WORKSHEET 1.4

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Semester: 5th
Subject Code: 21CSH-316
Subject Name: AIML Lab

Aim of the practical:
Implementation of Python Libraries for ML application such as Pandas and Matplotlib

Objective:
The objective of this experiment is to demonstrate the implementation of Python libraries for machine learning applications, specifically Pandas and Matplotlib.

Program code:

```
import pandas as pd
import matplotlib.pyplot as plt
print("Import Successful")
```

```
data=pd.read_csv('Iris.csv')
data=pd.DataFrame(data)
print(data)
```

```
data=data.dropna()

data.describe()
```

```
#Visualize using pandas
plt.plot(data.Species,data.PetalWidthCm)
```

Output:

```
import pandas as pd
import matplotlib.pyplot as plt
print("Import Successful")
```

[29] ✓ 0.0s

```
Import Successful
```

```
data=pd.read_csv('Iris.csv')
data=pd.DataFrame(data)
print(data)
```

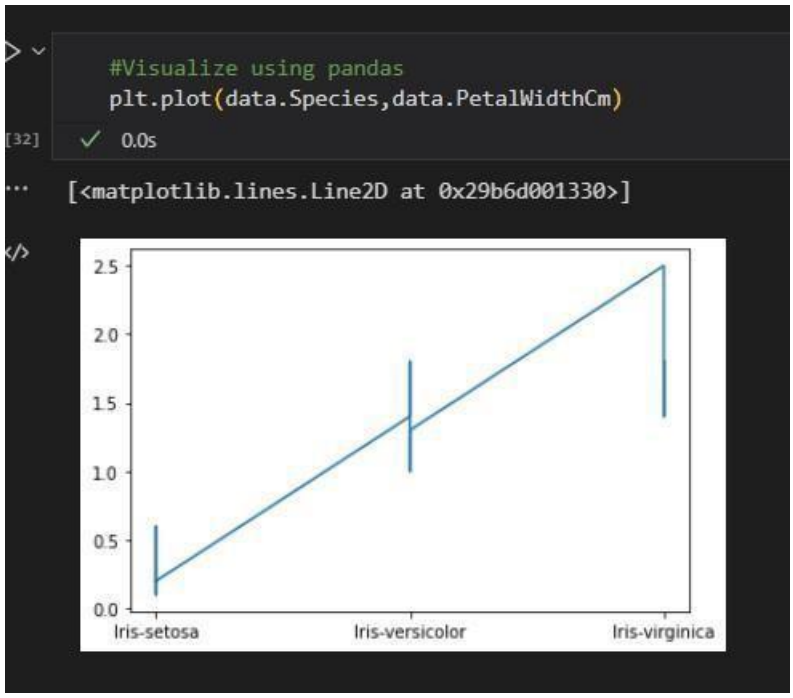
[30] ✓ 0.0s

```
      Id  SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm  \
0      1            5.1           3.5            1.4           0.2
1      2            4.9           3.0            1.4           0.2
2      3            4.7           3.2            1.3           0.2
3      4            4.6           3.1            1.5           0.2
4      5            5.0           3.6            1.4           0.2
..   ...            ...           ...            ...           ...
145  146            6.7           3.0            5.2           2.3
146  147            6.3           2.5            5.0           1.9
147  148            6.5           3.0            5.2           2.0
148  149            6.2           3.4            5.4           2.3
149  150            5.9           3.0            5.1           1.8

            Species
0       Iris-setosa
1       Iris-setosa
2       Iris-setosa
3       Iris-setosa
4       Iris-setosa
..              ...
145  Iris-virginica
146  Iris-virginica
147  Iris-virginica
148  Iris-virginica
149  Iris-virginica

[150 rows x 6 columns]
```

```
data=data.dropna()

data.describe()
```

[31] ✓ 0.0s

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	75.500000	5.843333	3.054000	3.758667	1.198667
std	43.445368	0.828066	0.433594	1.764420	0.763161
min	1.000000	4.300000	2.000000	1.000000	0.100000
25%	38.250000	5.100000	2.800000	1.600000	0.300000
50%	75.500000	5.800000	3.000000	4.350000	1.300000
75%	112.750000	6.400000	3.300000	5.100000	1.800000
max	150.000000	7.900000	4.400000	6.900000	2.500000



Learning Outcomes:

1. Loading the dataset into a Pandas DataFrame successfully.
2. Handling missing data by either removing or imputing missing values.
3. Performing exploratory data analysis using Pandas functions like describe(), head(), tail(), etc.
4. Visualizing the data using Matplotlib functions such as line plots, scatter plots, bar charts, etc.
5. Applying machine learning algorithms to the dataset and evaluating the model's performance.