Experiment No. 2

Data Visualization

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Branch: BE-CSE	**Section/Group: 607/B**
Semester: 5th	**Subject: Machine Learning Lab**

1. **Aim:** In this experiment we are doing data visualization using python library matplotlib. It offers data visualization packages different features for creating informative, customized and appealing plot to present data in the most simple and effective way.

2. **Software/Hardware Requirements:** Windows 7 & above version

3. **Tools to be used:**
   - Anaconda Navigator
   - Jupiter Notebook
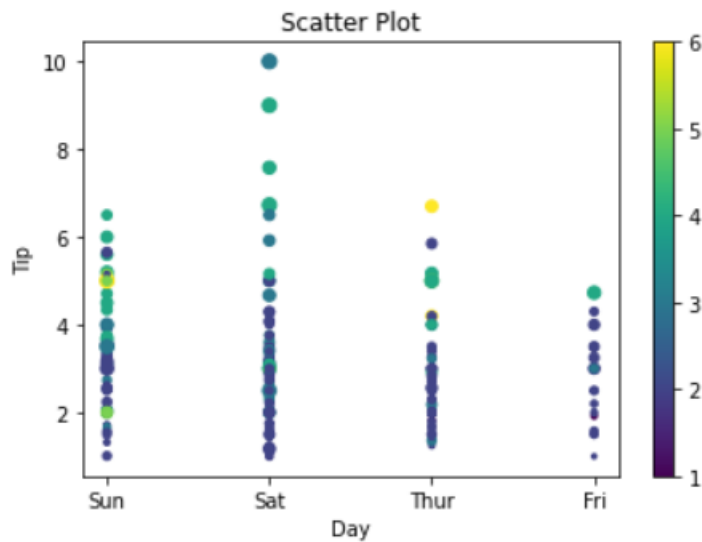
4. **Code and Screenshots:**

```
In [4]: import pandas as pd
        import numpy as np
        import matplotlib.pyplot as plt
```

```
In [7]: data=pd.read_csv("tips.csv")
        plt.scatter(data['day'],data['tip'])
        plt.title("Scatter Plot")
        plt.xlabel('Day')
        plt.ylabel('Tip')

        plt.show()
```
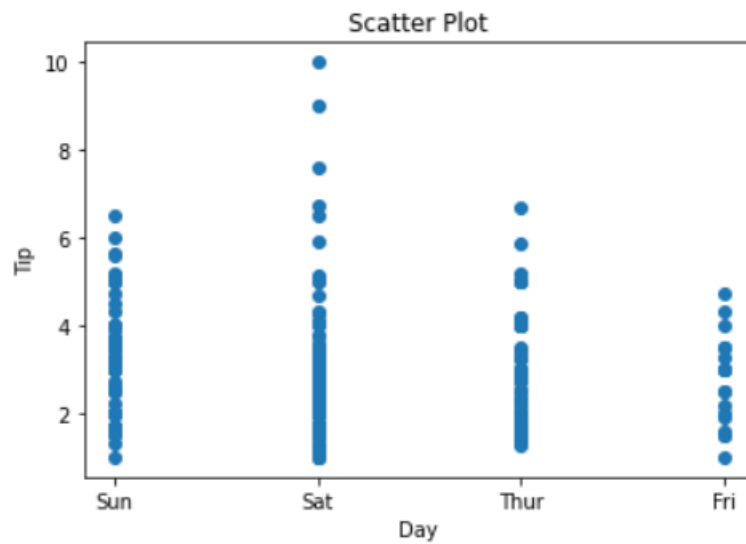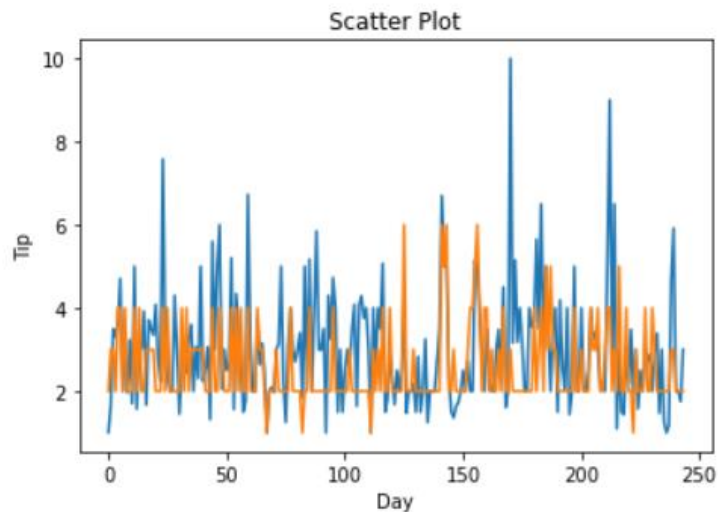

