

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

```
column_names = ['Sepal_Length', 'Sepal_Width', 'Petal_Length', 'Petal_Width', 'Species']
df = pd.read_csv('/content/Iris.csv', header=None, names=column_names)
```

```
df.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
```

```
df.dtypes
```

```
0
Sepal_Length    float64
Sepal_Width     float64
Petal_Length    float64
Petal_Width     float64
Species         object
```

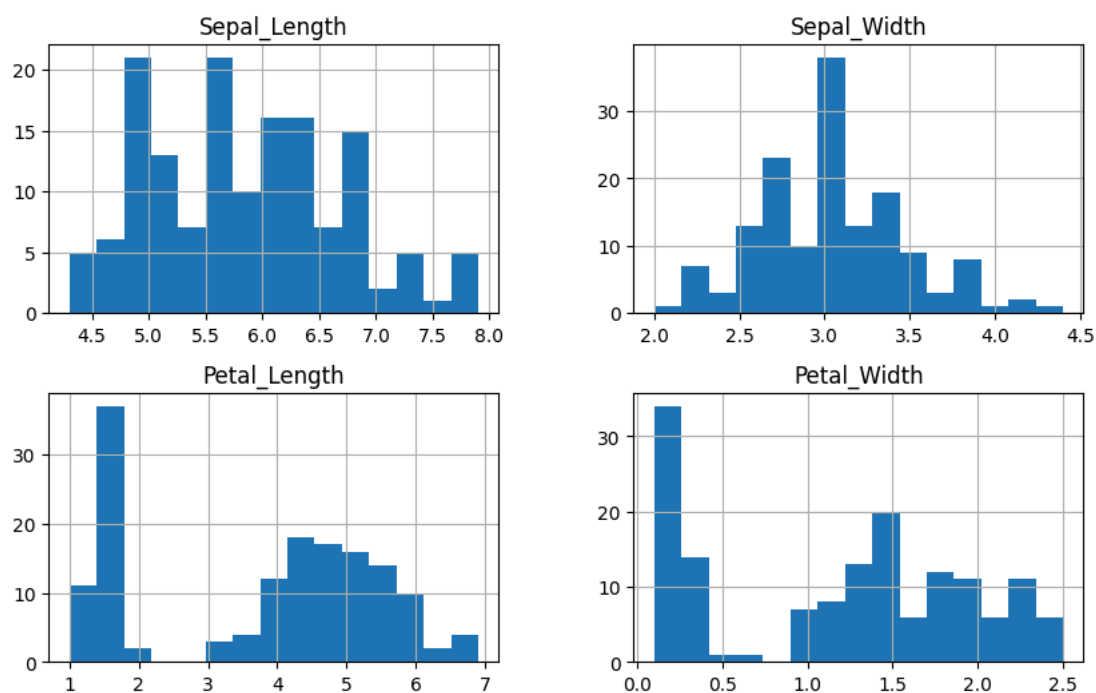
```
dtypes: object
```

2. Create Histograms to Show Feature Distributions

```
# Histogram for each numeric feature
df.hist(figsize=(10, 6), bins=15)
plt.suptitle("Feature Distributions")
plt.show()
```

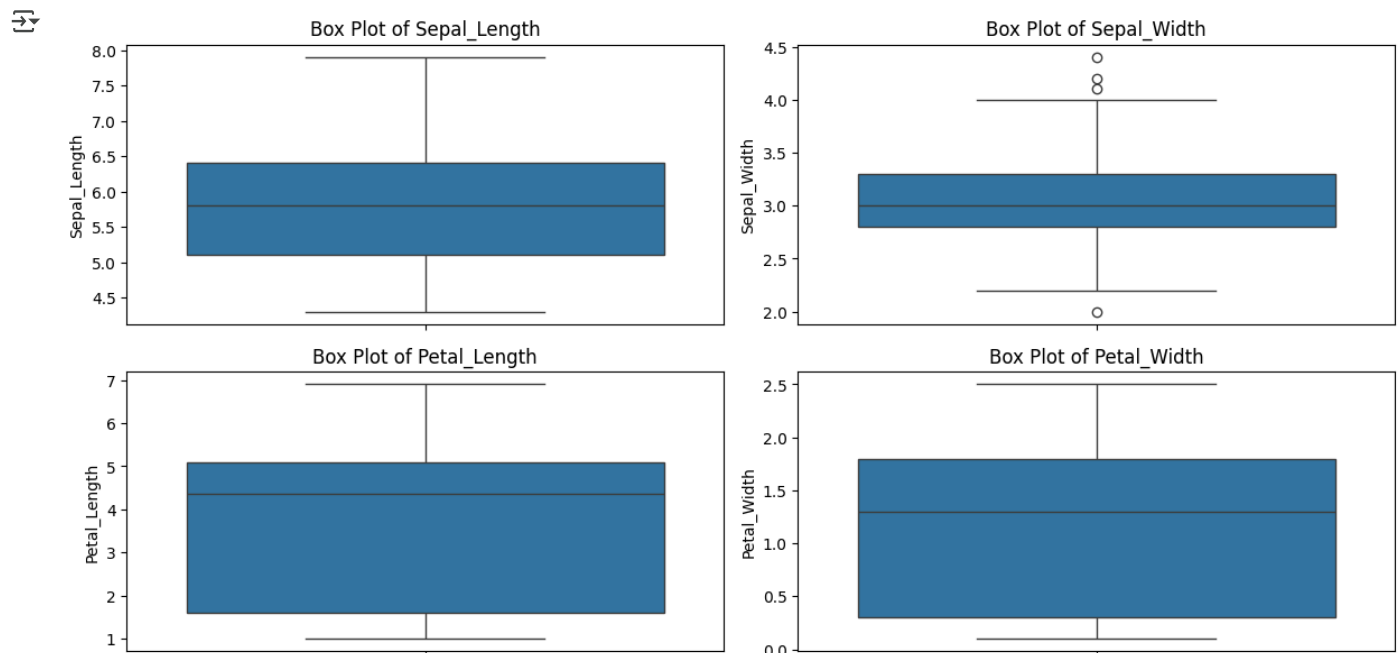
```
<matplotlib.figure.Figure
```

Feature Distributions



✓ 3. Create Box Plots to Detect Outliers

```
plt.figure(figsize=(12, 6))
for i, col in enumerate(column_names[:-1]): # Excluding Species
    plt.subplot(2, 2, i+1)
    sns.boxplot(y=df[col])
    plt.title(f"Box Plot of {col}")
plt.tight_layout()
plt.show()
```



✓ 4. Compare Distributions and Identify Outliers

```
# Detecting Outliers using IQR method
Q1 = df[column_names[:-1]].quantile(0.25)
Q3 = df[column_names[:-1]].quantile(0.75)
IQR = Q3 - Q1

outlier_mask = (df[column_names[:-1]] < (Q1 - 1.5 * IQR)) | (df[column_names[:-1]] > (Q3 + 1.5 * IQR))
outliers = df[outlier_mask.any(axis=1)]

print("\nDetected Outliers:\n", outliers)
```

```
Detected Outliers:
   Sepal_Length  Sepal_Width  Petal_Length  Petal_Width  Species
15          5.7          4.4          1.5          0.4  Iris-setosa
32          5.2          4.1          1.5          0.1  Iris-setosa
33          5.5          4.2          1.4          0.2  Iris-setosa
60          5.0          2.0          3.5          1.0  Iris-versicolor
```

Start coding or [generate](#) with AI.

