

CS-23334 FUNDAMENTALS OF DATA SCIENCE

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Experiment 6

Date: 04.09.2025

6. Experiment to understand EDA-Quantitative and Qualitative analysis.

Aim:

To conduct an experiment to understand EDA- Quantitative and Qualitative Analysis

Description:

To understand importance of EDA Analysis

Algorithm:

Step 1: Identify Quantitative and Qualitative Features

Step 2: Perform Summary Statistics and Distribution Analysis

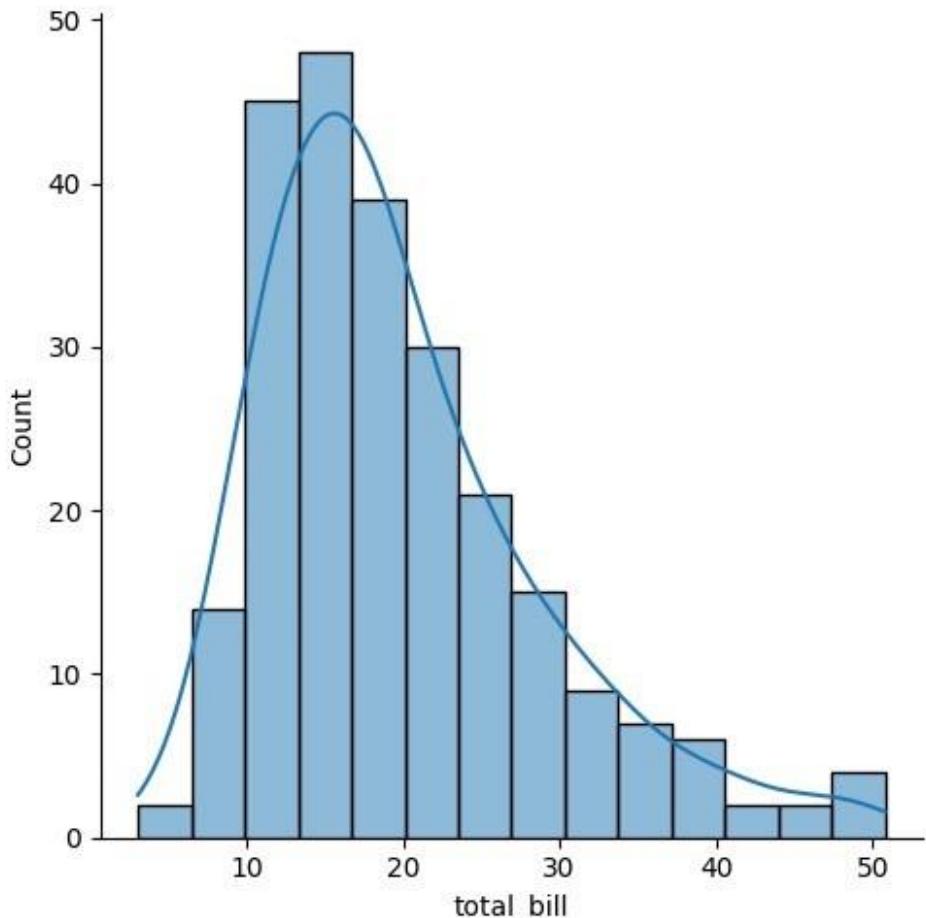
Step 3: Visualize Quantitative Data (Histograms, Box Plots, Correlation)

Step 4: Visualize Qualitative Data (Bar Charts, Pie Charts, Frequency Tables)

Step 5: Interpret Patterns, Relationships, and Anomalies

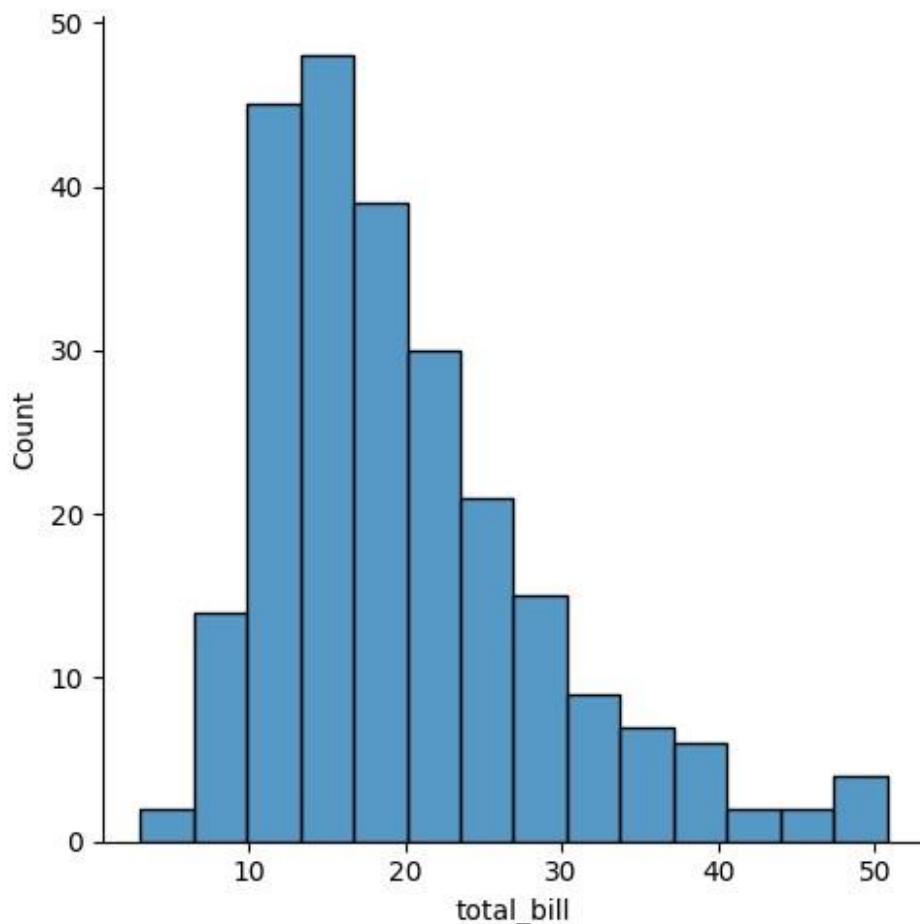
Code With Output:

```
import seaborn as sns
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
tips=sns.load_dataset('tips')
tips.head()
   total_bill      tip        sex smoker     day     time
size 0          16.99    1.01  Female     No     Sun
Dinner 2          10.34    1.66    Male     No     Sun  Dinner
1          3          21.01    3.50    Male     No     Sun  Dinner
2          3          23.68    3.31    Male     No     Sun  Dinner
3          2          24.59    3.61  Female     No     Sun  Dinner
4          4
sns.displot(tips.total_bill, kde=True)
<seaborn.axisgrid.FacetGrid at 0x15b17dfb770>
```



