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- Quantitaive 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

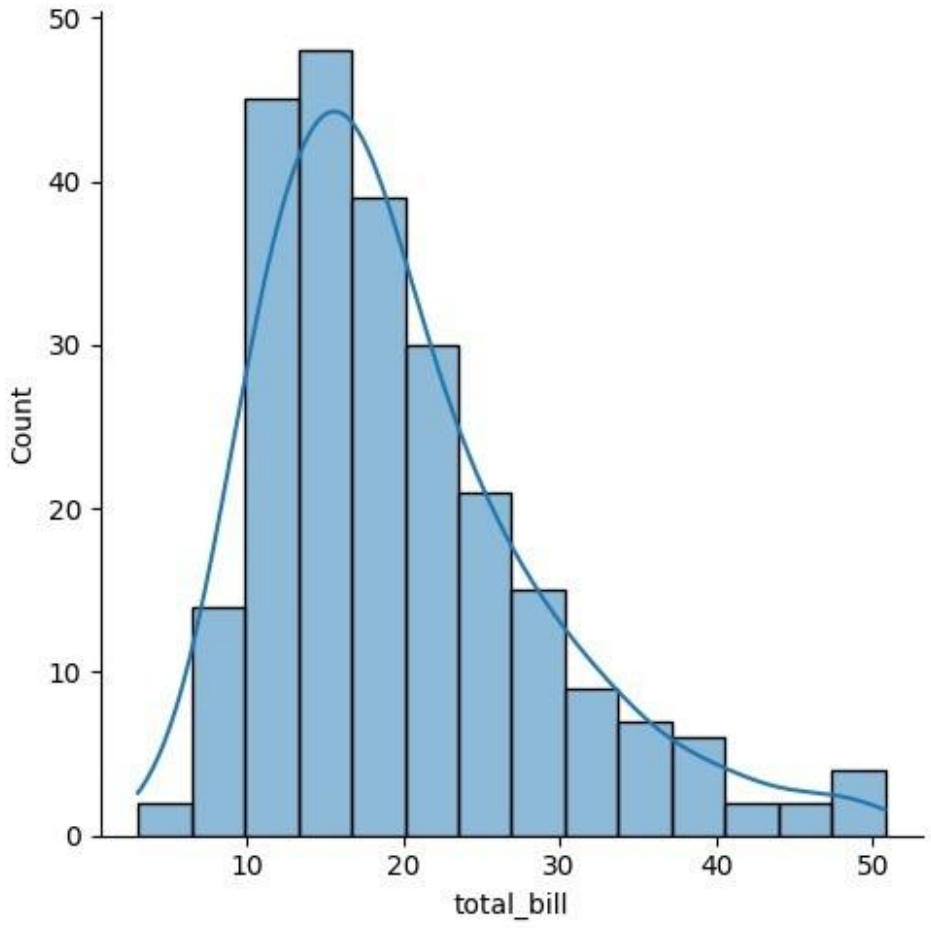
Code With Output:

```
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
