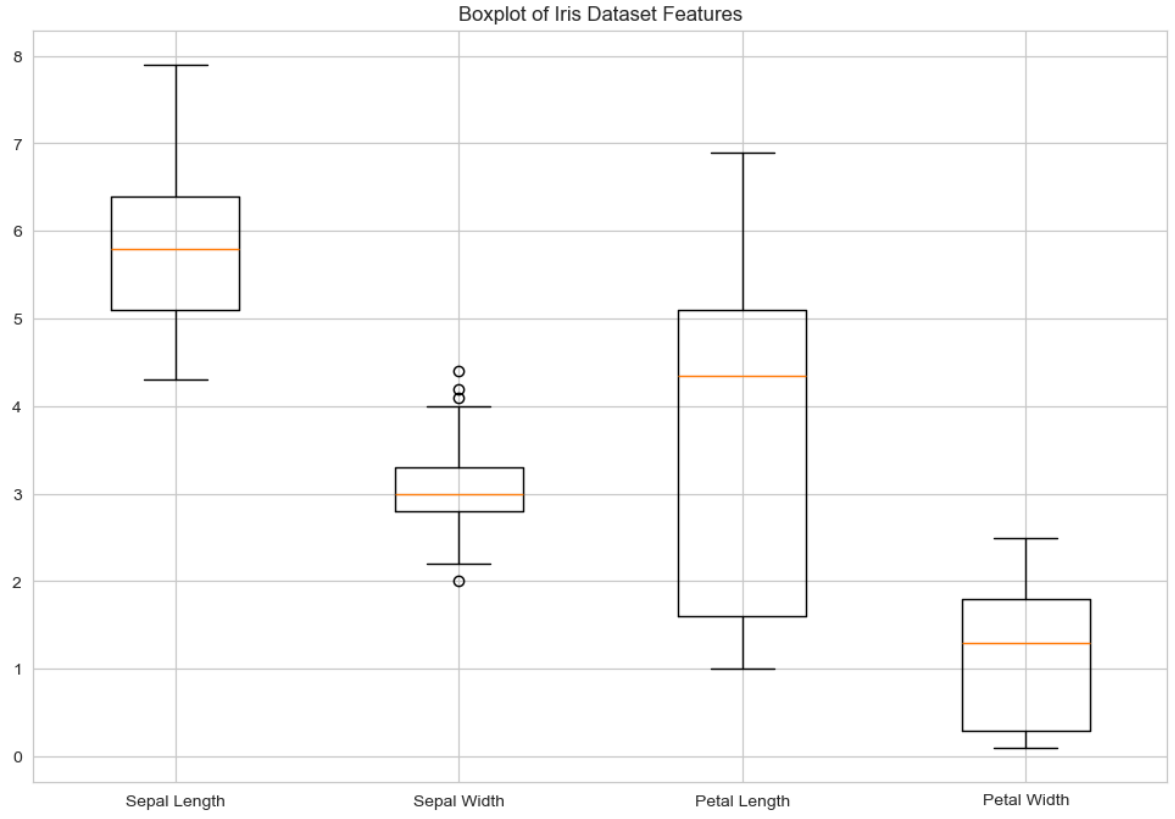
In [25]:
```
import seaborn as sns
import matplotlib
import matplotlib.pyplot as plt
%matplotlib inline
```

In [30]:
```
# Plot histograms
fig, axes = plt.subplots(2, 2, figsize=(16, 8))

axes[0, 0].set_title("Distribution of Sepal Length")
axes[0, 0].hist(df["Sepal Length (cm)"])

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

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

axes[1, 1].set_title("Distribution of Petal Width")
axes[1, 1].hist(df["Petal Width (cm)"])

plt.show()
```



In [31]:
```
data_to_plot = [df["Sepal Length (cm)"],df["Sepal Width (cm)"],df["Petal Length (cm)"],df["Petal V
sns.set_style("whitegrid")
```

In [38]:
```
# 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)

# Set x-axis labels
ax.set_xticklabels(['Sepal Length', 'Sepal Width', 'Petal Length', 'Petal Width'])

# Add a title and grid
ax.set_title("Boxplot of Iris Dataset Features")
ax.yaxis.grid(True)

plt.show()
```



In [ ]:
```

```