

Experiment-2

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Branch: BE-CSE

Section/Group: 806/B

Semester: 5th

Date of Performance: 16/08/2022

Subject Name: Machine Learning

Subject Code: 20CSP_806

1. Aim/Overview of the practical:

To analyse the data for certain trends, patterns may become difficult if the data is in its raw format. To overcome this data visualization comes into play. Data visualization provides a good, organized pictorial representation of data which makes it easier to understand, observe, analyse.

2. Task to be done/ Which logistics used:

- Goggle colab (Online Compiler)
- Jupyter Notebook (Offline)

Hardware Requirement:

- Window 10
- Power Supply
- RAM 4GB

4. Steps for experiment/practical/Code:

JupyterLab Experiment: Last checkpoint, 3 hours ago (autosaved)

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

In [5]:

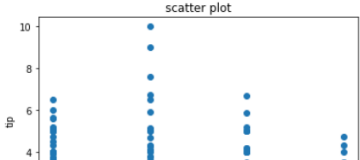
```
import pandas as pd
import matplotlib.pyplot as plt
data = pd.read_csv("tips.csv")
data.head(10)
```

Out[5]:

	total_bill	tip	sex	smoker	day	time	size	price_per_person	Payer Name	CC Number	Payment ID
0	16.99	1.01	Female	No	Sun	Dinner	2	8.49	Christy Cunningham	3560325168603410	Sun2959
1	10.34	1.66	Male	No	Sun	Dinner	3	3.45	Douglas Tucker	4478071379779230	Sun4608
2	21.01	3.50	Male	No	Sun	Dinner	3	7.00	Travis Walters	6011812112971322	Sun4458
3	23.68	3.31	Male	No	Sun	Dinner	2	11.84	Nathaniel Harris	4676137647685994	Sun5260
4	24.59	3.61	Female	No	Sun	Dinner	4	6.15	Tonya Carter	4832732618637221	Sun2251
5	25.29	4.71	Male	No	Sun	Dinner	4	6.32	Erik Smith	213140353657882	Sun9679
6	8.77	2.00	Male	No	Sun	Dinner	2	4.38	Kristopher Johnson	2223727524230344	Sun5985
7	26.88	3.12	Male	No	Sun	Dinner	4	6.72	Robert Buck	3514785077705092	Sun8157
8	15.04	1.96	Male	No	Sun	Dinner	2	7.52	Joseph McDonald	3522866365840377	Sun6820
9	14.78	3.23	Male	No	Sun	Dinner	2	7.39	Jerome Abbott	3532124519049786	Sun3775

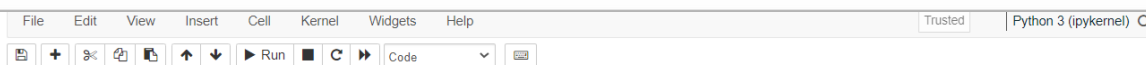
In [6]:

```
plt.scatter(data['day'], data['tip'])
plt.title('scatter plot')
plt.xlabel('Day')
plt.ylabel('tip')
plt.show()
```

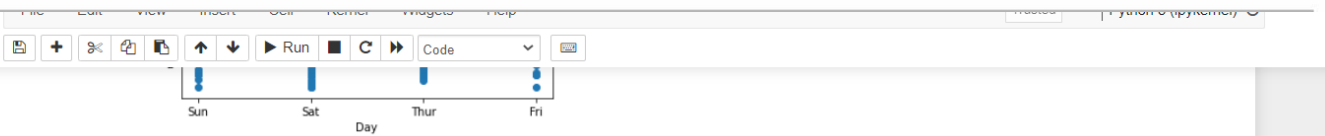




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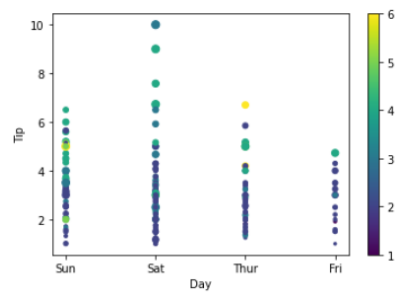
```
In [6]: plt.scatter(data['day'], data['tip'])
plt.title('scatter plot')
plt.xlabel('Day')
plt.ylabel('tip')
plt.show()
```