1       10.34  1.66    Male      No   Sun   Dinner
        3
2       21.01  3.50    Male      No   Sun   Dinner
        3
3       23.68  3.31    Male      No   Sun   Dinner
        2
4       24.59  3.61  Female      No   Sun   Dinner
        4
```

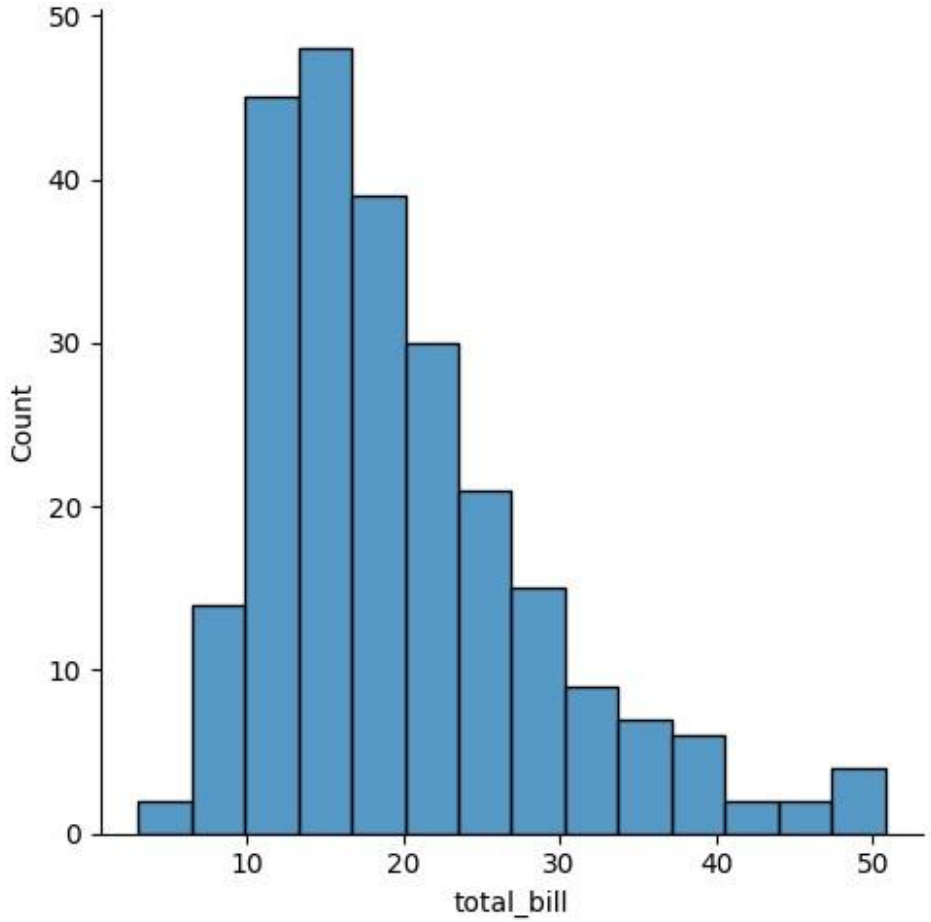
```
sns.displot(tips.total_bill,kde=True)
```

```
<seaborn.axisgrid.FacetGrid at 0x15b17dfb770>
```



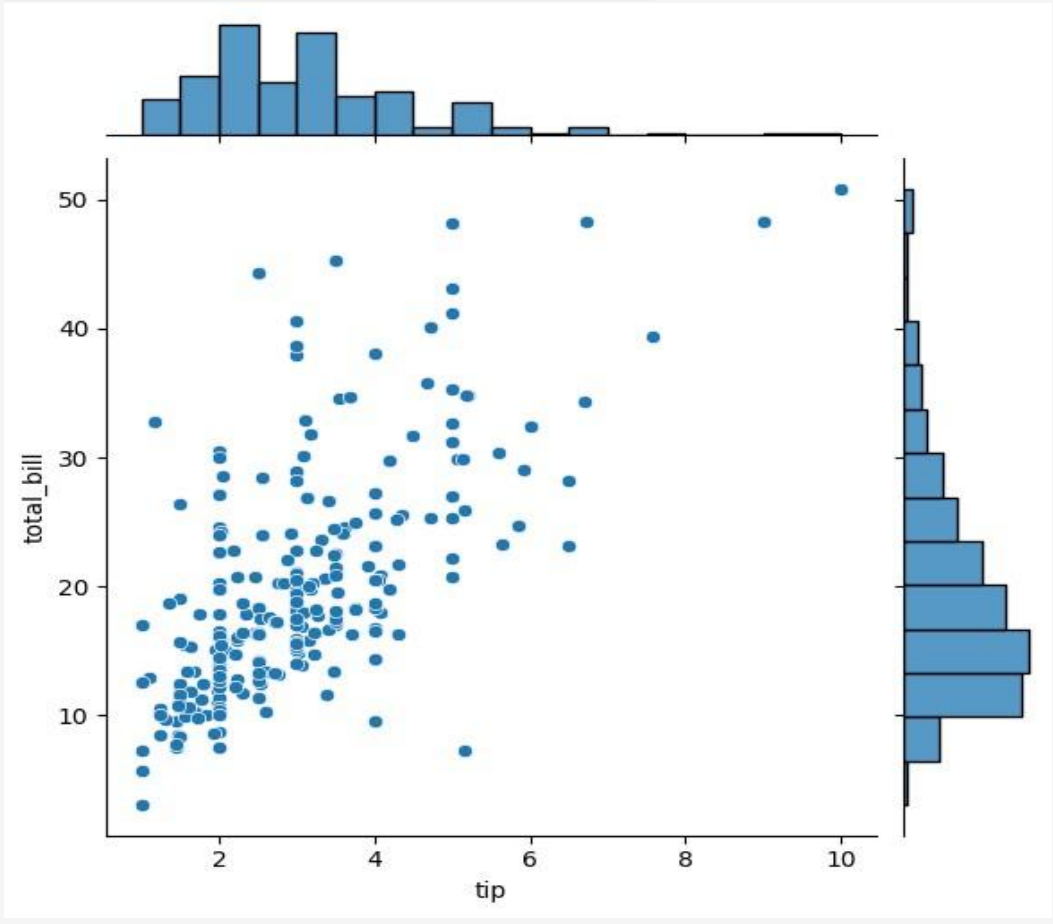

```
