# swxd08he4

April 17, 2025

[1]: ```
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```

[4]: ```python
import seaborn as sns
import pandas as pd
import matplotlib.pyplot as plt
```

[6]: ```python
# Load the Iris dataset
df = sns.load_dataset('iris')
df.head()
```

[6]:
|   | sepal_length | sepal_width | petal_length | petal_width | 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 |

[7]: ```python
# Create histograms for each numeric feature
df.hist(figsize=(10, 8), bins=15, color='skyblue', edgecolor='black')
plt.suptitle("Feature Distributions (Histograms)- Iris Dataset", fontsize=14)
plt.tight_layout()
plt.show()
```

Feature Distributions (Histograms)- Iris Dataset
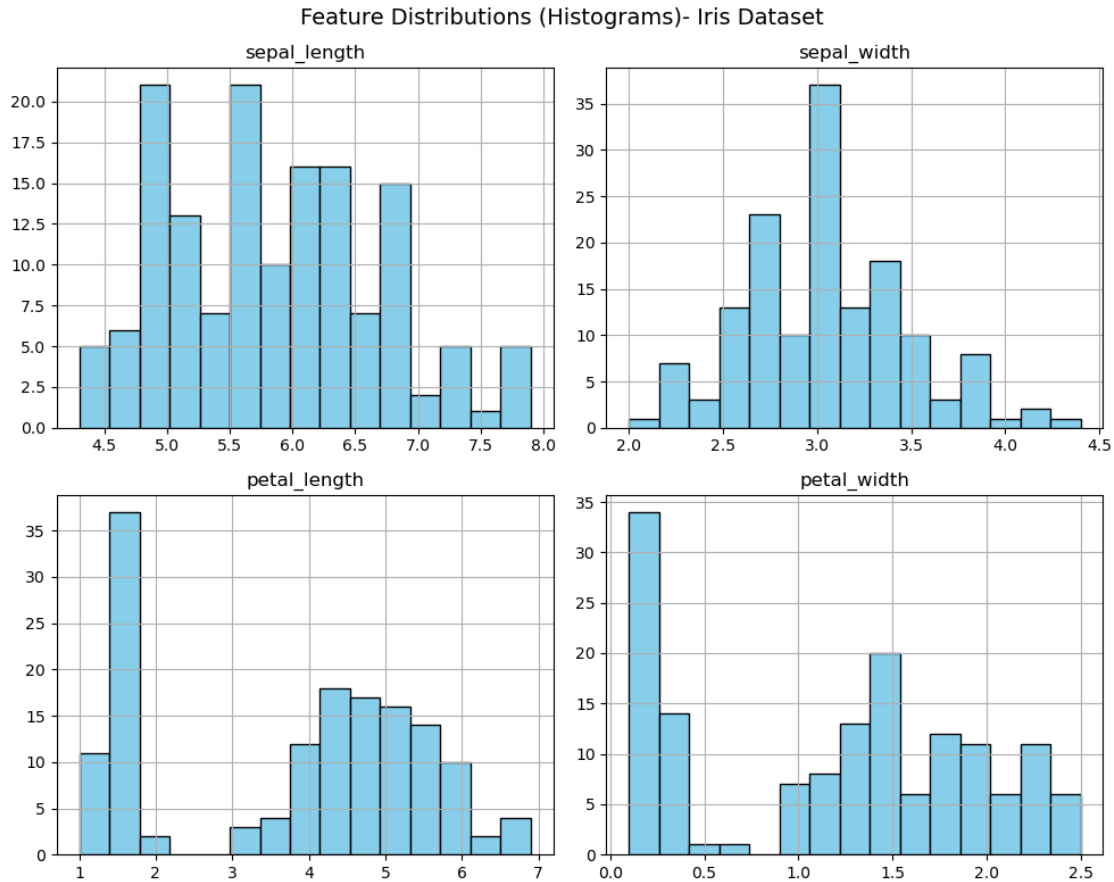
OBSERVATIONS:-

1. Sepal Length: Spread out between 4.5 and 8.0, with multiple peaks around 5.0, 5.5, and 6.5 (slightly multimodal).
2. Sepal Width: Most values are around 3.0; the distribution is slightly left-skewed.
3. Petal Length: Shows a bimodal distribution — many short petals around 1.5 and a separate cluster between 4.0 and 5.0
4. Petal Width: Also bimodal — large peak around 0.2 and another spread near 1.5.

```python
[8]: # Create box plots for each numeric feature
plt.figure(figsize=(12, 6))
for i, column in enumerate(df.select_dtypes(include='number').columns):
    plt.subplot(1, 4, i + 1)
    sns.boxplot(y=df[column], color='lightgreen')
    plt.title(column)
plt.suptitle("Box Plots of Numeric Features- Iris Dataset", fontsize=14)
plt.tight_layout()
plt.show()
```

Box Plots of Numeric Features- Iris Dataset
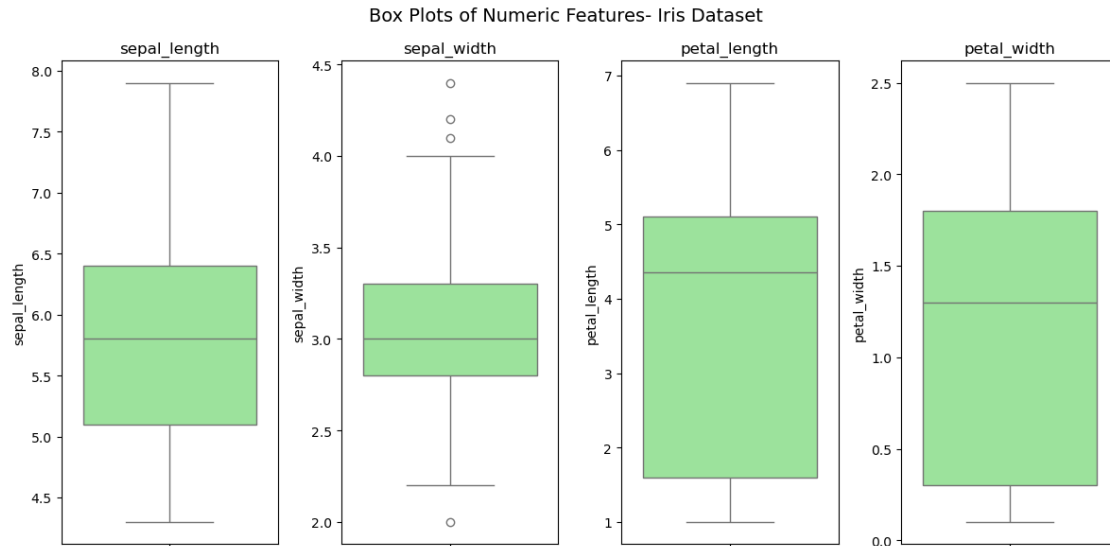
OBSERVATIONS:-

1. Sepal Length: Fairly symmetric distribution; values mostly range between 5.0 and 7.0.
2. Sepal Width: Contains several outliers on the higher end; median is slightly above 3.0.
3. Petal Length: Right-skewed distribution; wide spread with values from around 1.0 to 6.9.
4. Petal Width: Also right-skewed; values mostly between 0.1 and 2.5.

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