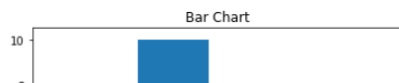
```
In [7]: plt.scatter(data['day'], data['tip'], c=data['size'],
                  s=data['total_bill'])
plt.xlabel('Day')
plt.ylabel('Tip')

plt.colorbar()

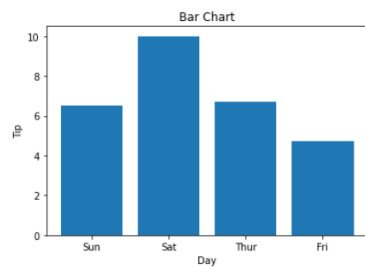
plt.show()
```



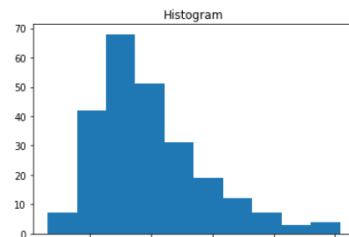
```
In [9]: plt.bar(data['day'], data['tip'])
plt.title("Bar Chart")
plt.xlabel('Day')
plt.ylabel('Tip')
plt.show()
```



```
In [9]: plt.bar(data['day'], data['tip'])  
plt.title("Bar Chart")  
plt.xlabel('Day')  
plt.ylabel('Tip')  
plt.show()
```



```
In [10]: plt.hist(data['total_bill'])  
plt.title("Histogram")  
plt.show()
```



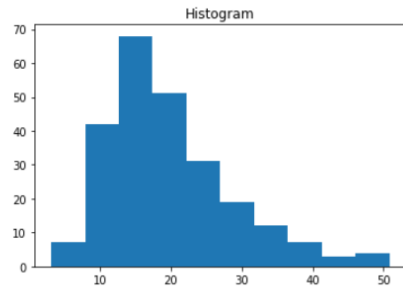
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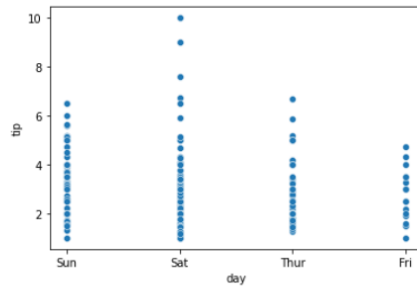
Python 3 (ipykernel) O

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```
plt.title("Histogram")  
plt.show()
```






```
In [12]: import seaborn as sns  
import matplotlib.pyplot as plt  
import pandas as pd  
sns.scatterplot(x='day', y='tip', data=data,  
plt.show()
```



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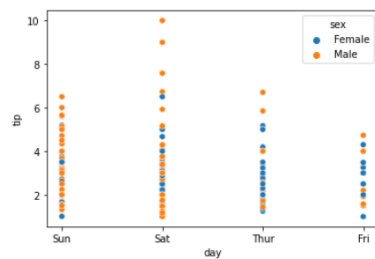
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Python 3 (ipykernel) 

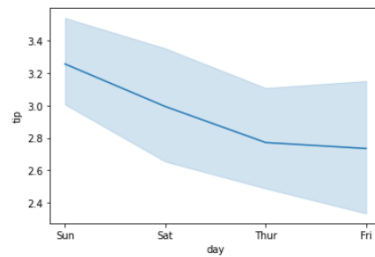
        

Sun Sat Thur Fri
day

```
In [18]: sns.scatterplot(x='day', y='tip', data=data, hue='sex')
plt.show()
```