sns.displot(tips.total_bill,kde=False)
```

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




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

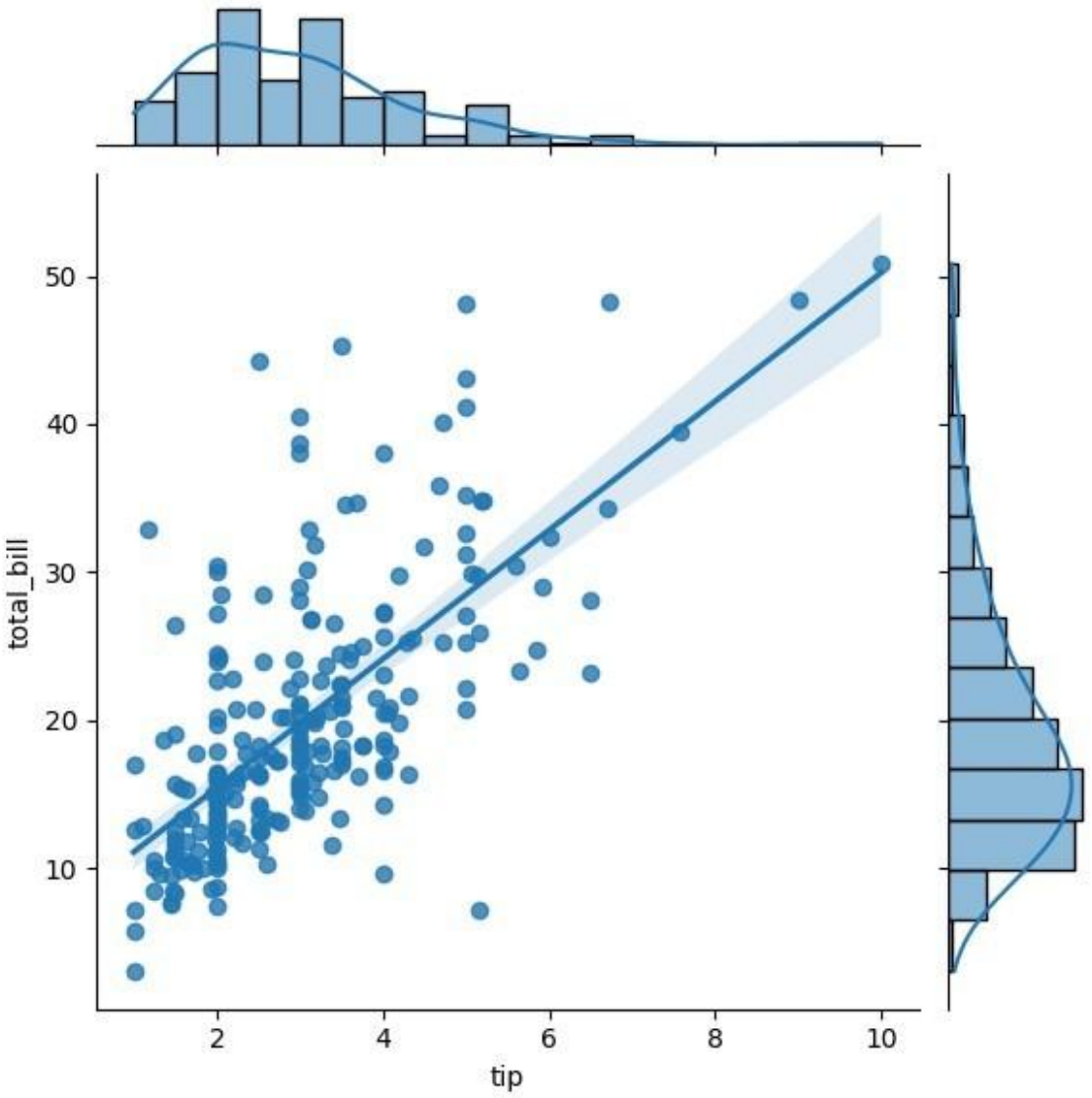
```
<seaborn.axisgrid.JointGrid at 0x15b1
