**Iris Analysis Documentation :**

Objective – The goal of this Iris Analysis project is to explore and analyse the Iris dataset, shedding light on the relationships and patterns within the data. The dataset contains information on three species of Iris flowers (Iris setosa, Iris versicolor, and Iris virginica) with measurements of their sepal and petal dimensions.

Python Code :

------- > import pandas as pd

# Load the Iris dataset

df = pd.read\_csv("iris.csv")

------> # Display the first few rows of the DataFrame

print(df.head())

------- > # Summary statistics

summary\_stats = df.describe()

print("\nSummary Statistics:")

print(summary\_stats)

-------> # Count of each species

species\_count = df['Species'].value\_counts()

print("\nSpecies Count:")

print(species\_count)

------- > **Pair plot**: Visualizing relationships between numerical variables.

sns.pairplot(df, hue='Species')

plt.show()

--------- **> Boxplot**: Understanding the distribution of each numerical variable for each species.

plt.figure(figsize=(12, 6))

for i, column in enumerate(df.columns[1:5], 1):

plt.subplot(2, 2, i)

sns.boxplot(x='Species', y=column, data=df)

plt.title(f'Boxplot of {column} by Species')

plt.tight\_layout()

plt.show()

----------- > **Countplot:** Visualizing the count of each species.

plt.figure(figsize=(8, 5))

sns.countplot(x='Species', data=df)

plt.title('Species Counts')

plt.show()

------------ > **Scatter Plot:** Exploring the relationship between Sepal Length and Sepal Width.

plt.figure(figsize=(8, 5))

sns.scatterplot(x='SepalLengthCm', y='SepalWidthCm', hue='Species', data=df)

plt.title('Scatter Plot of Sepal Length vs Sepal Width')

plt.show()

------------- > **KDE Plots:** Kernel Density Estimate plots for each numerical variable.

plt.figure(figsize=(12, 8))

for i, column in enumerate(df.columns[1:5], 1):

plt.subplot(2, 2, i)

sns.kdeplot(df[df['Species'] == 'Iris-setosa'][column], label='Iris-setosa', fill=True)

sns.kdeplot(df[df['Species'] == 'Iris-versicolor'][column], label='Iris-versicolor', fill=True)

sns.kdeplot(df[df['Species'] == 'Iris-virginica'][column], label='Iris-virginica', fill=True)

plt.title(f'KDE Plot of {column} by Species')

plt.tight\_layout()

plt.show()

------------------ > **Strip Plot**: Visualizing the distribution of Sepal Length for each species

plt.figure(figsize=(10, 6))

sns.stripplot(x='Species', y='SepalLengthCm', data=df, jitter=True, alpha=0.7)

plt.title('Strip Plot of Sepal Length by Species')

plt.show()