EXPERIMENT 2

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Branch: CSE **Section/Group: 615/B**

Semester: 5th **Date of Performance: 04/09/2022**

Subject Name: Machine Learning Lab **Subject Code: 20CSP-317**

1. Aim/Overview of the practical: To implement Data Visualization

2. Source Code:

```
Import pandas as pd
Import numpy as np
Import seaborn as sns
Import matplotlib.pyplot as plt
Df=pd.read_csv("Iris.csv")
Print(df)

Cor=df.corr()
Sns.heatmap(cor, annot=True)
```

```
X=df['SepalLengthCm']
Y=df['SepalWidthCm']  Plt.figure(figsize=(8,8))
Plt.bar(x,ywidth=0.3, color = 'skynlue',edgecolor = 'k', lw=2, ls= '—')
Plt.show()

X= df['SepalLengthCm']
Plt.boxplot(x)
Plt.show()

Sns.pairplot(df, hue= 'SepalWidthCm')
Plt.show()

X= df['PetalLengthCm']
Plt.violinplot(x)
Plt.show()

Sns.regplot( x= "SepalLengthCm", y= "SepalLengthCm", data= df)
```

Plt.show()

3. Result/Output

- Importing important libraries and reading csv file

```
In [5]: import pandas as pd
        import numpy as np
        import seaborn as sns
        import matplotlib.pyplot as plt

        df= pd.read_csv("C:\\Users\\Dell\\Dropbox\\PC (2)\\Documents\\Padhai Likhai\\Books\\Machine Learnig\\Iris.csv")
        print(df)
```

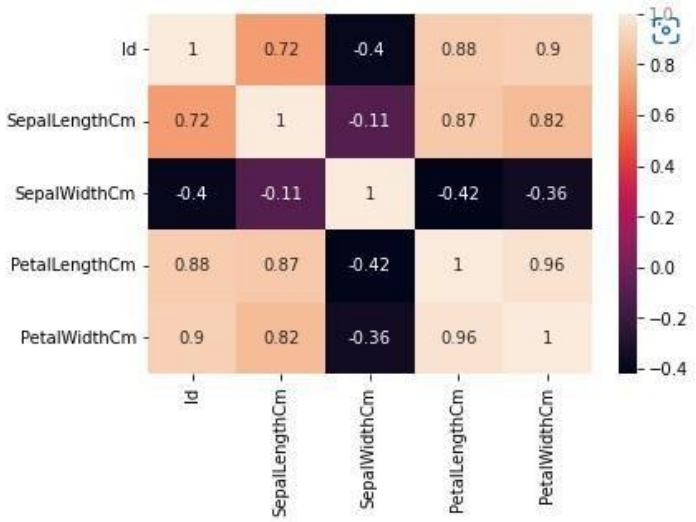
```
      Id  SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm  \
0      1            5.1           3.5            1.4           0.2
1      2            4.9           3.0            1.4           0.2
2      3            4.7           3.2            1.3           0.2
3      4            4.6           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]
```

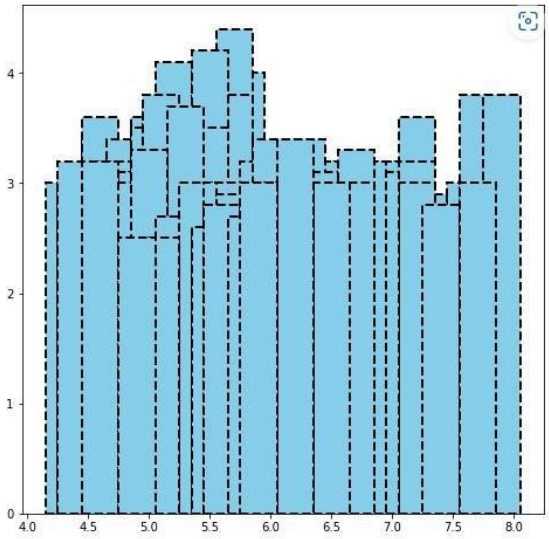
- Visualization in form of heatmap

```
In [6]: cor= df.corr()
        sns.heatmap(cor, annot=True)
Out[6]: <AxesSubplot:>
```



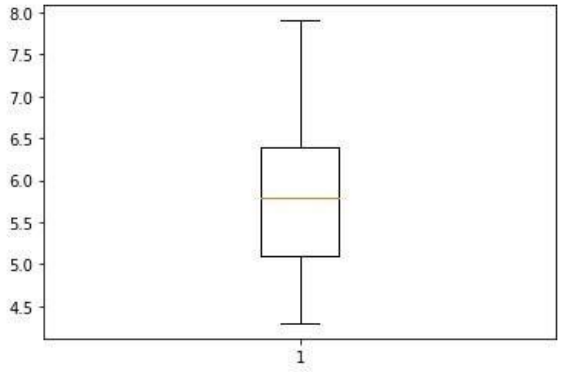
- Visualization using bargrah

In [15]:
```
x= df['SepalLengthCm']
y= df['SepalWidthCm']
plt.figure(figsize=(8,8))
plt.bar(x, y, width=0.3, color='skyblue', edgecolor='k', lw=2, ls='--')
plt.show()
```