```




```
7dfb620>
```

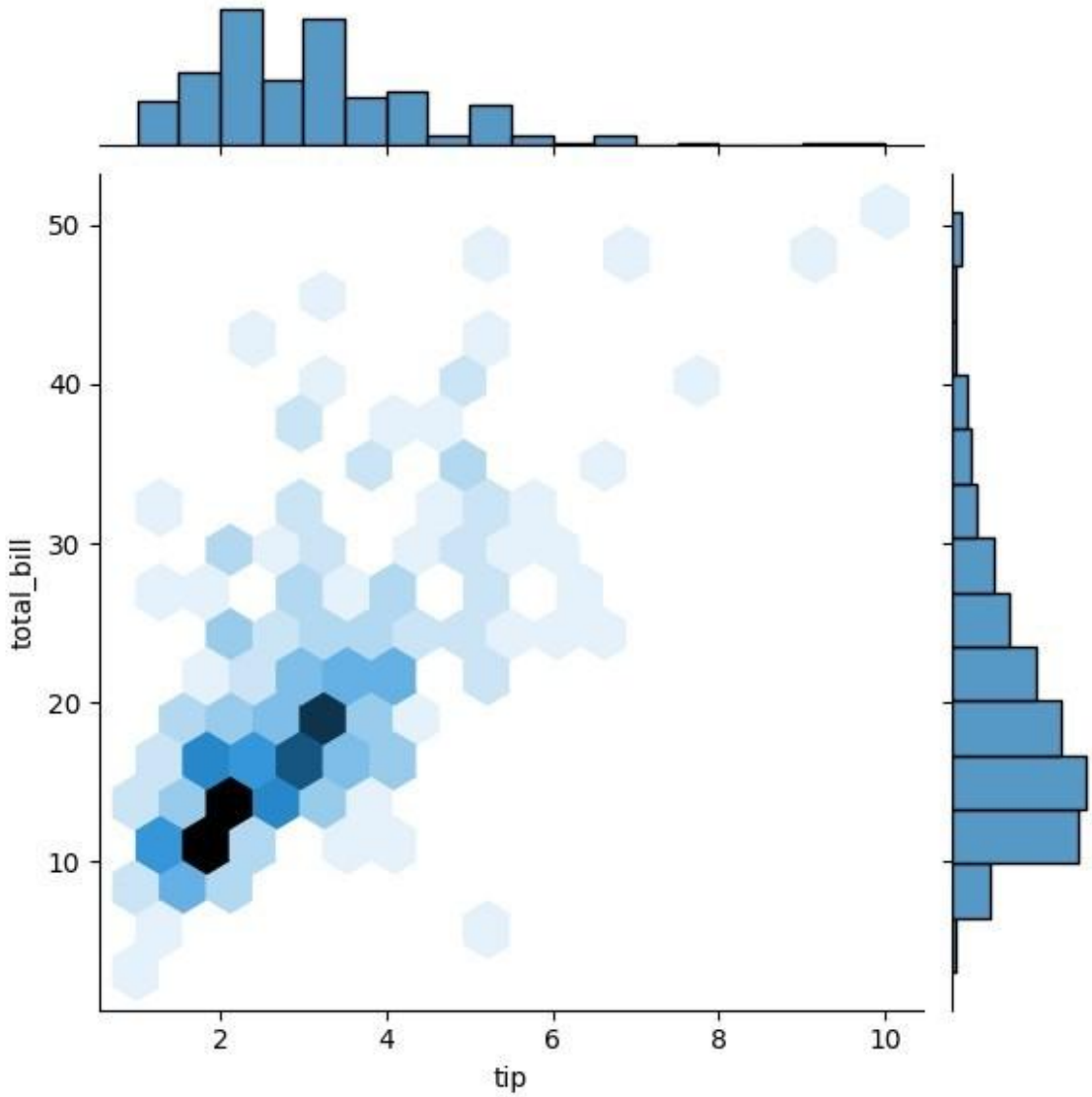
```
sns.jointplot(x=tips.tip,y=tips.total_bill,kind="reg")
```

```
<seaborn.axisgrid.JointGrid at 0x15b1d1a7110>
```

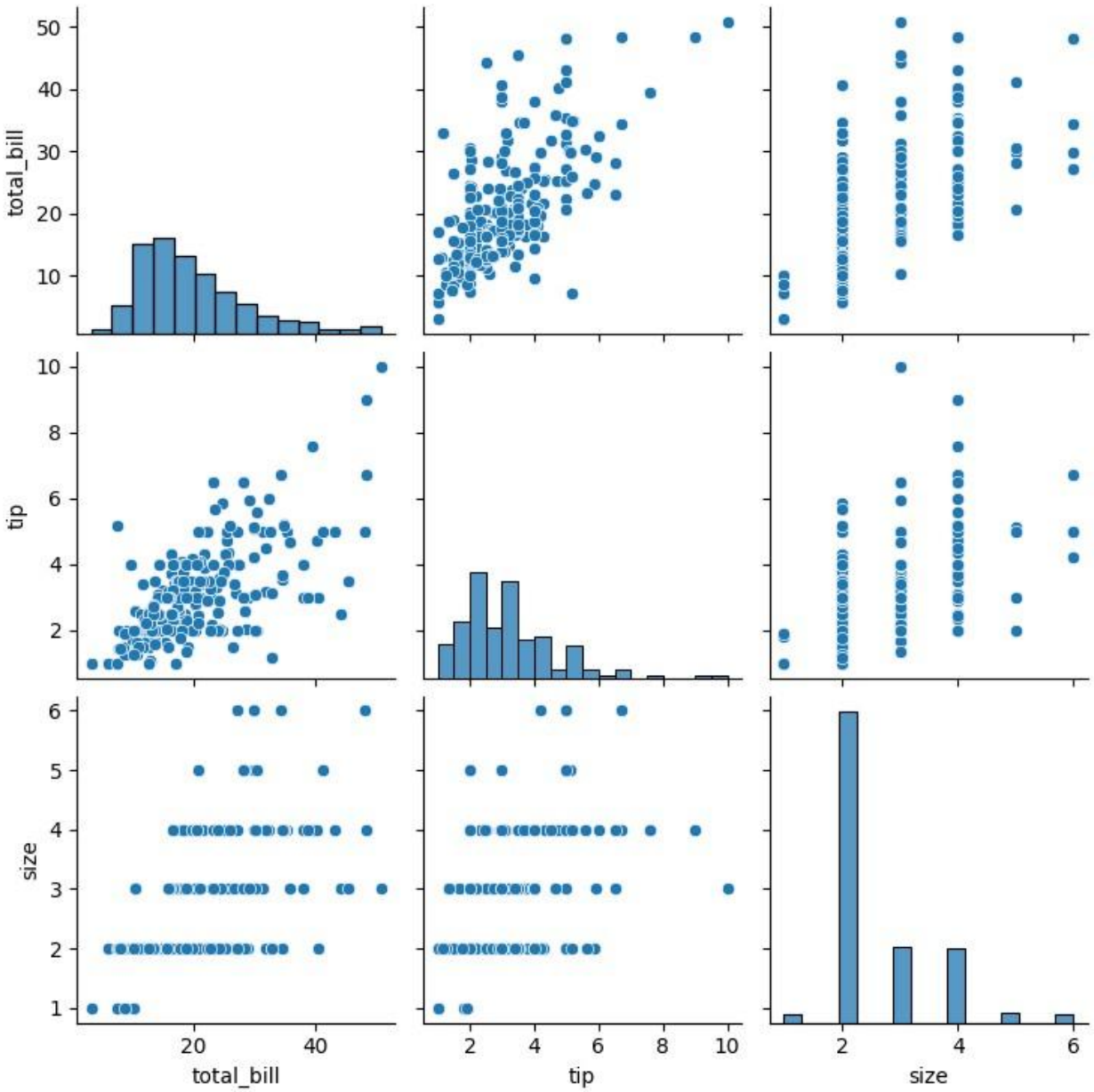