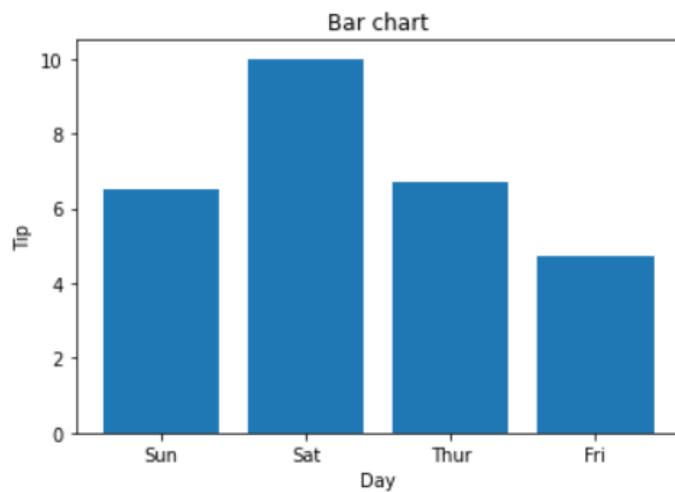Scatter Plot

```
In [8]: plt.scatter(data['day'],data['tip'],c=data['size'],s=data['total_bill'])
        plt.title("Scatter Plot")
        plt.xlabel('Day')
        plt.ylabel('Tip')

        plt.colorbar()
        plt.show()
```
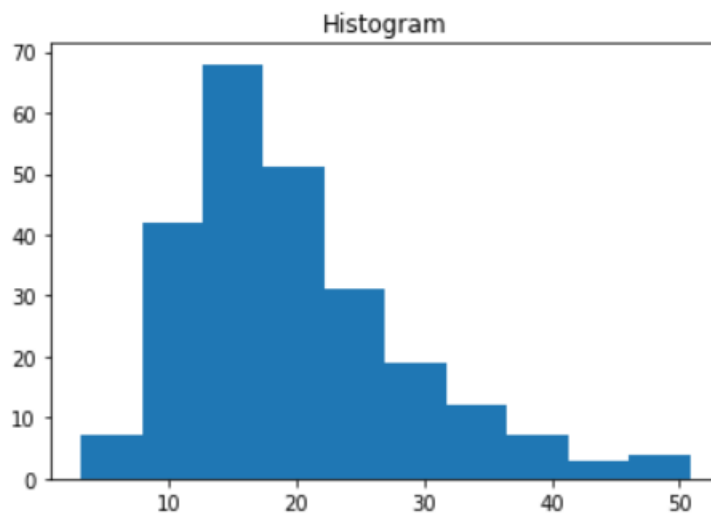
```
In [9]: plt.plot(data['tip'])
        plt.plot(data['size'])
        plt.title("Scatter Plot")