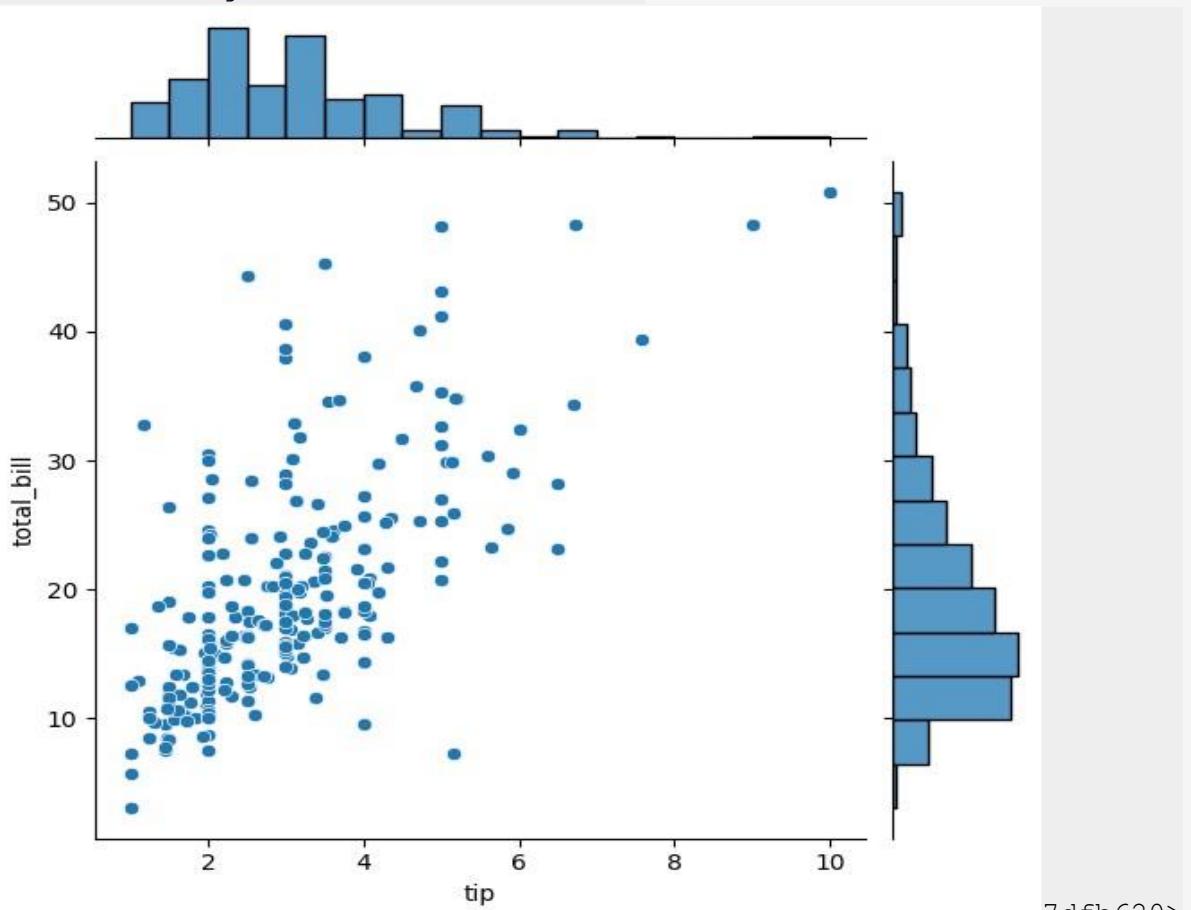
```
sns.displot(tips.total_bill, kde=False)
```

```
<seaborn.axisgrid.FacetGrid at 0x15b17fb2350>
```



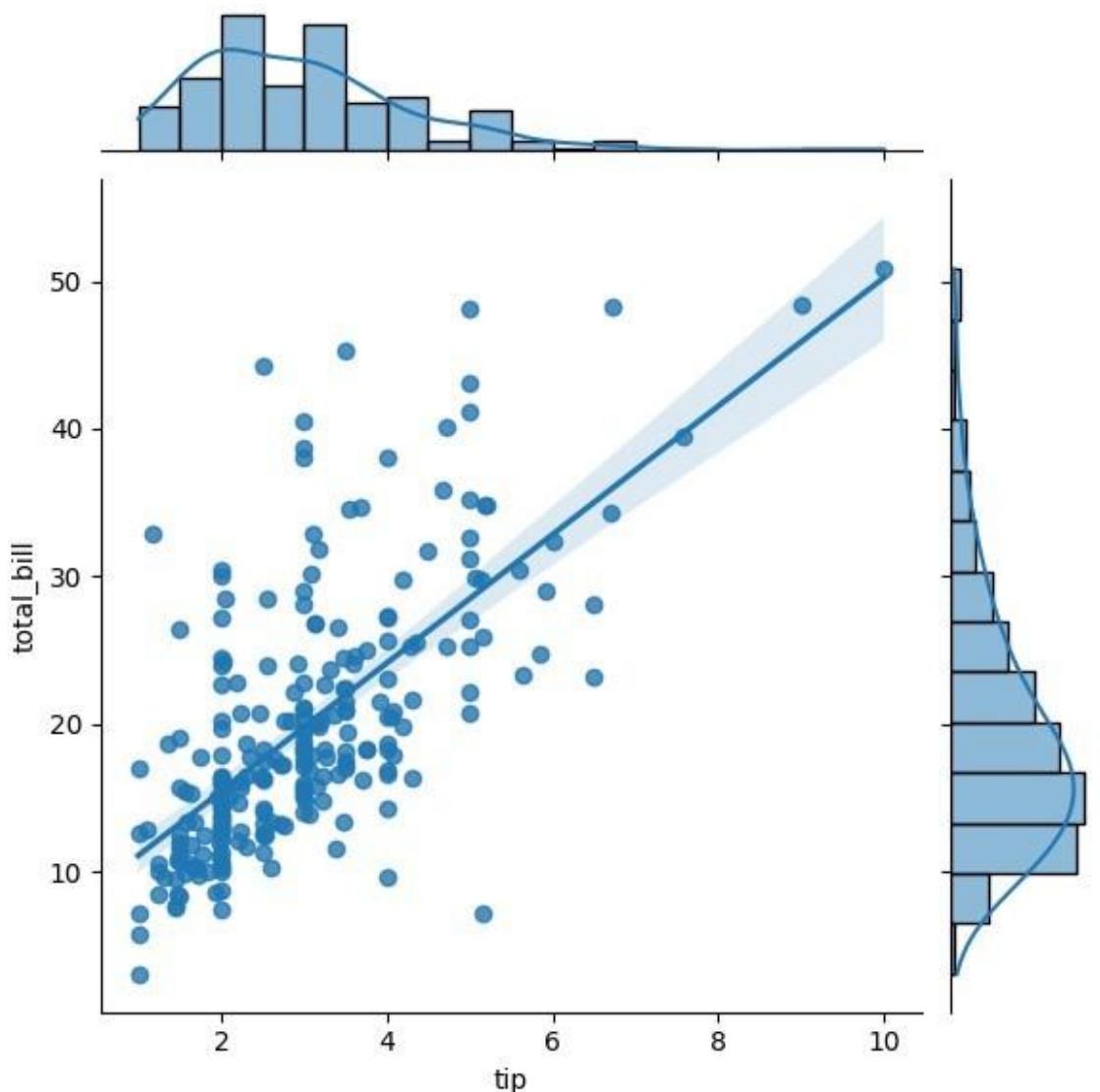
```
sns.jointplot(x=tips.tip,y=tips.total_bill)
```

```
<seaborn.axisgrid.JointGrid at 0x15b1
```

