Worksheet 2

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Branch:- CSE Section/Group: 701 B

Subject Name:-Machine Learning Lab

Aim/Overview of the practical:-

Implement Data Visualization.

Result/Output/Writing Summary:-

Data visualization provides a good, organized pictorial representation of the data which makes it easier to understand,observe, analyze.

1:-

```
import pandas as pd
```

```
import matplotlib.pyplot as np
```

```
beat = pd.read_csv("/home/beat_box/Documents/--code/ML/tips.csv")
```

```
beat.describe()
```

	total_bill	tip	size	price_per_person	CC Number
count	244.000000	244.000000	244.000000	244.000000	2.440000e+02
mean	19.785943	2.998279	2.569672	7.888197	2.563496e+15
std	8.902412	1.383638	0.951100	2.914234	2.369340e+15
min	3.070000	1.000000	1.000000	2.880000	6.040679e+10
25%	13.347500	2.000000	2.000000	5.800000	3.040731e+13
50%	17.795000	2.900000	2.000000	7.255000	3.525318e+15
75%	24.127500	3.562500	3.000000	9.390000	4.553675e+15
max	50.810000	10.000000	6.000000	20.270000	6.596454e+15

import pandas as pd
import :-it is used to import library in python
Pandas :- it is a data analysis library.
As pd :- Another name for referenceing the pandas as pd.

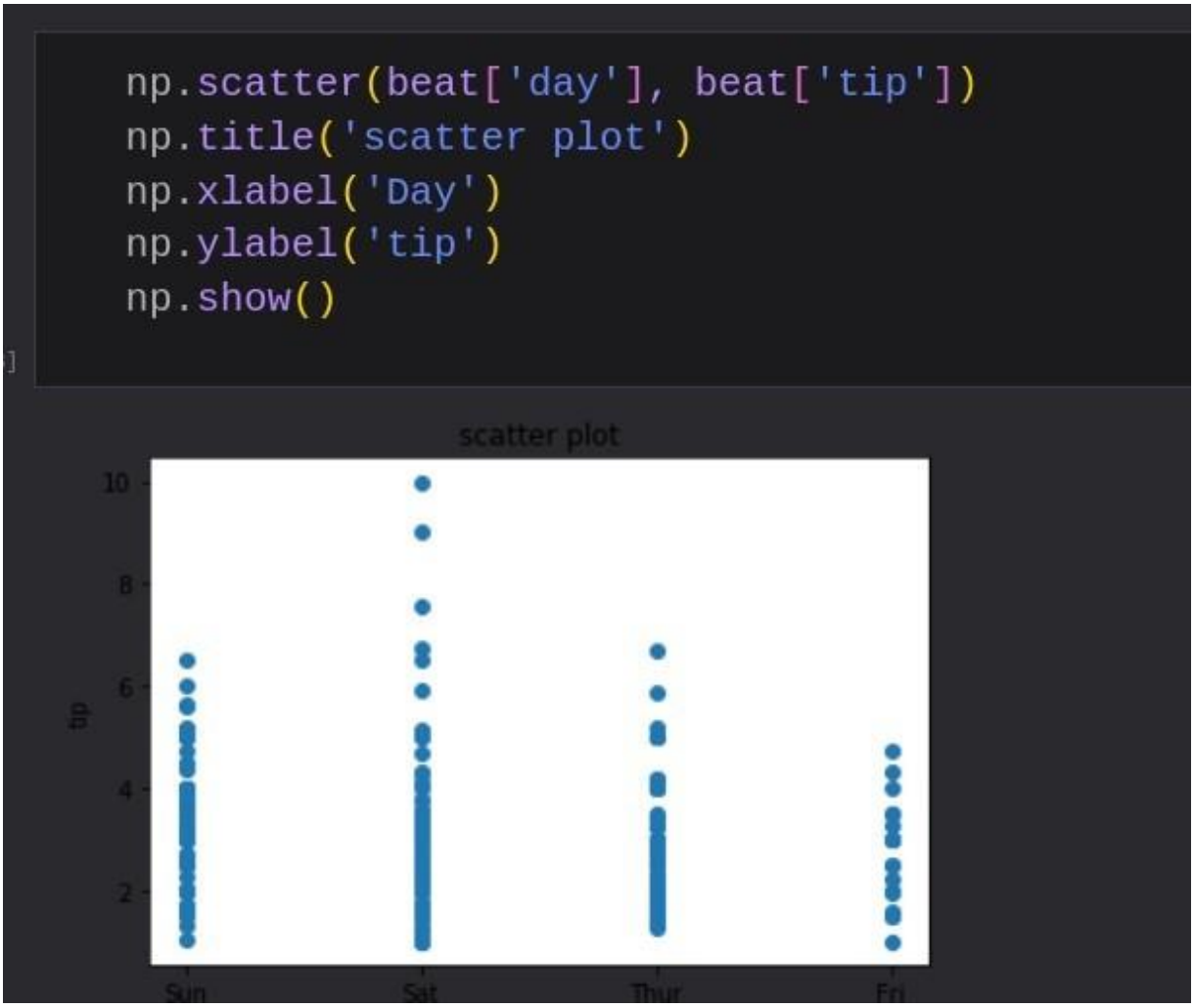
Matplotlib:-it is a library use to plot different type of graps.