```
In [19]: sns.lineplot(x='day', y='tip', data=data)
plt.show()
```





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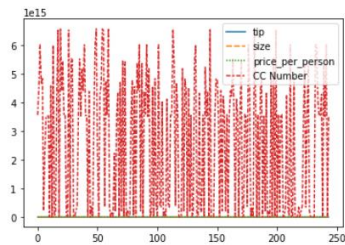
Python 3 (ipykernel)

+

Run

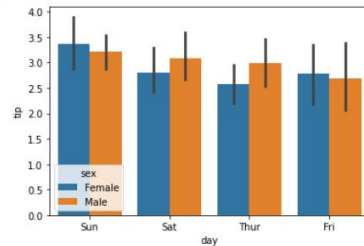
```
In [20]: sns.lineplot(data=data.drop(['total_bill'], axis=1))
```

Out[20]: <AxesSubplot:>



```
In [21]: sns.barplot(x='day', y='tip', data=data, hue='sex')
```

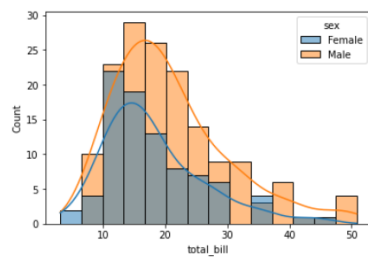
plt.show()



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


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