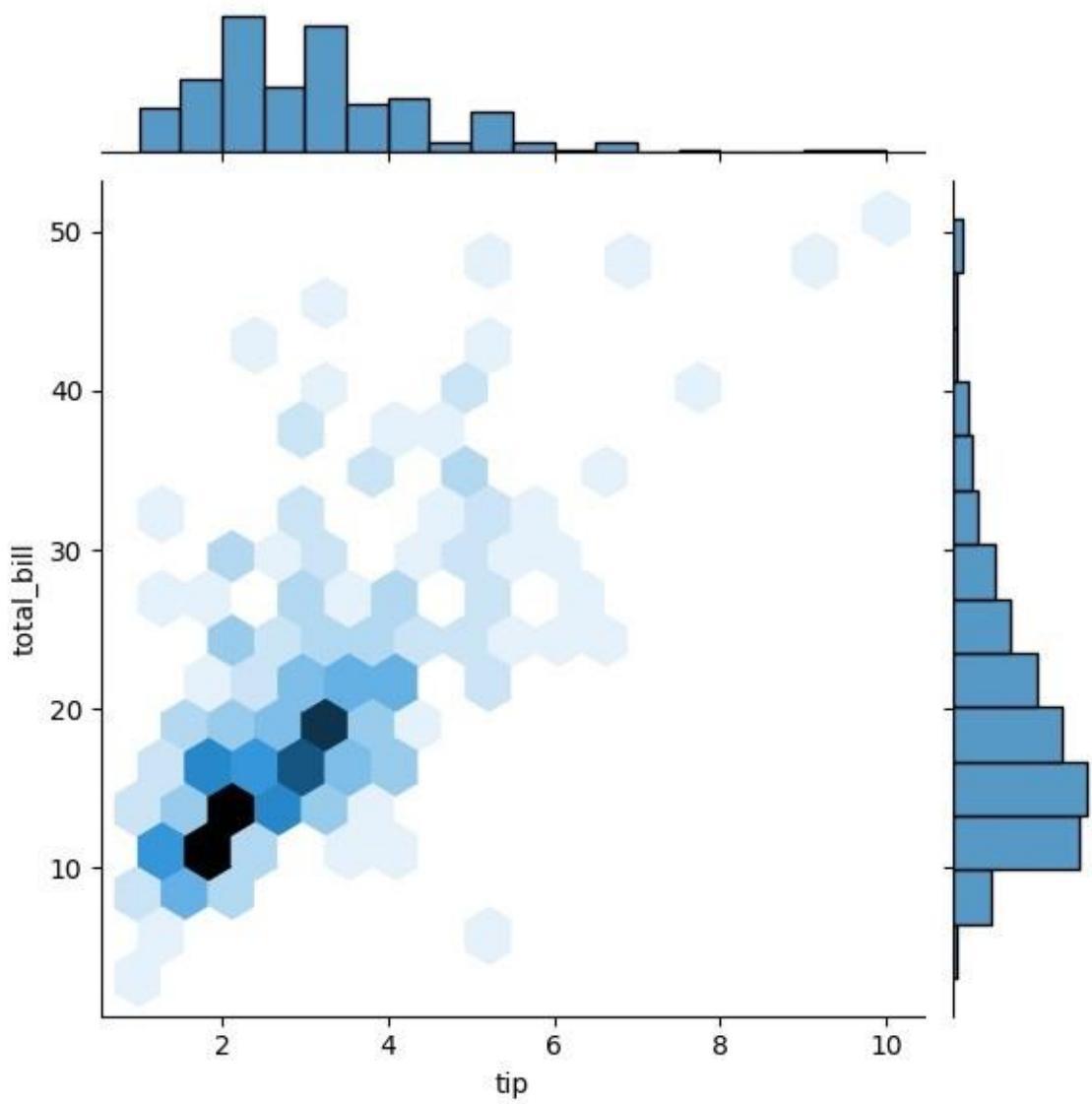


7dfb620>

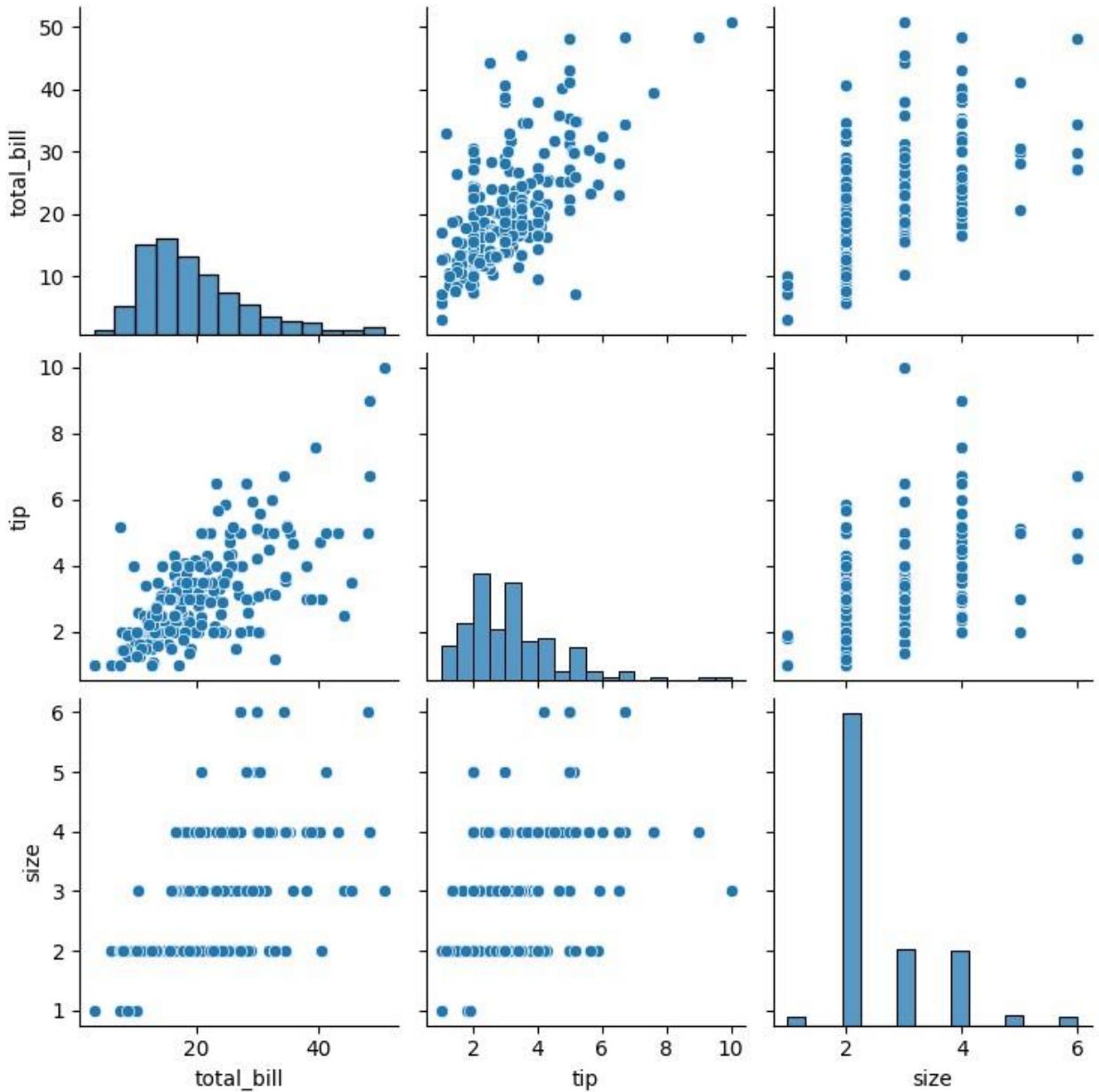
```
sns.jointplot(x=tips.tip,y=tips.total_bill,kind="reg")  
<seaborn.axisgrid.JointGrid at 0x15b1d1a7110>
```



```
sns.jointplot(x=tips.tip,y=tips.total_bill,kind="hex")  
<seaborn.axisgrid.JointGrid at 0x15b1d318910>
```



```
sns.pairplot(tips) <seaborn.axisgrid.PairGrid at  
0x15b17f07cb0>
```