Beat:- it is a variable that store the csv file data

pd.read_csv() :- it is a function use to read the file.

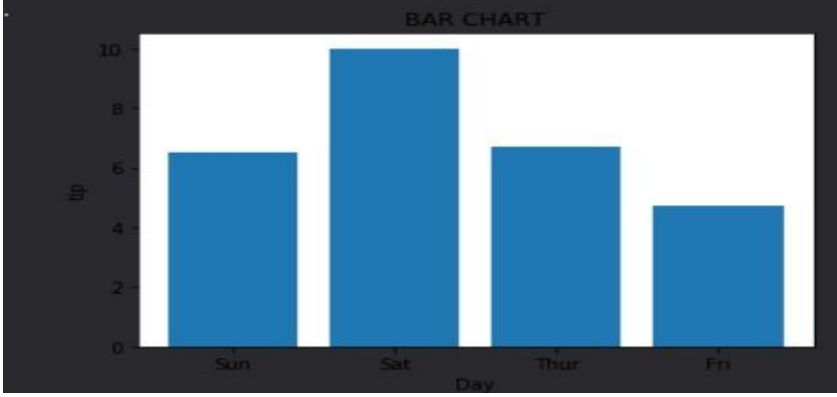
describe():-we can get a summary of the distribution of continuous variables:

2:-



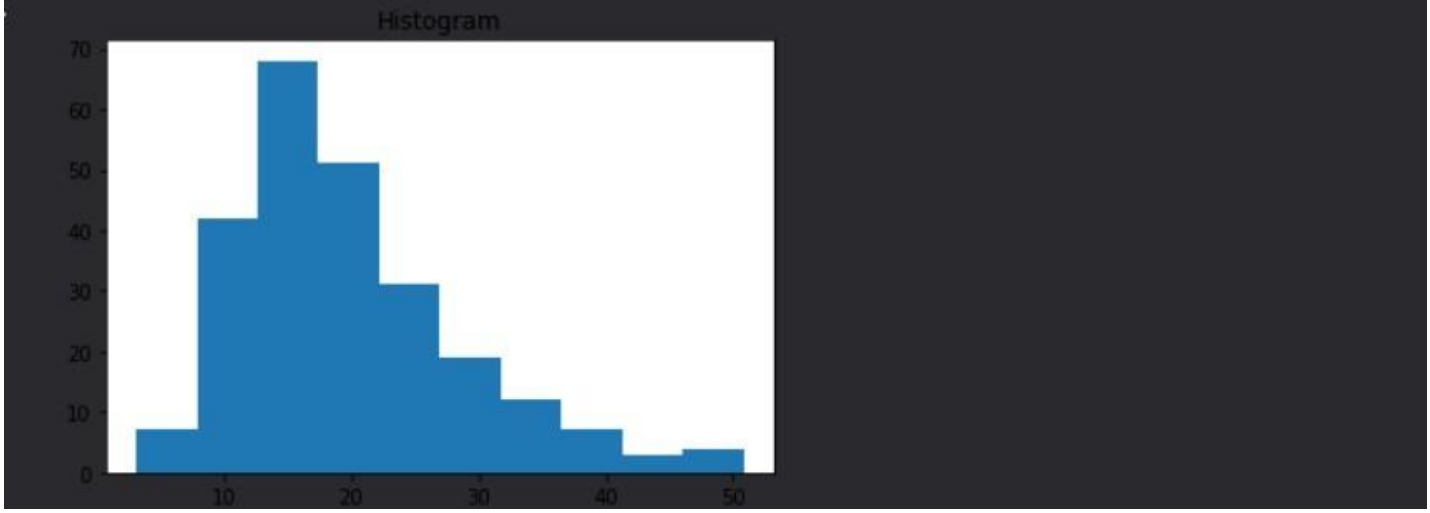
3:-

```
np.bar(beat['day'], beat['tip'])
np.title('BAR CHART')
np.xlabel('Day')
np.ylabel('tip')
np.show()
```



