LABORATORY REPORT

Application Development Lab
(CS33002)

B.Tech Program in CSE

Submitted By

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Kalinga Institute of Industrial Technology
(Deemed to be University)
Bhubaneswar, India

Spring 2025-2026

Experiment Number	1
Experiment Title	Introduction to Machine Learning
Date of Experiment	07-01-2026
Date of Submission	14-01-2026

1. **Objective:-**Understand the basics of machine learning and Python/R etc

2. Code:-

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
df = pd.read_csv("Iris.csv")
print(df)
print("\nDataset Info:")
df.info()
print("\nDataset Description:")
print(df.describe())
print("\nMissing Values:")
print(df.isnull().sum())
df.set_index('Id', inplace=True)
plt.figure(figsize=(8, 6))
plt.hist(df[['SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm']],
bins=8,edgecolor='black')
plt.xlabel("Measurement in cm")
plt.ylabel("Frequency")
plt.title("Data Distribution of Iris Dataset")
plt.legend(['Sepal Length', 'Sepal Width', 'Petal Length', 'Petal Width'])
plt.show()
sns.scatterplot(x='SepalLengthCm', y='SepalWidthCm', hue='Species', data=df)
plt.title("Scatter Plot: Sepal Length vs Sepal Width")
plt.show()
sns.scatterplot( x='PetalLengthCm',y='PetalWidthCm',hue='Species',data=df)
plt.title("Scatter Plot: Petal Length vs Petal Width")
plt.show()
ndf = df.select_dtypes(include='number')
corr = ndf.corr()
plt.figure(figsize=(11, 10))
sns.heatmap( corr, annot=True, annot_kws={"size": 14},cmap='coolwarm',fmt='.2f')
plt.title("Correlation Heatmap of Iris Dataset")
plt.show()
```

3. Results/Output:-

```
plt.figure(figsize=(8, 6))
plt.hist(df[['SepalLengthCm', 'SepalWidthCm',
'PetalLengthCm','PetalWidthCm']], bins=8,
edgecolor='black')
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Length', 'Petal Width'])
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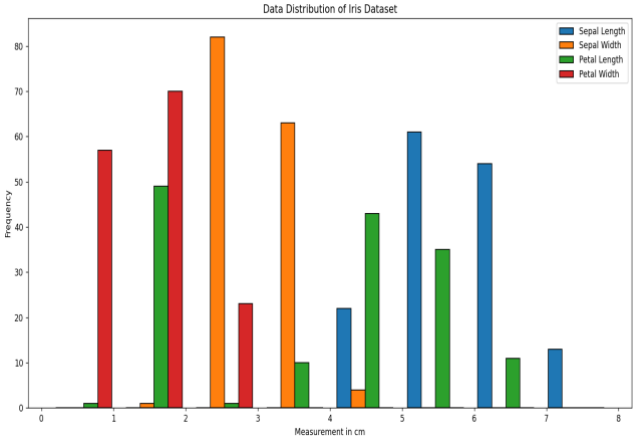


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hue='Species', data=df)
plt.title("Scatter Plot: Sepal Length vs Sepal
Width")
plt.show()
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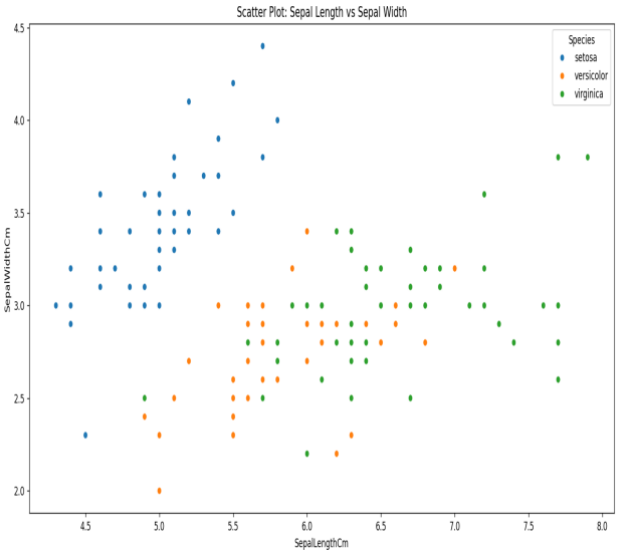


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sns.scatterplot(x='PetalLengthCm', y='PetalWidthCm',
hue='Species', data=df)
plt.title("Scatter Plot: Petal Length vs Petal Width")
plt.show()
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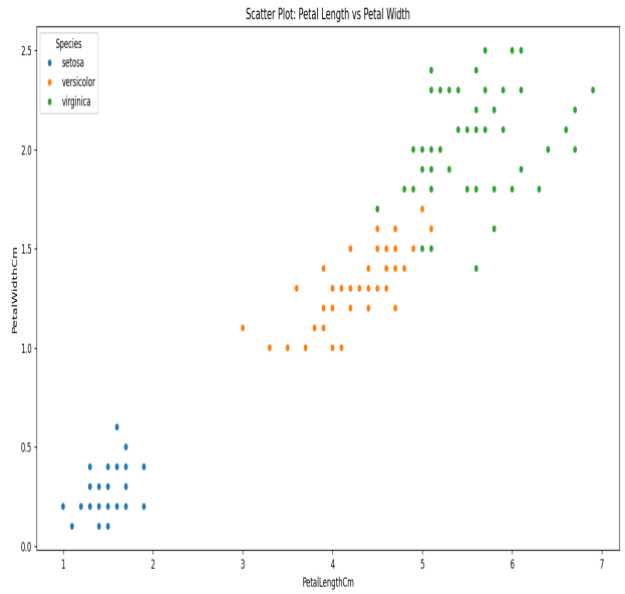


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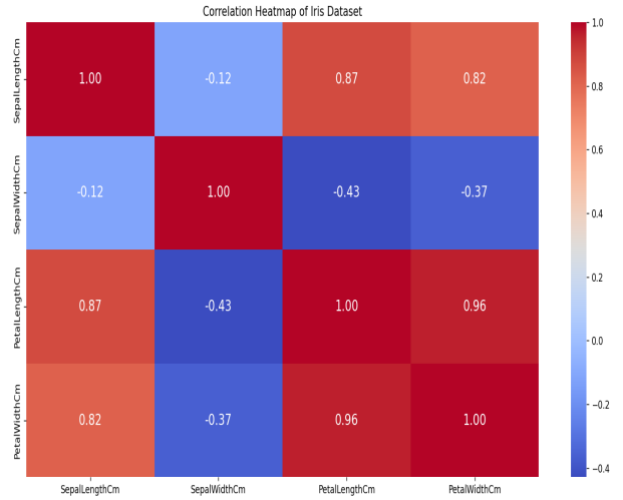

Roll number: 2305941

Signature of the Student

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(Name of the Student)

Signature of the Lab Coordinator

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(Name of the Coordinator)