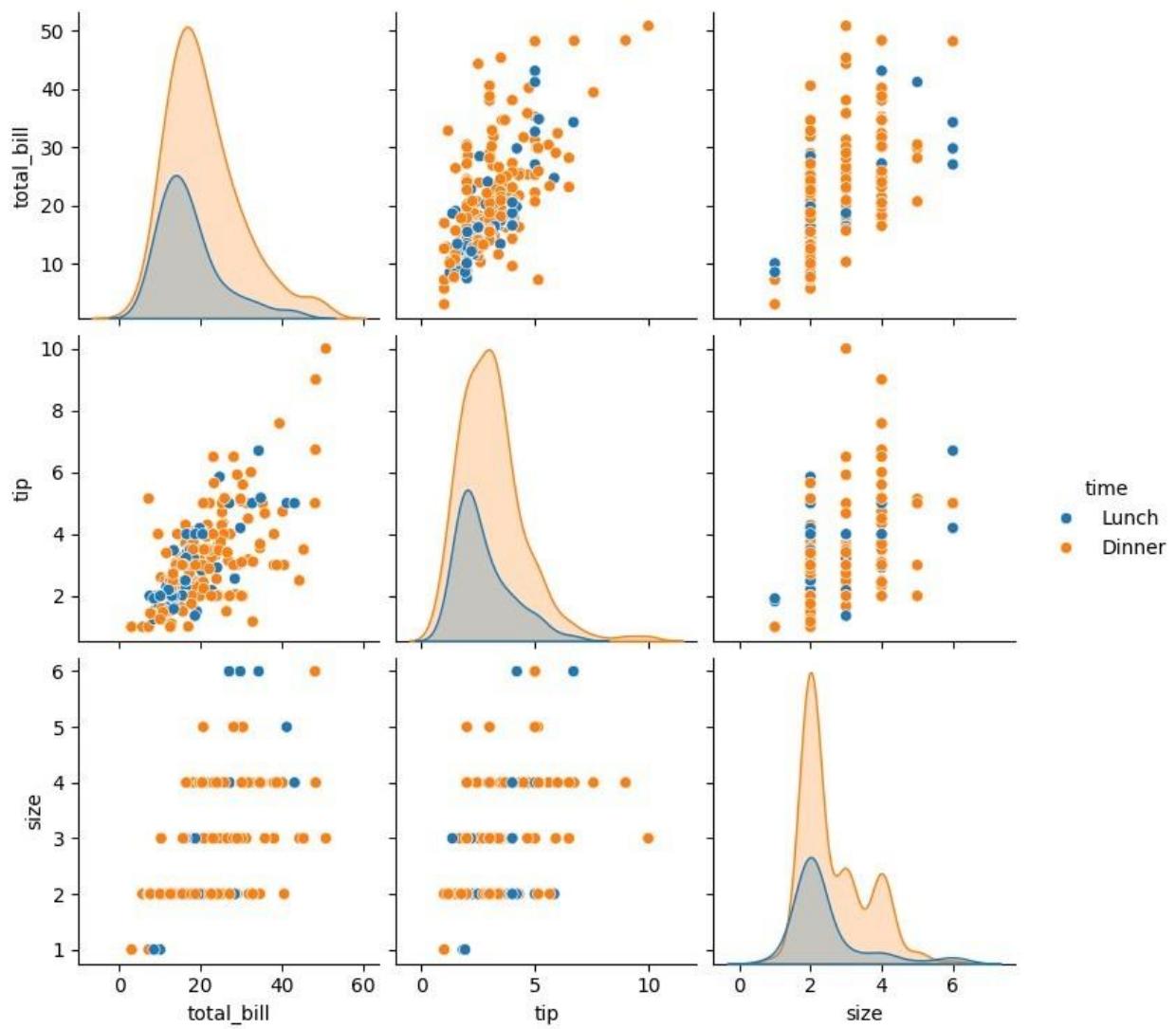


```

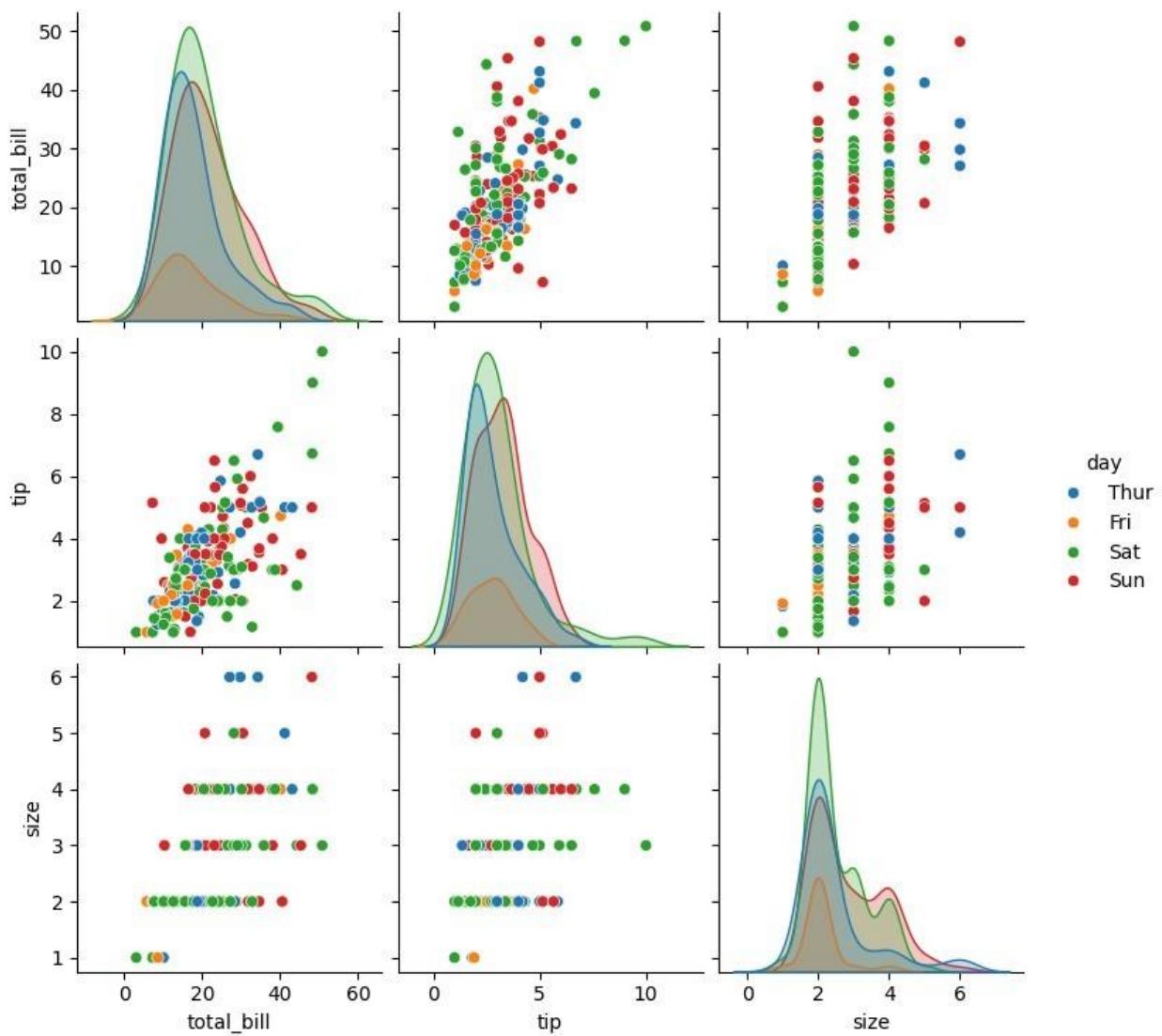
tips.time.value_counts()
time
Dinner    176
Lunch     68
Name: count,      dtype:
int64
sns.pairplot(tips,hue='time')