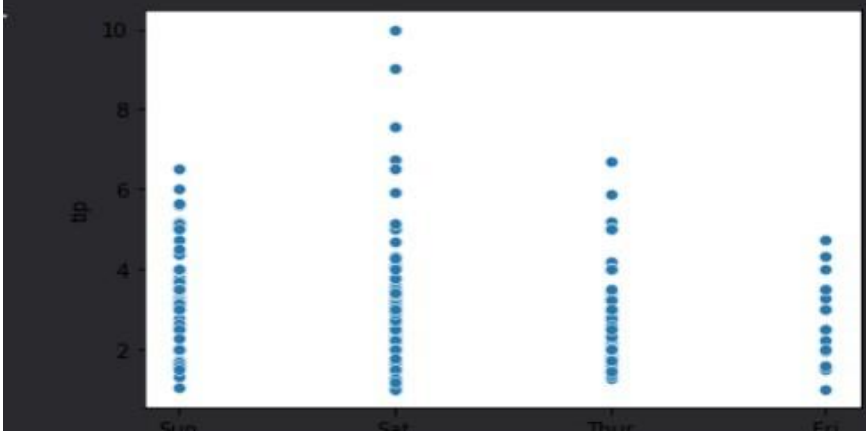
4:-

```
np.hist(beat['total_bill'])
np.title("Histogram")
np.show()
```



5:-

```
import seaborn as sns
sns.scatterplot(x='day', y='tip', data=beat,)
np.show()
```



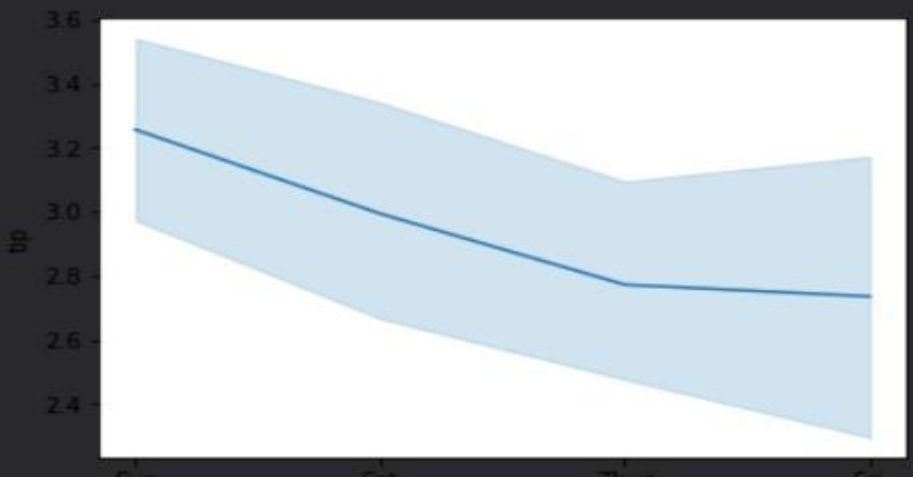
6:-

```
sns.scatterplot(x='day', y='tip', data=beat,
                hue='sex')
np.show()
```

8:-

7:-

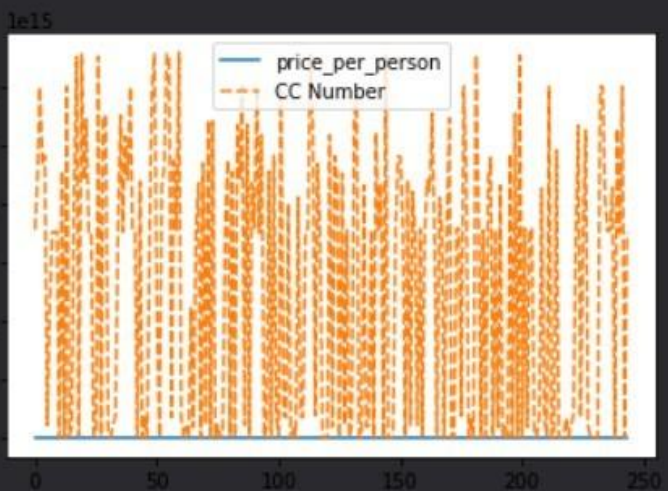
```
sns.lineplot(x='day', y='tip', data=beat)
np.show()
```