Out[22]: <AxesSubplot:xlabel='total_bill', ylabel='Count'>



In [28]: `from bokeh.plotting import figure, output_file, show
from bokeh.palettes import magma
import pandas as pd
graph = figure(title = "Bokeh Scatter Graph")
data = pd.read_csv("tips.csv")
color = magma(245)
graph.scatter(data['total_bill'], data['tip'], color=color)
show(graph)`

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

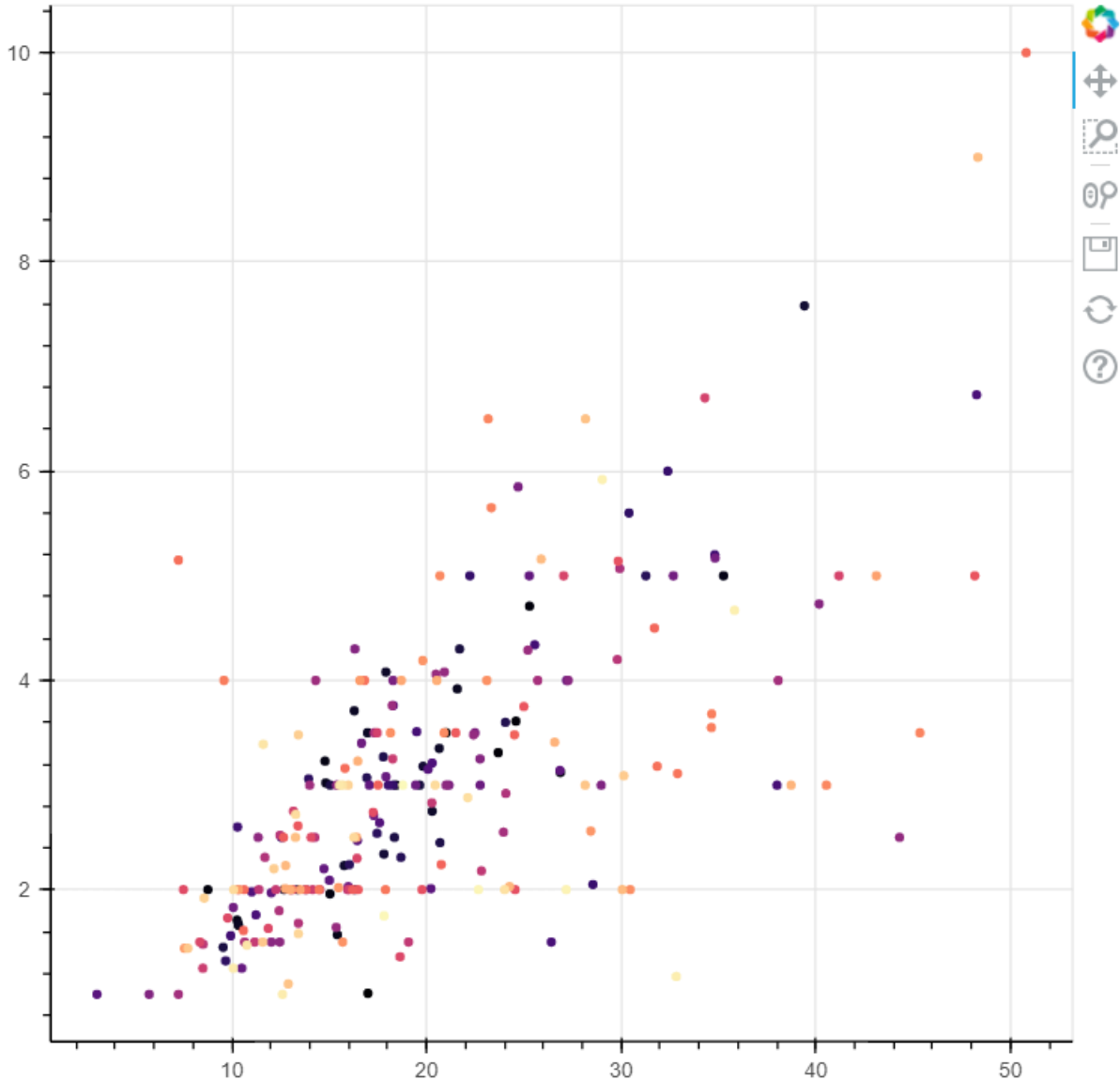


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Bokeh Scatter Graph