<seaborn.axisgrid.PairGrid at 0x15b1d93c2d0>

```

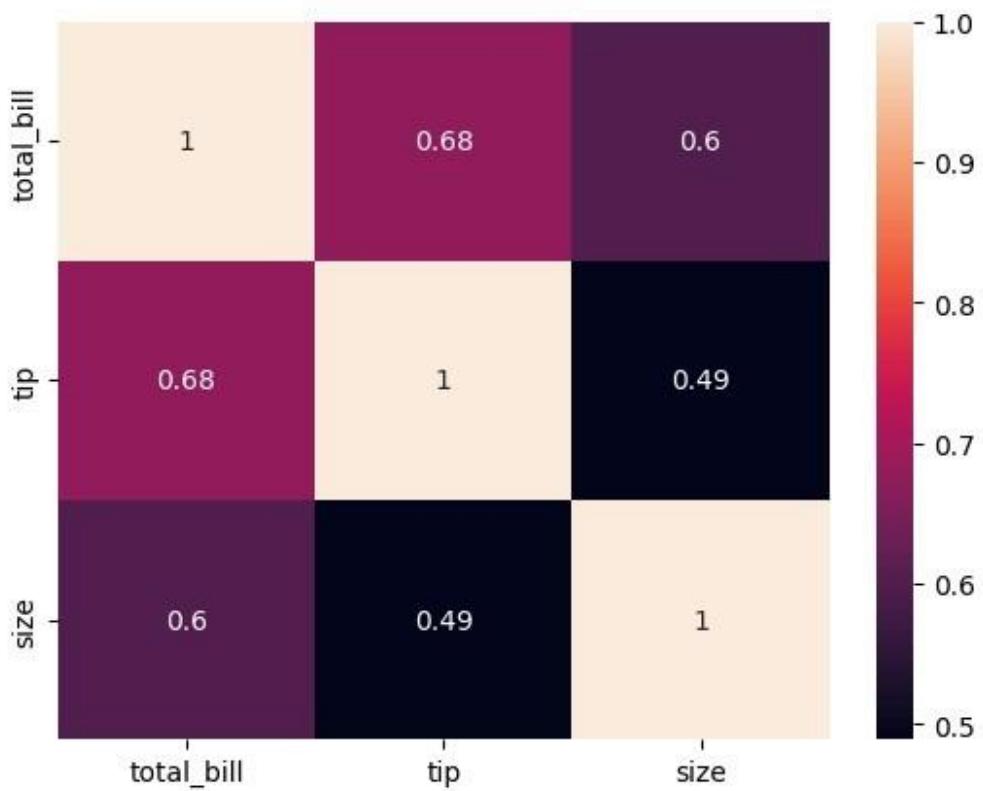


```
sns.pairplot(tips,hue='day')  
<seaborn.axisgrid.PairGrid at 0x15b1dd07d0>
```