8:-

```
sns.lineplot(data=beat.drop(['total_bill','tip','size'], axis=1))
```

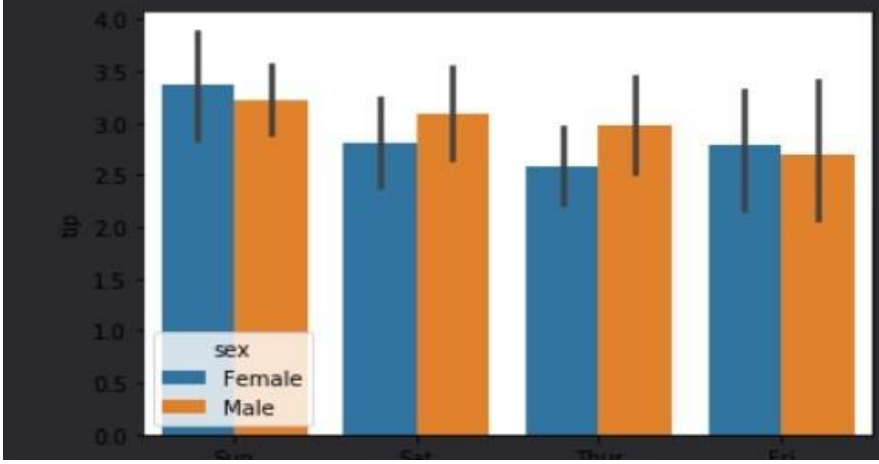
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f81aa8f5790>
```



9:-

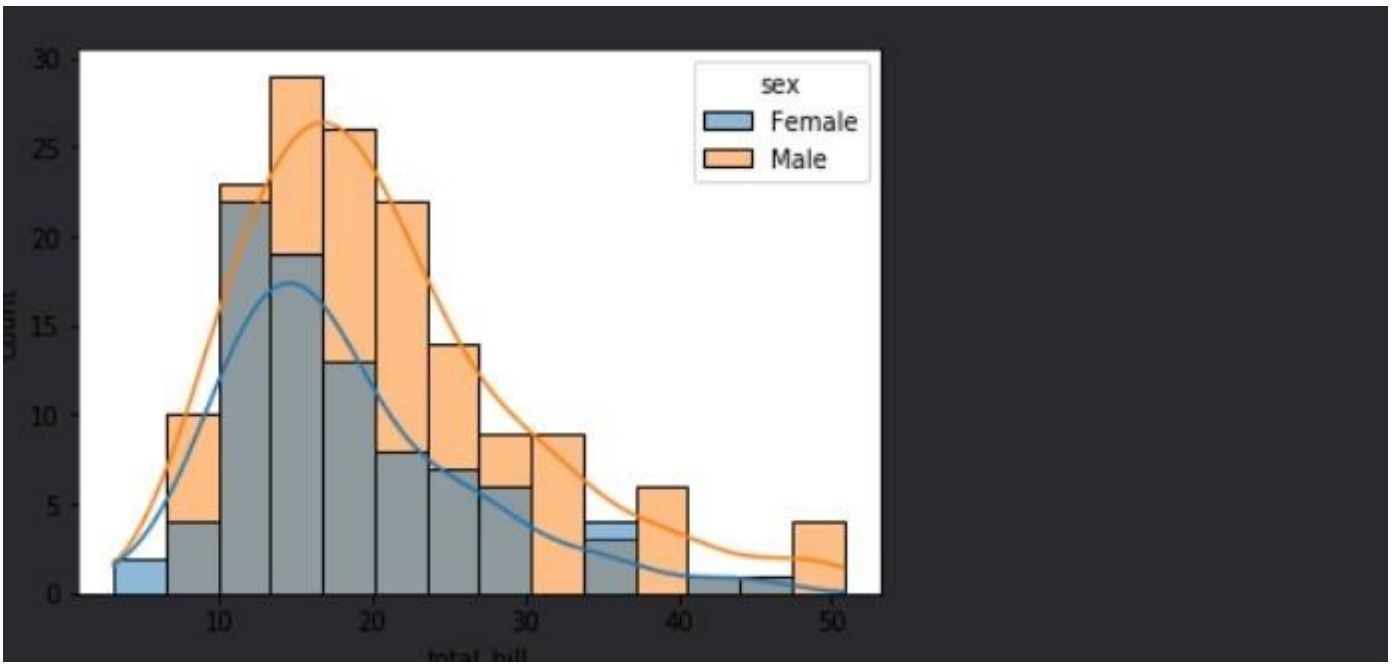
```
sns.barplot(x='day',y='tip', data=beat, hue='sex')