```
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```

```

43), ('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)

In [30]: # importing the modules
from bokeh.plotting import figure, output_file, show
import pandas as pd

#instantiating the figure object
graph = figure(title = "Bokeh Bar Chart")

# reading the database
data = pd.read_csv("tips.csv")

# Count of each unique value of
# tip column
df = data['tip'].value_counts()
df = data['total_bill'].value_counts()

# plotting the graph
graph.line(df, data['tip'])
graph.line(df, data['total_bill'])

# displaying the model
show(graph)

BokehUserWarning: ColumnDataSource's columns must be of the same length. Current lengths: ('x', 229), ('y', 244)
BokehUserWarning: ColumnDataSource's columns must be of the same length. Current lengths: ('x', 229), ('y', 244)

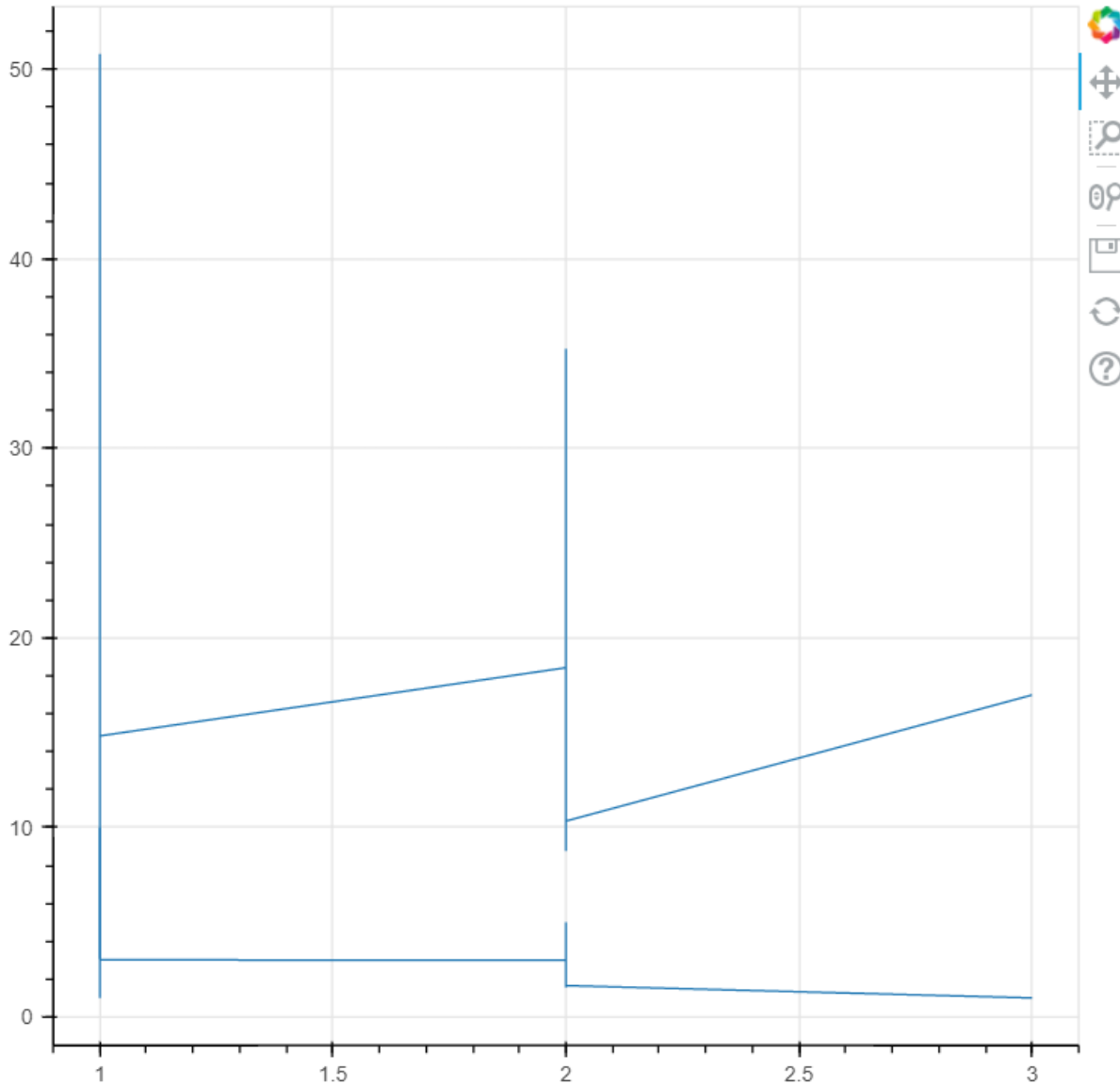
In [31]: from bokeh.plotting import figure, output_file, show
import pandas as pd
graph = figure(title = "Bokeh Bar Chart")
data = pd.read_csv("tips.csv")
graph.vbar(data['total_bill'], top=data['tip'])
show(graph)

In [14]: import plotly.express as px
import pandas as pd