        plt.xlabel('Day')
        plt.ylabel('Tip')

        plt.show()
```



```
In [10]: plt.bar(data['day'], data['tip'])
         plt.title("Bar chart")
         plt.xlabel('Day')
         plt.ylabel('Tip')

         plt.show()
```
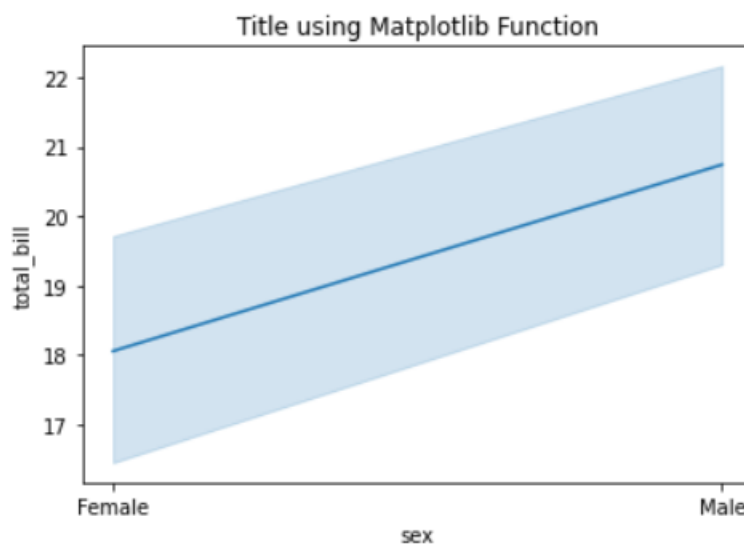
In [11]:
```python
plt.hist(data['total_bill'])
plt.title("Histogram")
plt.show()
```
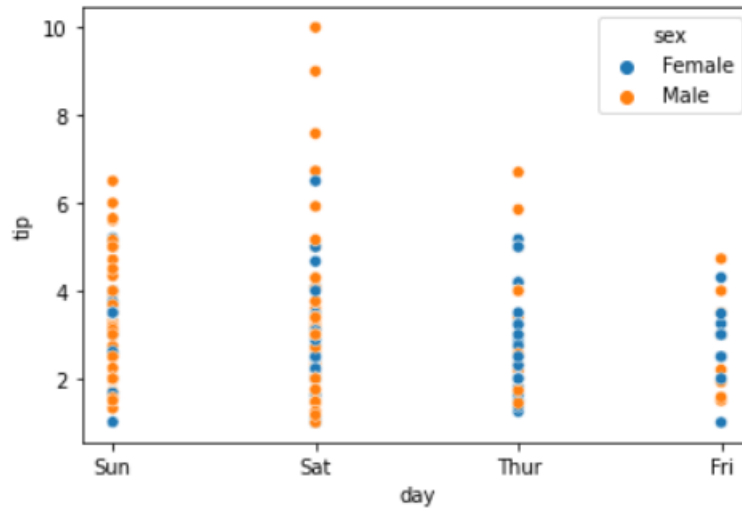