np.show()
```



10:-

```
sns.histplot(x='total_bill', data=beat, kde=True, hue='sex')
```

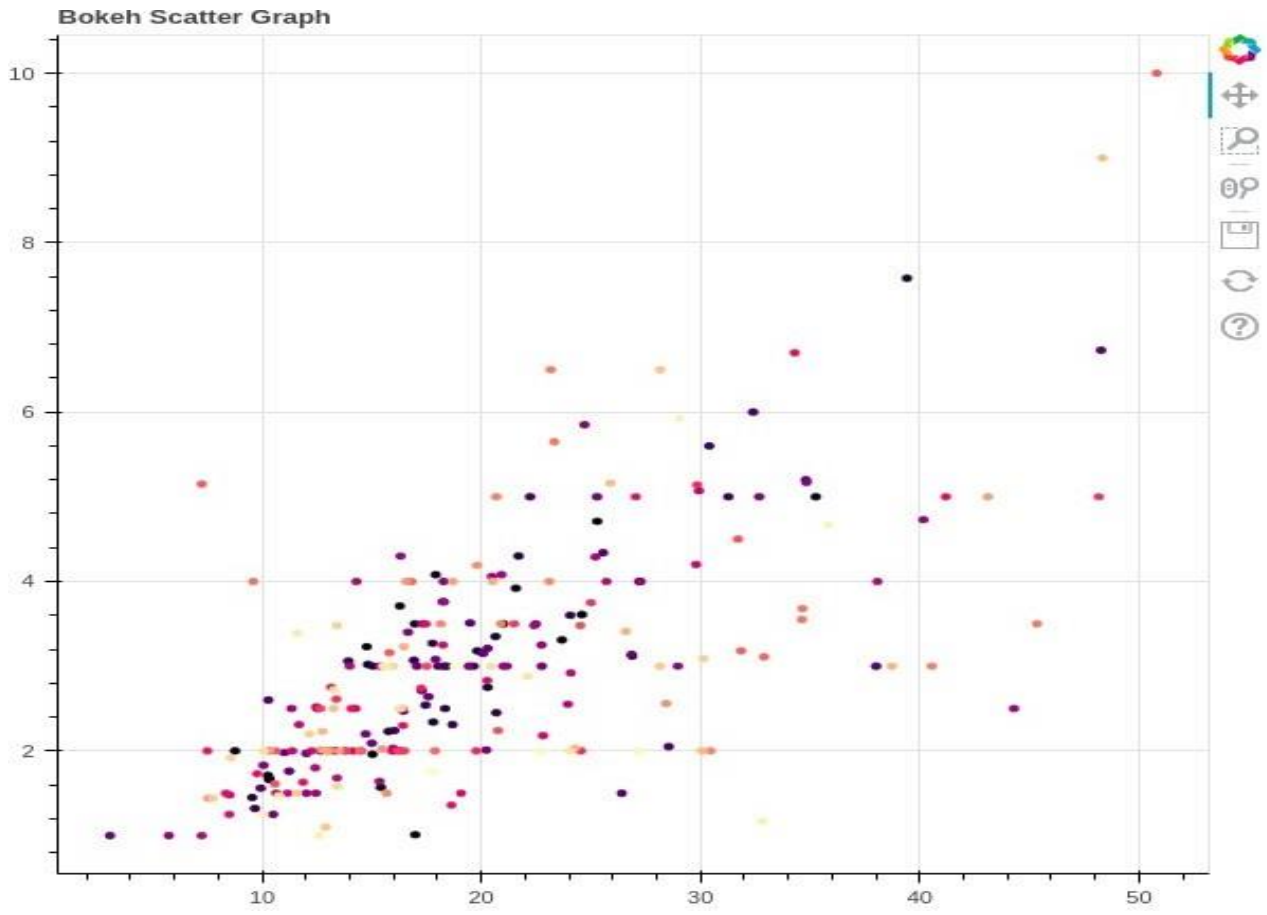


11:-