```
sns.jointplot(x=tips.tip,y=tips.total_bill,kind="hex")
```

```
<seaborn.axisgrid.JointGrid at 0x15b1d318910>
```

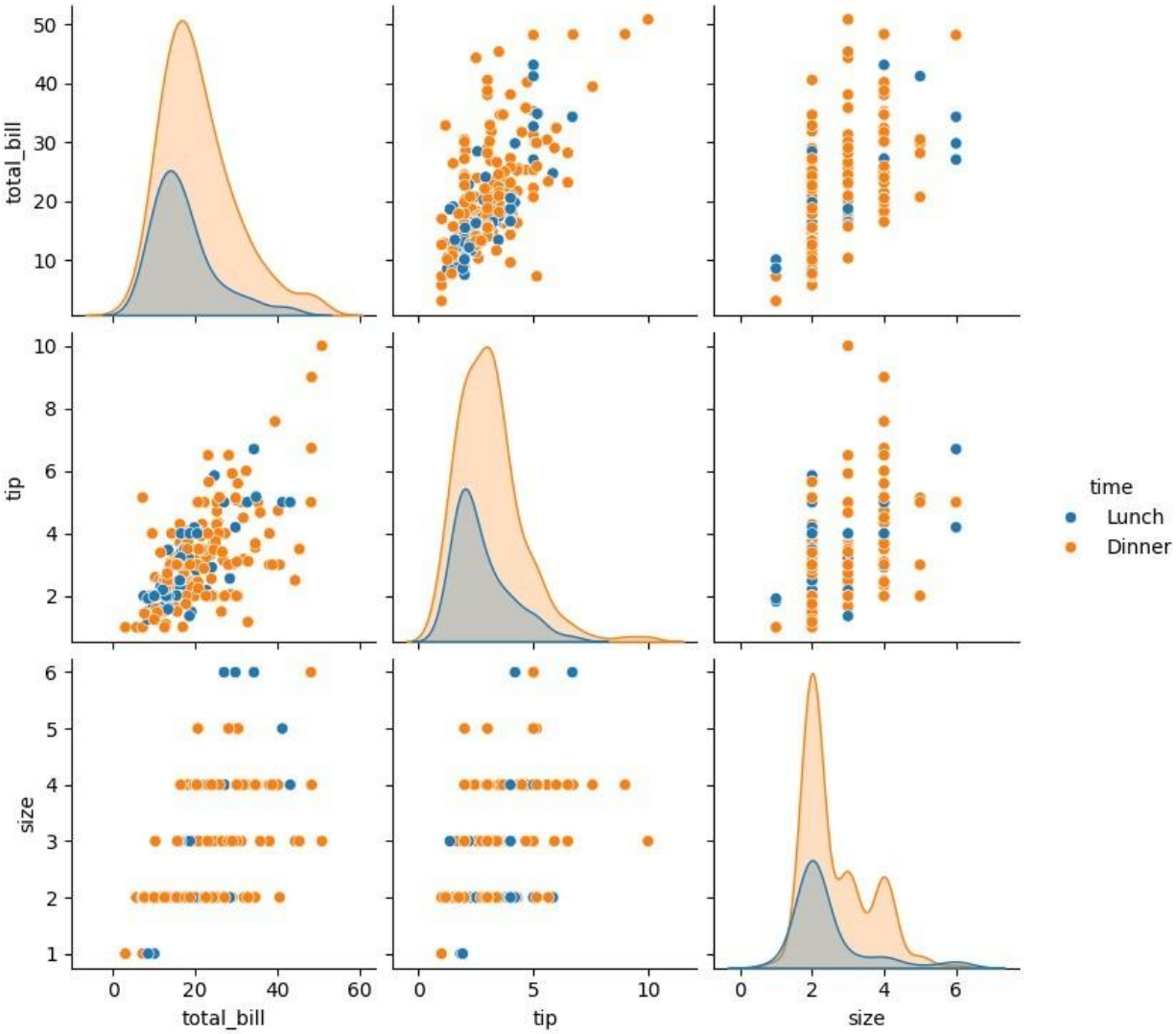



```
sns.pairplot(tips) <seaborn.axisgrid.PairGrid at
0x15b17f07cb0>
