NATIONAL UNIVERSITY OF MODERN LANGUAGES

ISLAMABAD

Machine Learning(Lab Task 03)

Lab Task: part 1

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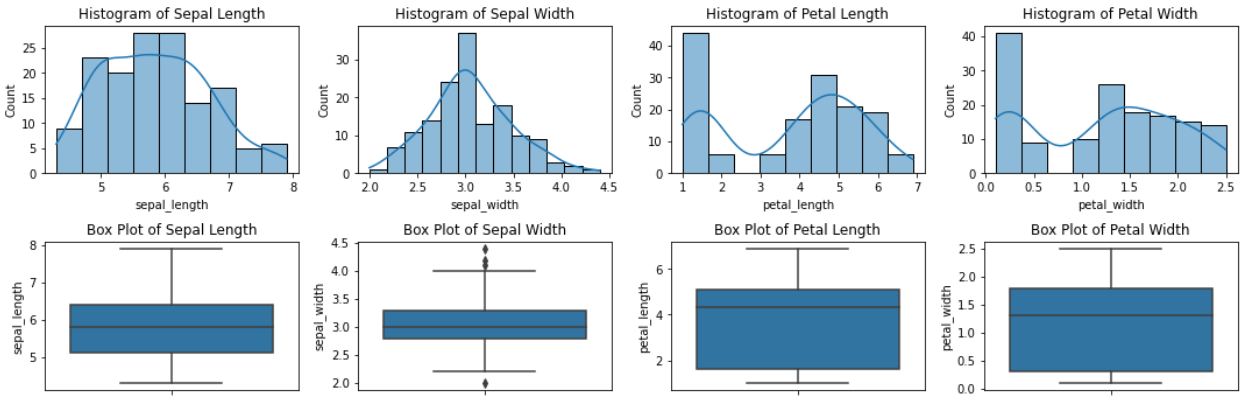
Task 1:

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
df=pd.read_csv(r"C:\Users\Adeel\Downloads\iris.csv")
# Set up the plot size
plt.figure(figsize=(15, 10))
# Histograms
plt.subplot(4, 4, 1)
sns.histplot(df['sepal_length'], kde=True)
plt.title('Histogram of Sepal Length')
plt.subplot(4, 4, 2)
sns.histplot(df['sepal_width'], kde=True)
plt.title('Histogram of Sepal Width')
plt.subplot(4, 4, 3)
sns.histplot(df['petal_length'], kde=True)
plt.title('Histogram of Petal Length')
plt.subplot(4, 4, 4)
sns.histplot(df['petal_width'], kde=True)
plt.title('Histogram of Petal Width')
# Box Plots
plt.subplot(4, 4, 5)
sns.boxplot(y=df['sepal_length'])
plt.title('Box Plot of Sepal Length')
plt.subplot(4, 4, 6)
sns.boxplot(y=df['sepal_width'])
plt.title('Box Plot of Sepal Width')
plt.subplot(4, 4, 7)
sns.boxplot(y=df['petal_length'])
```

```
plt.title('Box Plot of Petal Length')
plt.subplot(4, 4, 8)
sns.boxplot(y=df['petal_width'])
plt.title('Box Plot of Petal Width')
# Adjust layout
plt.tight_layout()
plt.show()
```



Task 2:

```
# Load the Iris dataset
df = sns.load_dataset('iris')
# Set up the plot size
plt.figure(figsize=(15, 10))
# Create scatter plots for pairs of variables
sns.scatterplot(data=df, x='sepal_length', y='sepal_width', hue='species', palette='Set1')
plt.title('Sepal Length vs Sepal Width')
plt.show()
sns.scatterplot(data=df, x='sepal_length', y='petal_length', hue='species', palette='Set1')
plt.title('Sepal Length vs Petal Length')
plt.show()
sns.scatterplot(data=df, x='sepal_length', y='petal_width', hue='species', palette='Set1')
plt.title('Sepal Length vs Petal Width')
plt.show()
```

```
sns.scatterplot(data=df, x='sepal_width', y='petal_length', hue='species', palette='Set1')
plt.title('Sepal Width vs Petal Length')
plt.show()
sns.scatterplot(data=df, x='sepal_width', y='petal_width', hue='species', palette='Set1')
plt.title('Sepal Width vs Petal Width')
plt.show()
sns.scatterplot(data=df, x='petal_length', y='petal_width', hue='species', palette='Set1')
plt.title('Petal Length vs Petal Width')
plt.show()
```