```
from bokeh.plotting import figure, output_file, show
from bokeh.palettes import magma
import pandas as pd
graph = figure(title = "Bokeh Scatter Graph")
color = magma(245)
graph.scatter(beat['total_bill'], beat['tip'], color=color)
show(graph)
```

Python

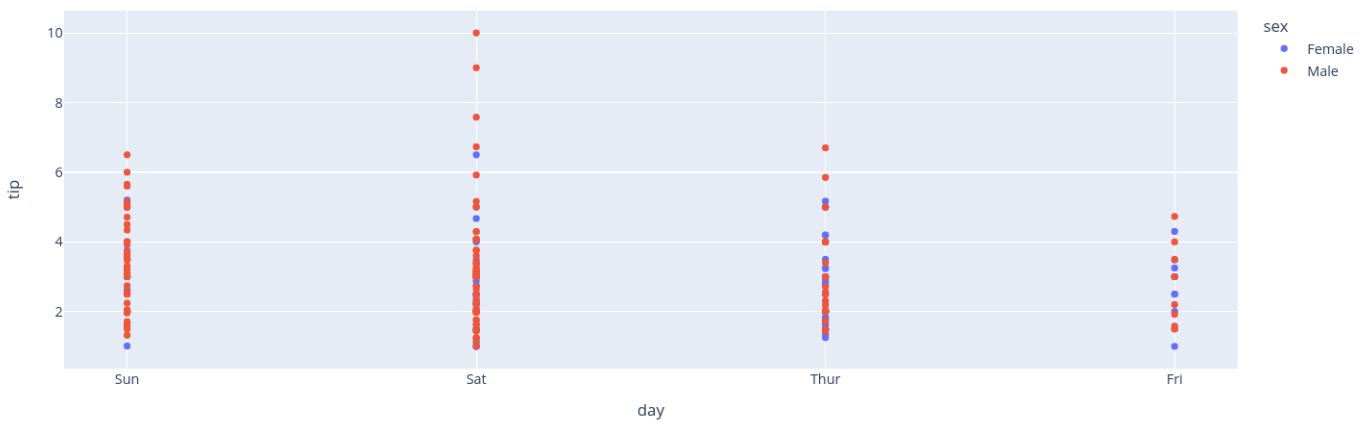
```
BokehUserWarning: ColumnDataSource's columns must be of the same length. Current lengths: ('hatch_color', 245), ('x', 244), ('y', 244)
BokehUserWarning: ColumnDataSource's columns must be of the same length. Current lengths: ('fill_color', 245), ('hatch_color', 245), ('x', 244), ('y', 244)
BokehUserWarning: ColumnDataSource's columns must be of the same length. Current lengths: ('fill_color', 245), ('hatch_color', 245), ('line_color', 245), ('x', 244), ('y', 244)
```



12:-

```
import plotly.express as px
fig = px.scatter(beat, x="day", y="tip", color='sex')
fig.show()
```

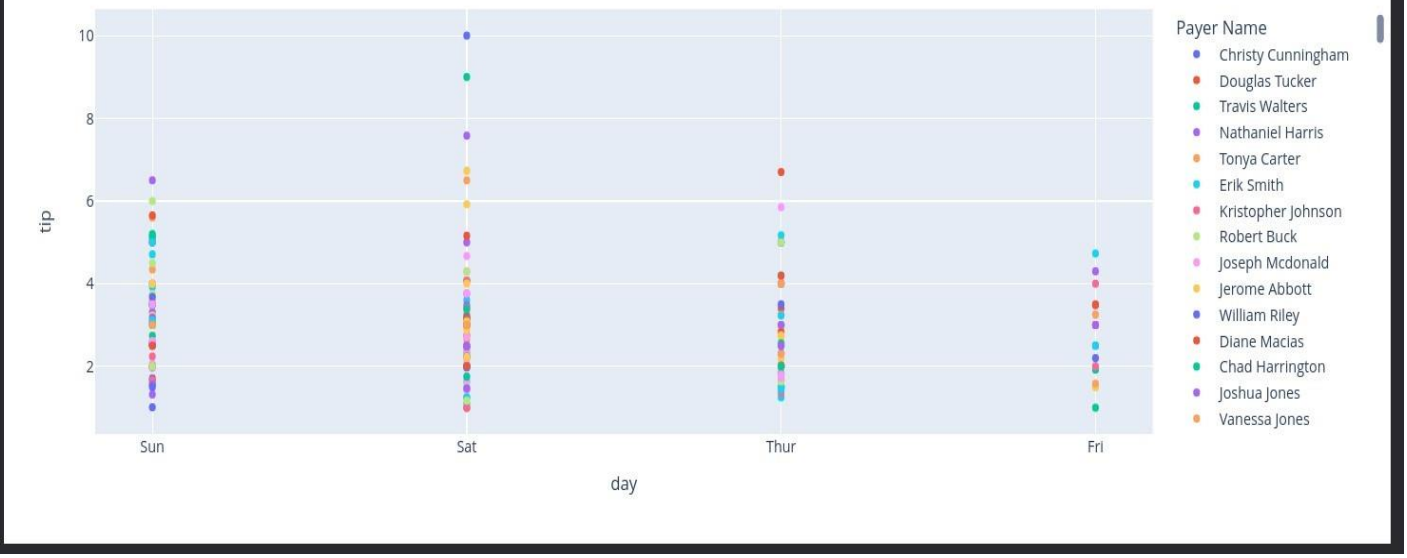
Python



13:-