```



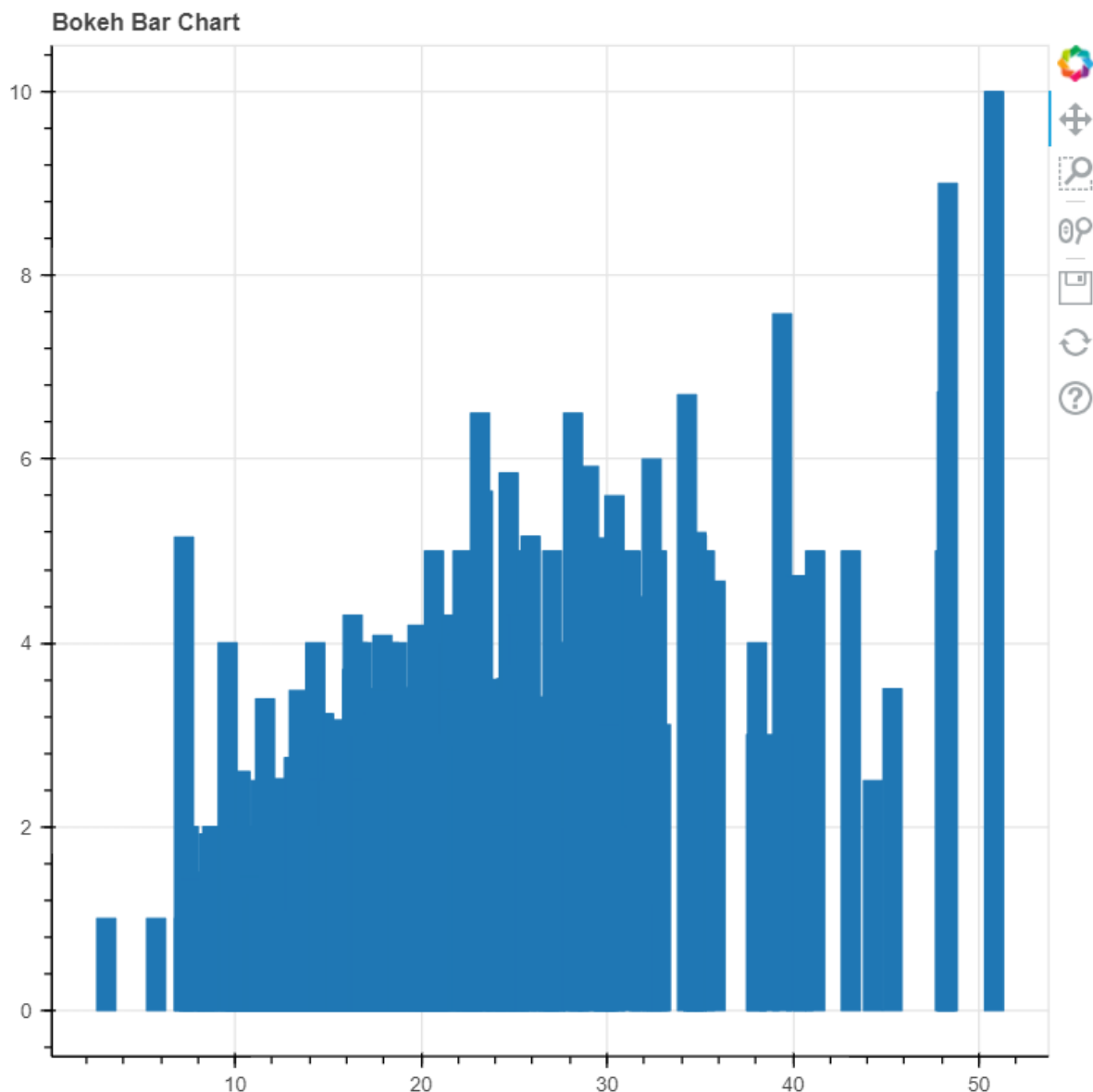
Bokeh Bar Chart



```
show(graph)
```

```
BokehUserWarning: ColumnDataSource's columns must be of the same length. Current lengths: ('x', 229), ('y', 244)  
BokehUserWarning: ColumnDataSource's columns must be of the same length. Current lengths: ('x', 229), ('y', 244)
```

```
In [31]: from bokeh.plotting import figure, output_file, show  
import pandas as pd  
graph = figure(title = "Bokeh Bar Chart")  
data = pd.read_csv("tips.csv")  
graph.vbar(data['total_bill'], top=data['tip'])  
show(graph)
```