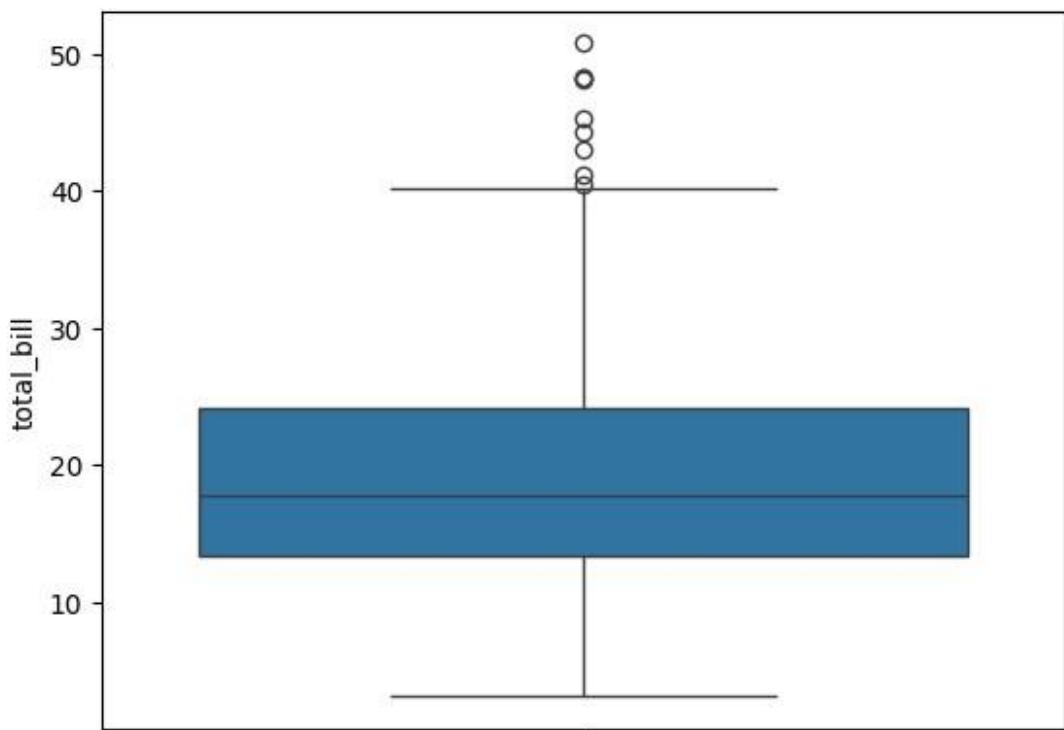


```
sns.heatmap(tips.corr(numeric_only=True), annot=True)
```