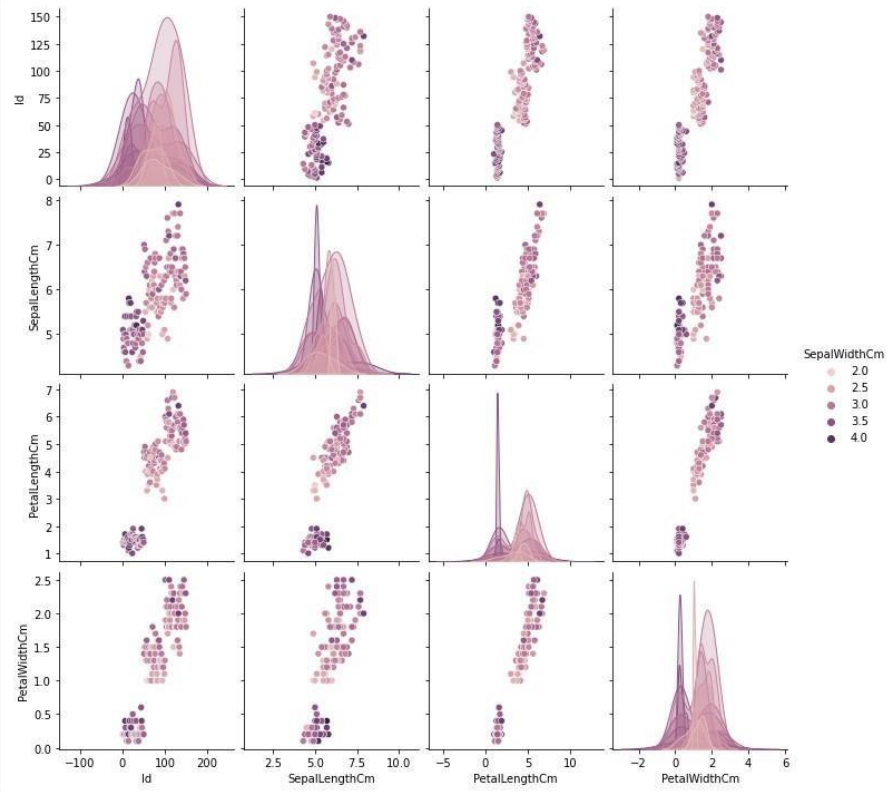
- Visualization using box plot

```
In [13]: x= df['SepalLengthCm']
         plt.boxplot(x)
         plt.show()
```



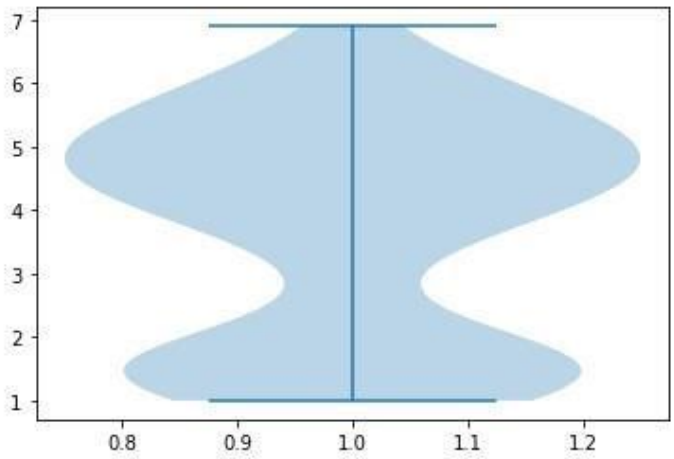
- Visualization using pairplot

```
In [17]: sns.pairplot(df, hue ='SepalWidthCm')
         plt.show()
```



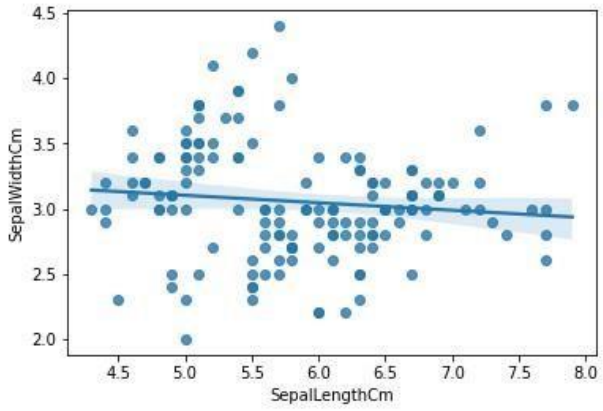
- Visualization using violin plot

In [14]:
```
x= df['PetalLengthCm']
plt.violinplot(x)
plt.show()
```



- Visualization using regplot

In [19]:
```
sns.regplot(x = "SepalLengthCm",
            y = "SepalWidthCm",
            data = df)
plt.show()
```



Learning outcomes (What I have learnt):

1. **Learned how to use jupyter notebook.**
2. **Learned how to write python programs and its execution.**
3. **Learned how to import various libraries.**
4. **Learned how to import dataset in python program using pandas library.**
5. **Learned how to perform data visualization of datasets.**

Evaluation Grid :

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Student Performance (Conduct of experiment) objectives/Outcomes.		12
2.	Viva Voce		10
3.	Submission of Work Sheet (Record)		8
	Total		30