```
import plotly.express as px
fig = px.scatter(beat, x="day", y="tip", color='Payer Name')
fig.show()
```

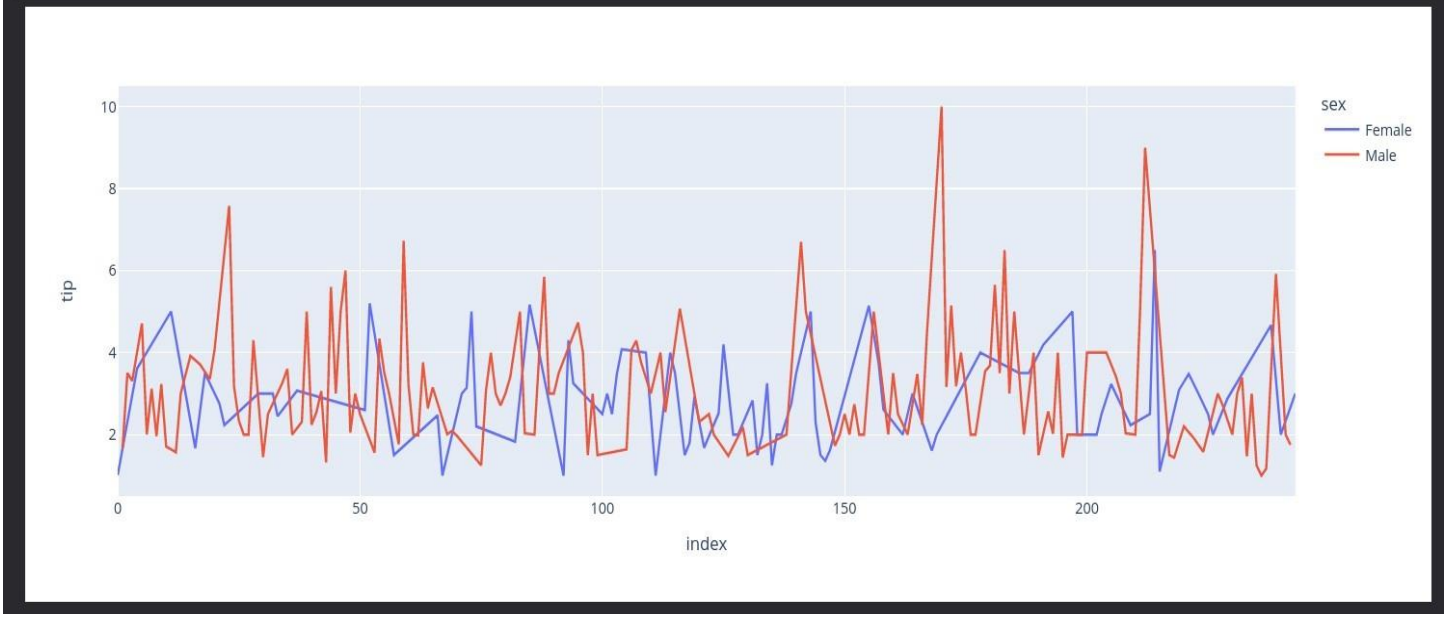
Python



14:-