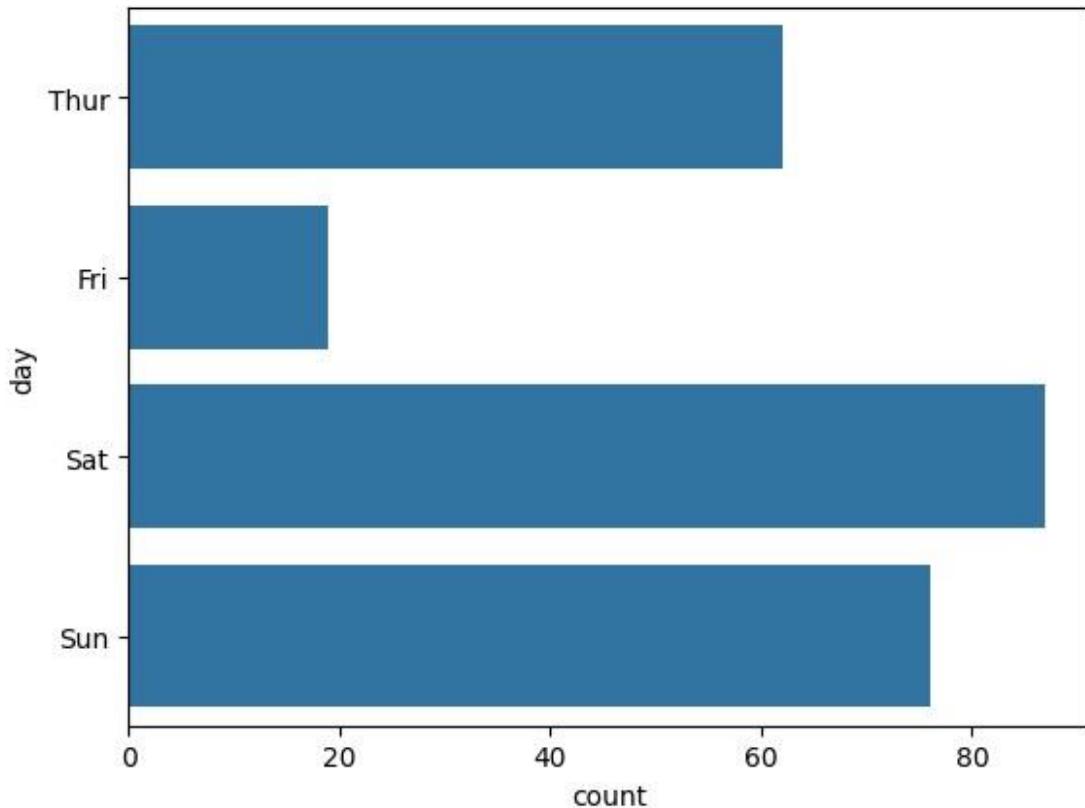
```
<Axes: >
```



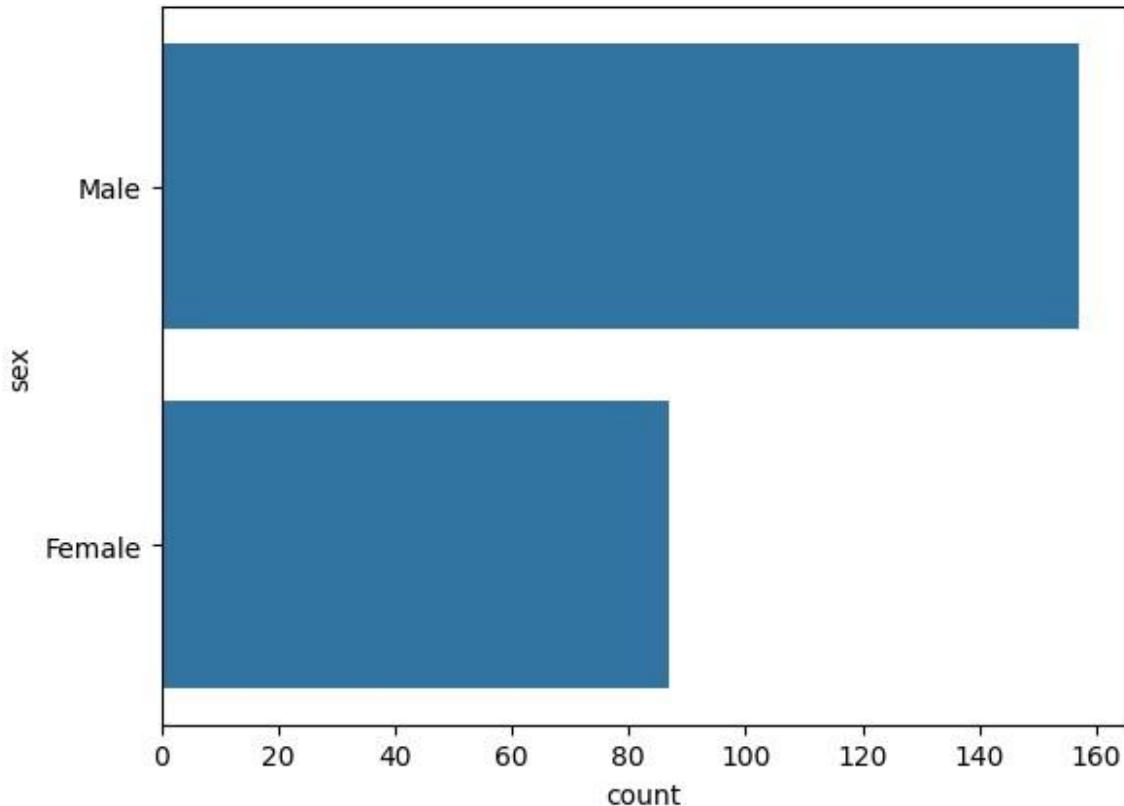
```
sns.boxplot(tips.total_bill) <Axes:  
ylabel='total_bill'> sns.countplot(tips.day)
```



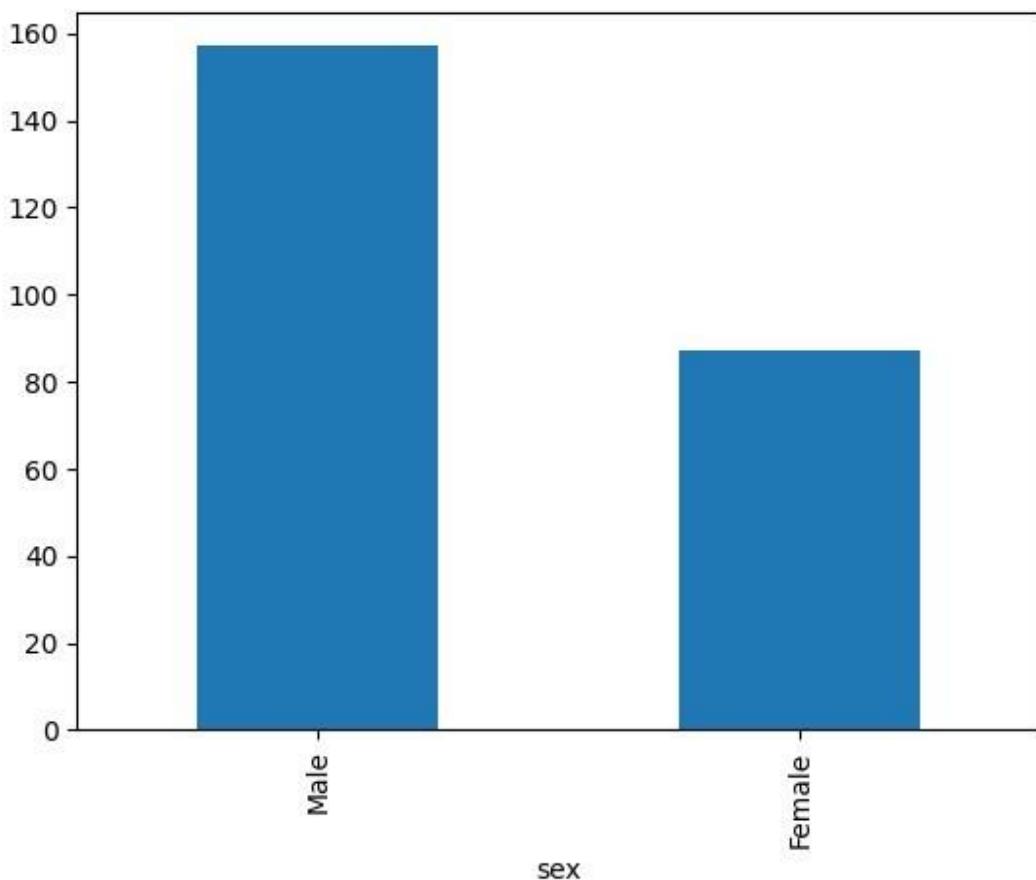
```
<Axes: xlabel='count', ylabel='day'>
```



```
sns.countplot(tips.sex) <Axes: xlabel='count',  
ylabel='sex'>
```