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Python 3 (ipykernel) O

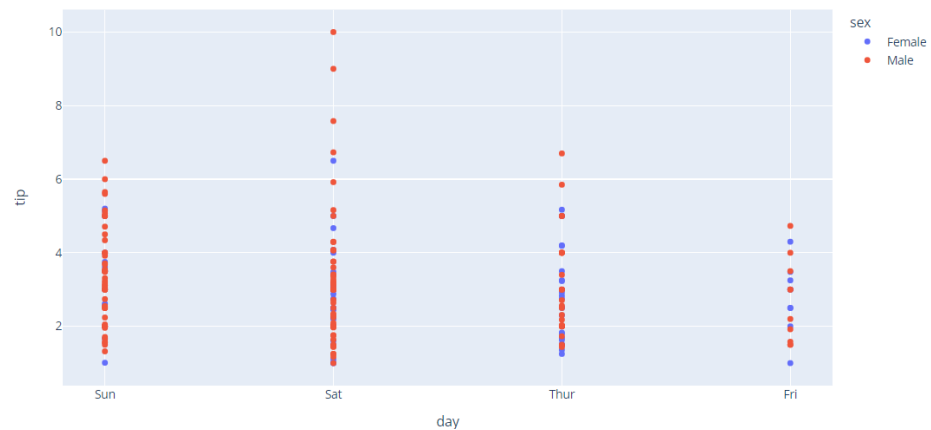
Code

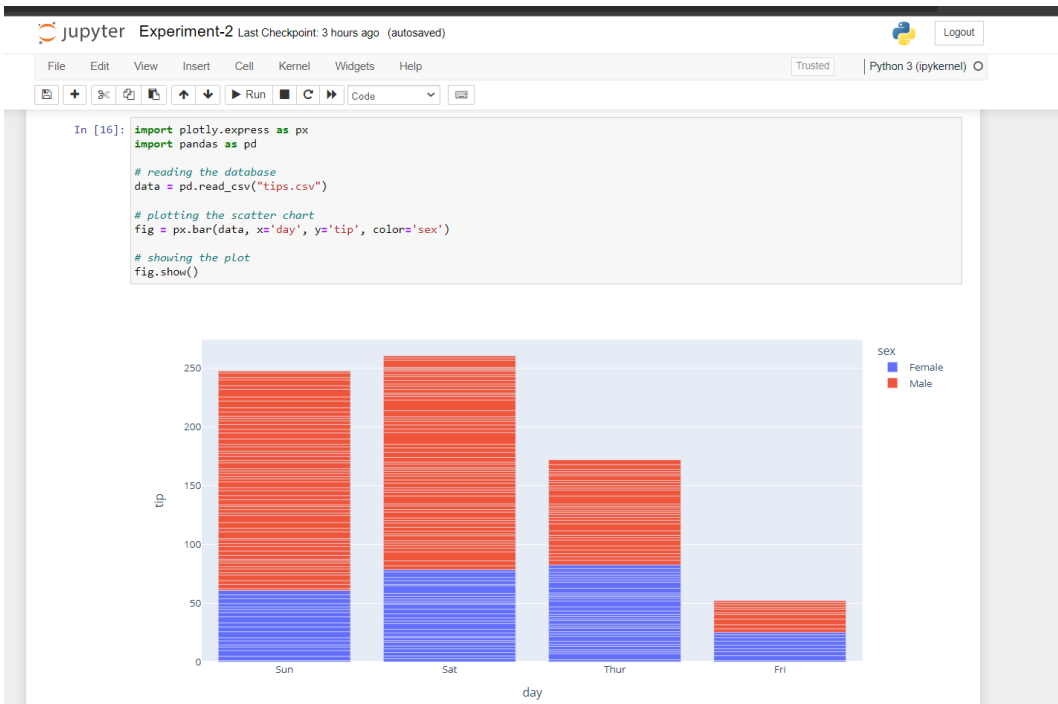
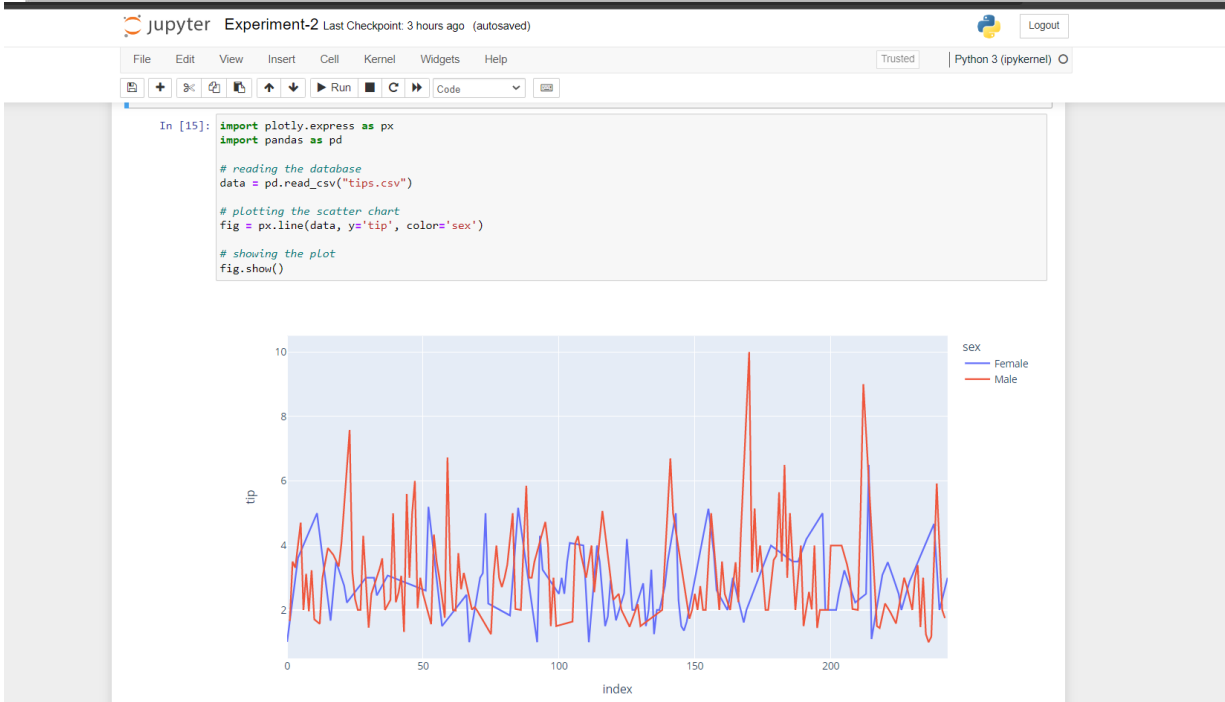
```
In [14]: import plotly.express as px
import pandas as pd

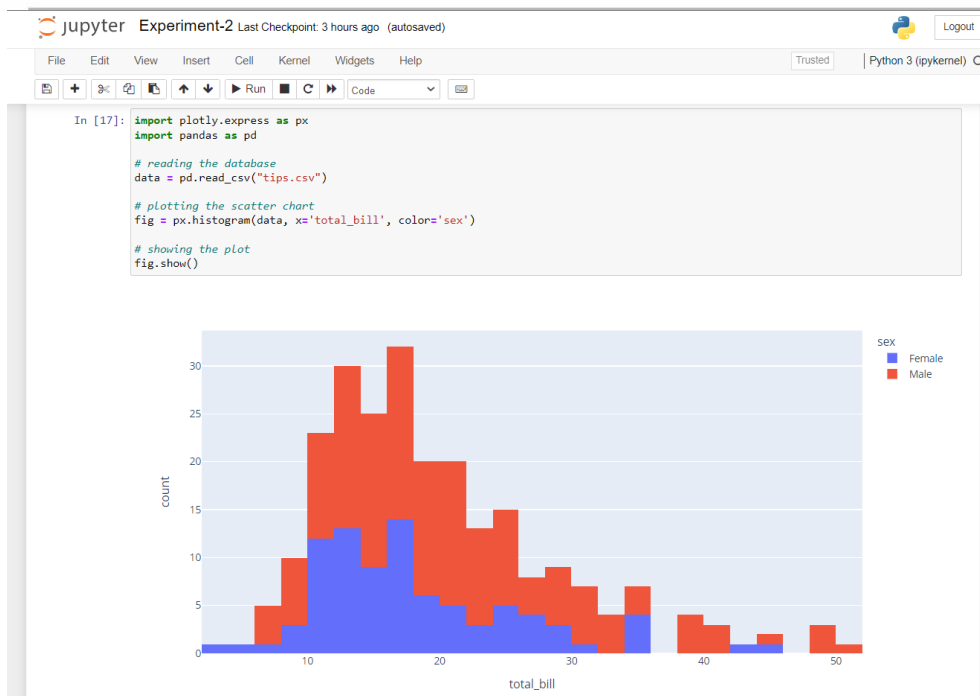
# reading the database
data = pd.read_csv("tips.csv")

# plotting the scatter chart
fig = px.scatter(data, x="day", y="tip", color='sex')

# showing the plot
fig.show()
```







Learning outcomes (What I have learnt):

1. Learnt about Machine Learning
2. Learnt about how dataset is used.
3. Learnt about different types of commands
4. Learnt about how to use these commands on time.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			



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