```
fig = px.line(beat, y='tip', color='sex')
fig.show()
```

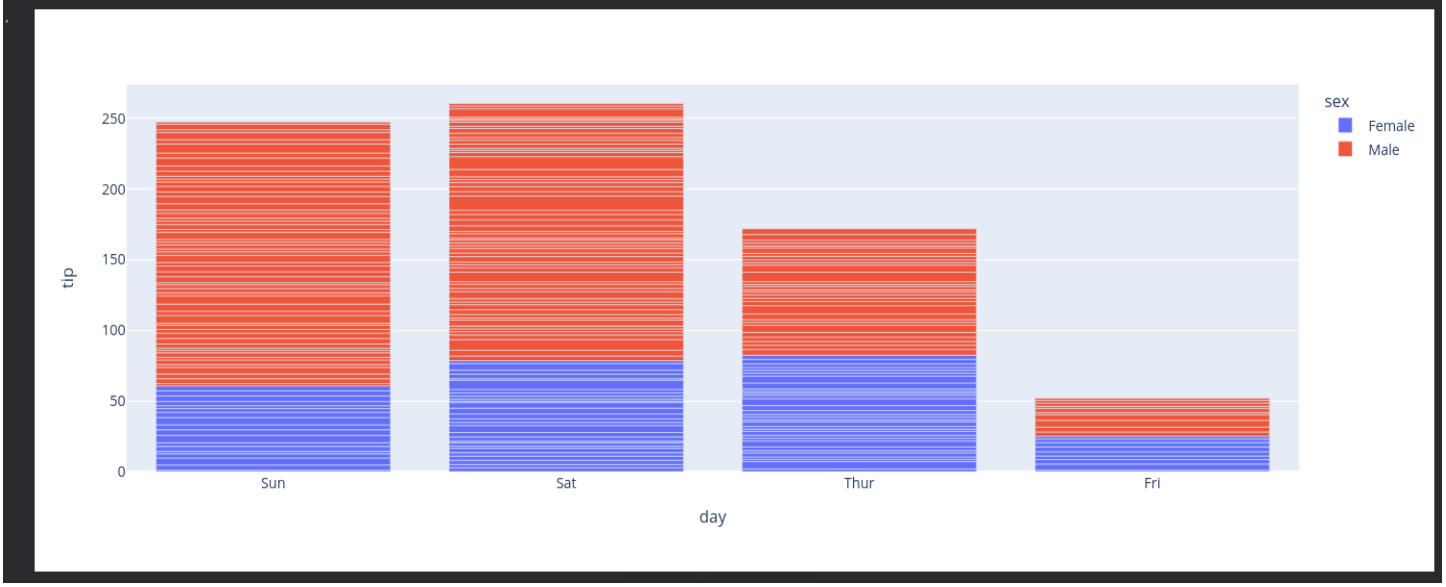
✓ 0.9s Python



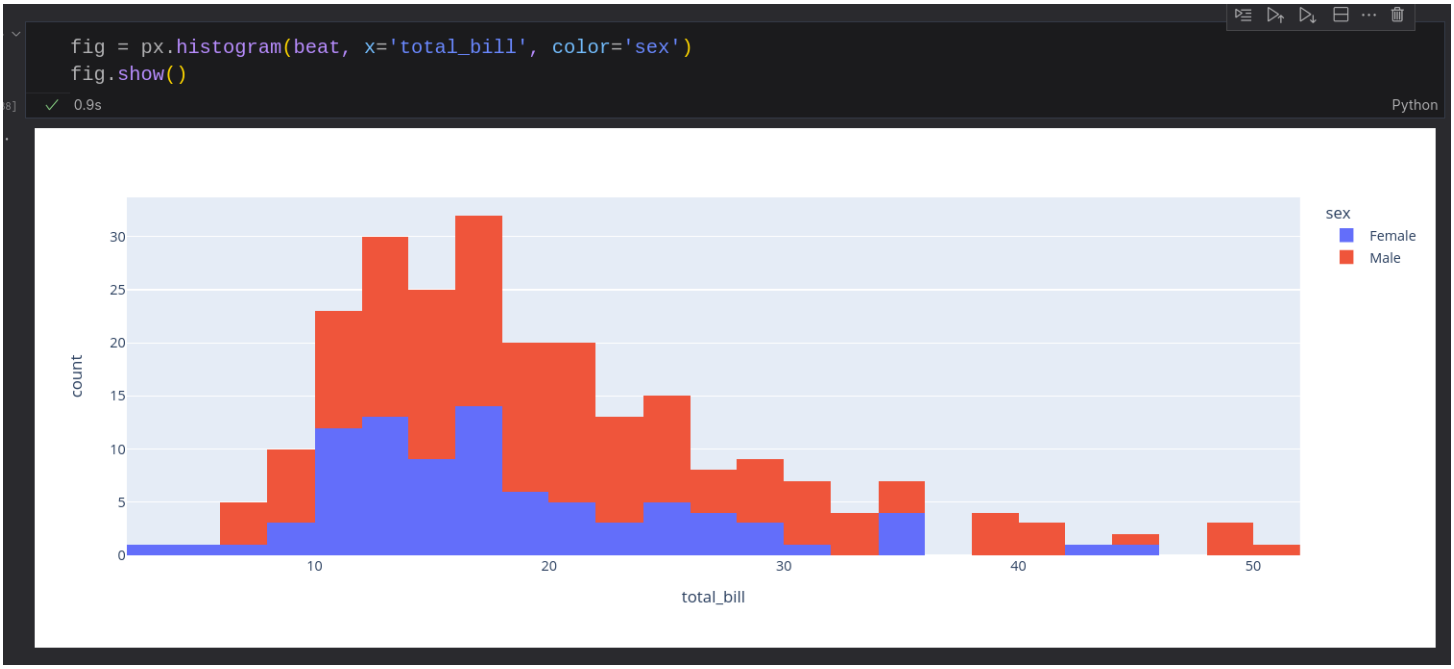
15:-

```
fig = px.bar(beat, x='day', y='tip', color='sex')
fig.show()
```

✓ 0.8s Python



16:-



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