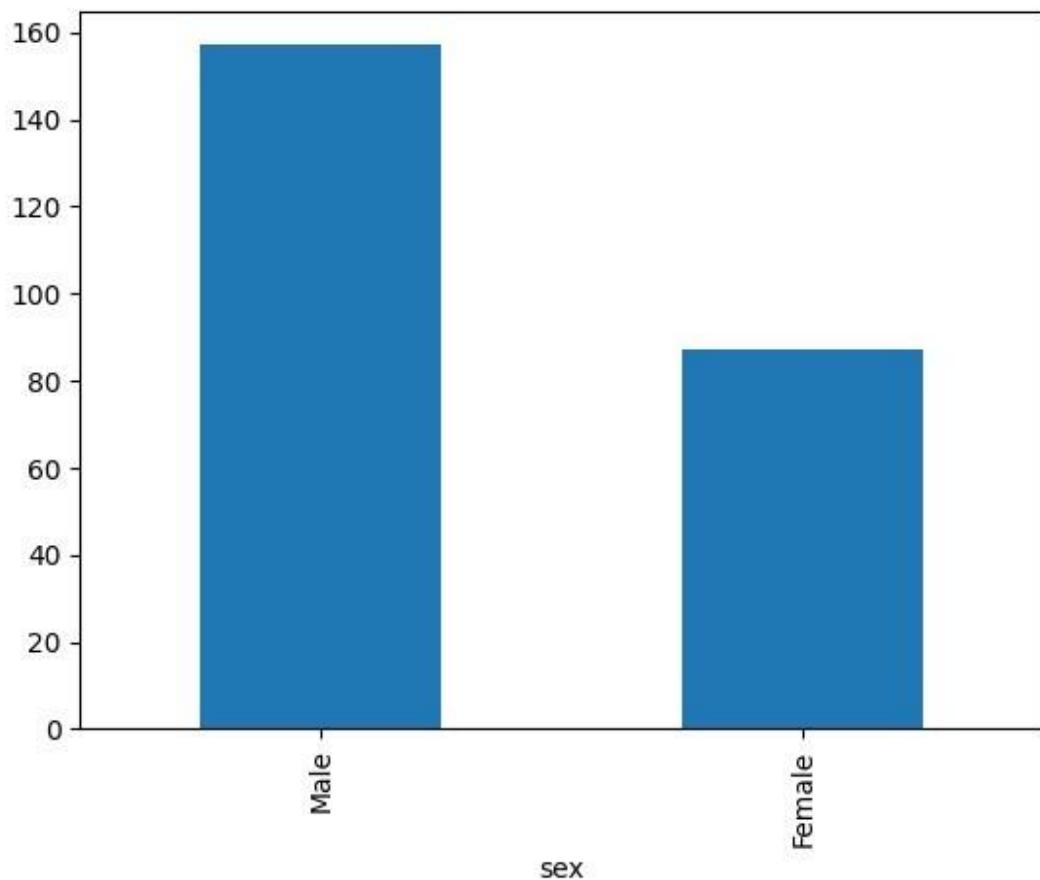
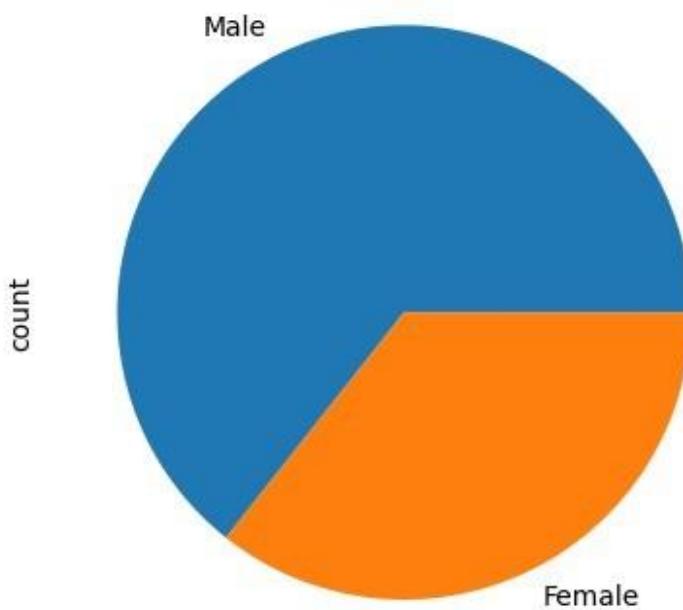


```
tips.sex.value_counts().plot(kind='bar')  
<Axes: xlabel='sex'>
```

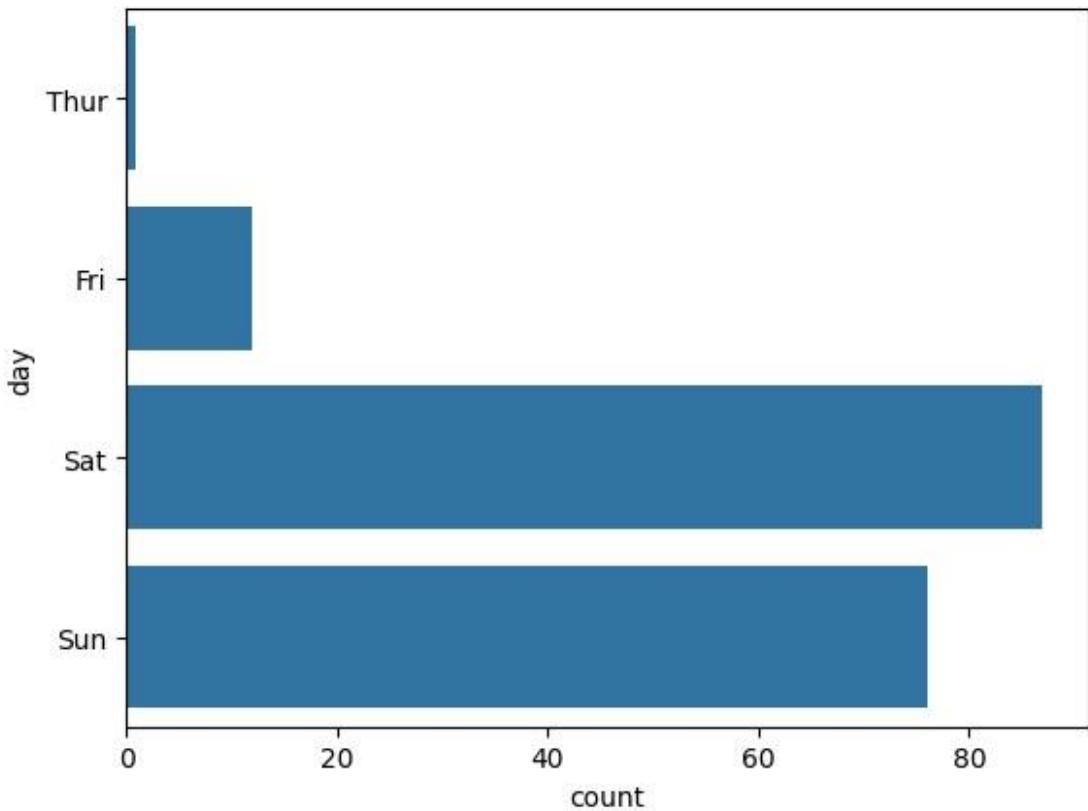


```
tips.sex.value_counts().plot(kind='pie')
```

```
<Axes: ylabel='count'> tips.sex.value_counts().plot(kind='bar')  
<Axes: xlabel='sex'>
```



```
sns.countplot(tips[tips.time=='Dinner']['day'])  
<Axes: xlabel='count', ylabel='day'>
```



Result:

Thus Python Program to understand EDSA -Analysis was executed Successfully