In [12]:
```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

In [13]:
```python
sns.lineplot(x="sex", y="total_bill", data=data)
plt.title('Title using Matplotlib Function')
plt.show()
```

```
In [17]: data=pd.read_csv("tips.csv")
         sns.scatterplot(x='day', y='tip', data=data, hue='sex')
         plt.show
```
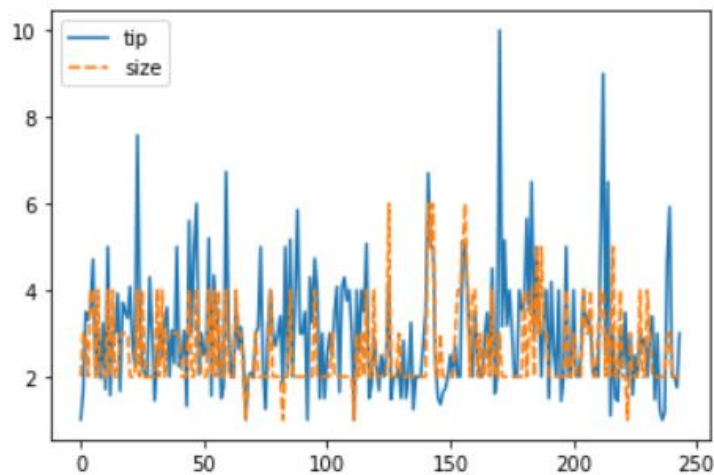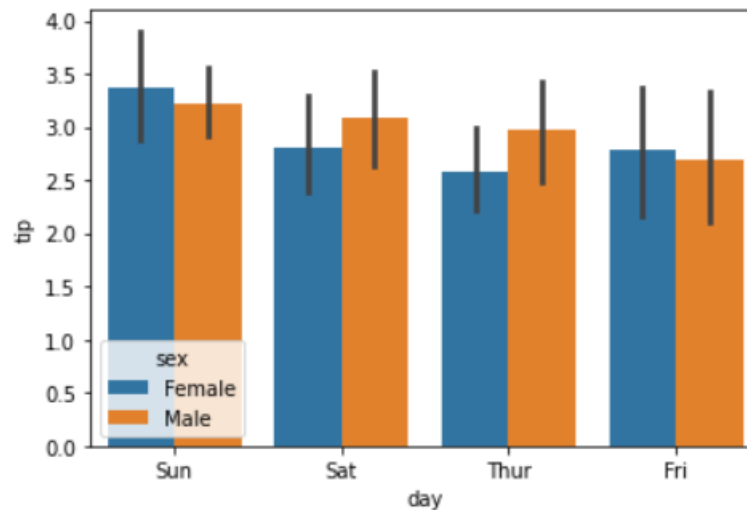
```
Out[17]: <function matplotlib.pyplot.show(close=None, block=None)>
```
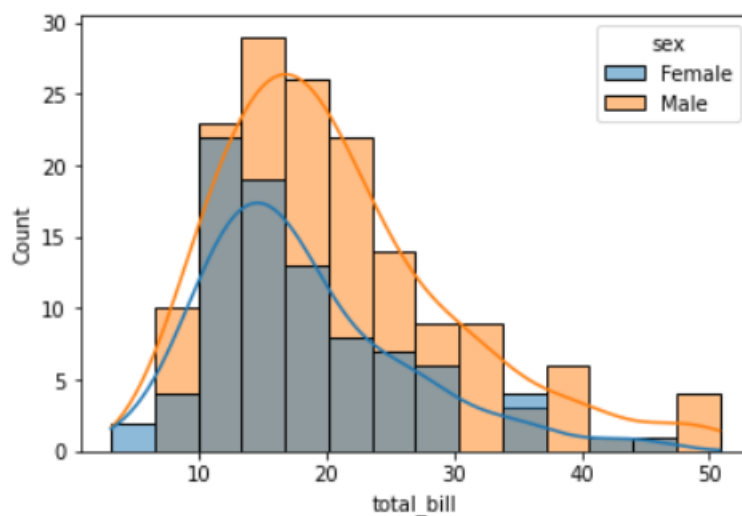


```
In [18]: data=pd.read_csv("tips.csv")
         sns.lineplot(data=data.drop(['total_bill'], axis=1))

         plt.show()
```

```
In [20]: data=pd.read_csv("tips.csv")
         sns.barplot(x='day', y='tip', data=data, hue='sex')
         plt.show()
```



```
In [22]: data=pd.read_csv("tips.csv")
         sns.histplot(x='total_bill', data=data, kde=True, hue='sex')

         plt.show()
```


Learning outcomes (What I have learnt):

1. Understanding of Data visualization.
2. Able to make different plots on given dataset with the help of python and matplotlib library.

3. Learning about different library/packages of python.
4. **Learning of different Machine Learning Functions**

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