**E0324023**

**Iris Flower Data Analysis Assignment:**

**1.Dataset: The Iris Dataset:**

| **Column Name** | **Description** | **Data Type** |
| --- | --- | --- |
| **Sepal length** | Length of the sepal in cm | Numerical |
| **Sepal width** | Width of the sepal in cm | Numerical |
| **Petal length** | Length of the petal in cm | Numerical |
| **Petal width** | Width of the petal in cm | Numerical |
| **species** | The type of Iris flower (setosa, versicolor, virginica) | Categorical (Target) |

# 2. Code:

import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

df = sns.load\_dataset('iris')

print("First 5 rows of the dataset:")

print(df.head())

print("\nSpecies counts:")

print(df['species'].value\_counts())

# 3.Bar Graph: (Average Sepal Length by Species)

A graph of blue rectangular objects

AI-generated content may be incorrect.

This **Bar Chart** is used to compare the average value of a numerical feature across different categories (species).

# 4. Pie Chart: (Distribution of Species)

# A pie chart with numbers and a number of different colors AI-generated content may be incorrect.

The **Pie Chart** shows the proportion of each species in the dataset. Since the Iris dataset is balanced (50 of each species), this will show equal proportions.

# 5. Histogram: (Distribution of Petal Length)

A graph of a distribution of petal length

AI-generated content may be incorrect.

The histogram visualizes the distribution of a numerical variable, in this case, the **Petal Length**.

**6. Line Plot:** **(Petal Length by Sample Index)**

# A Line Plot is less conventional for this dataset, but can be used to visualize the sequence of data points. Here, we plot Petal Length as the data is sorted by index, colored by species, which reveals distinct groupings.

# 7. Scatter Plot: (Petal Length vs. Petal Width)

A graph of a line

AI-generated content may be incorrect.

A Scatter Plot is ideal for exploring the relationship between two numerical variables. This is a classic plot for the Iris dataset, showing how Petal Length and Petal Width cluster by species.