```



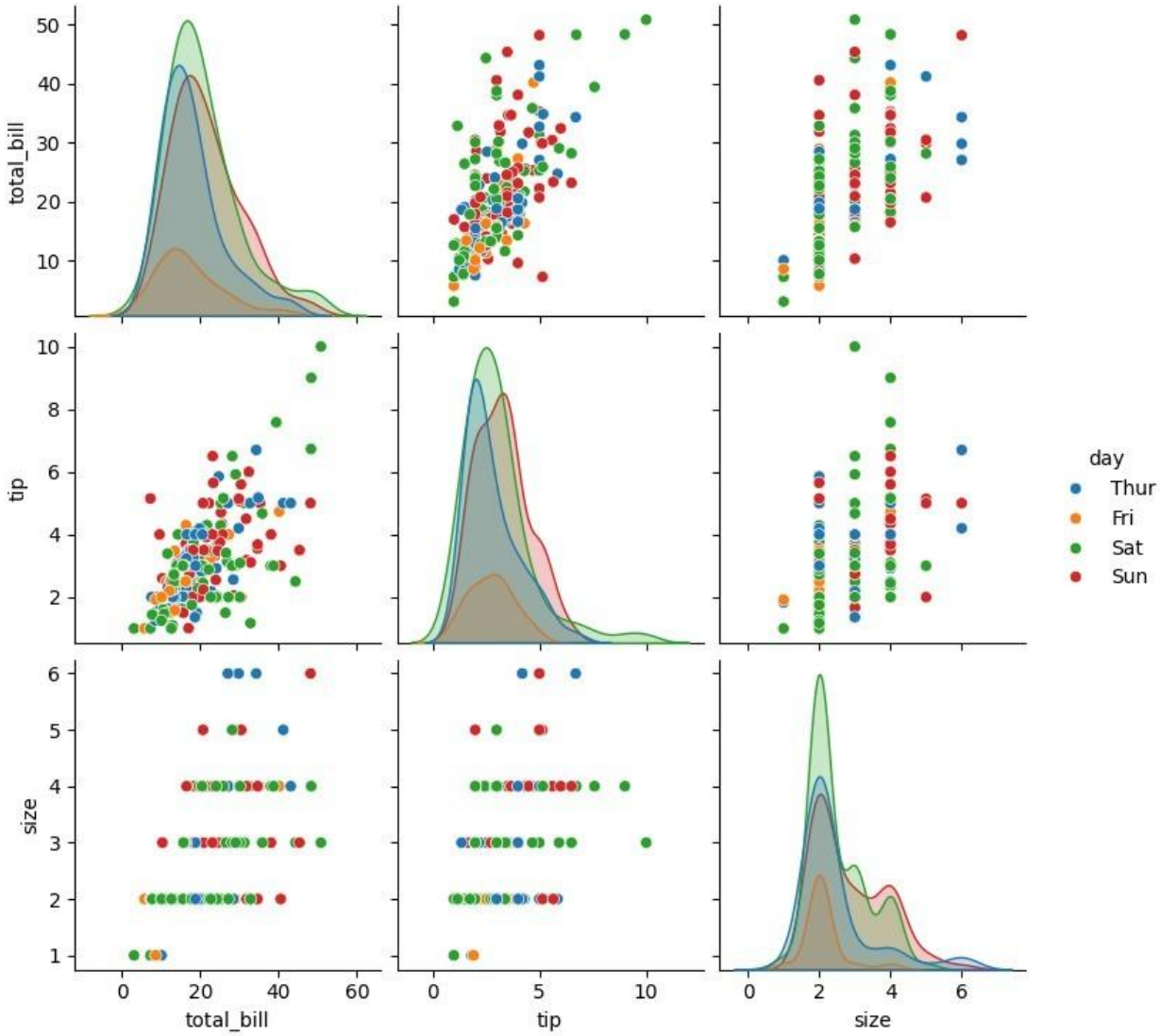

```
tips.time.value_counts()
time
Dinner    176
Lunch      68
Name:   count,   dtype:
int64
sns.pairplot(tips,hue='time')

<seaborn.axisgrid.PairGrid at 0x15b1d93c2d0>
```



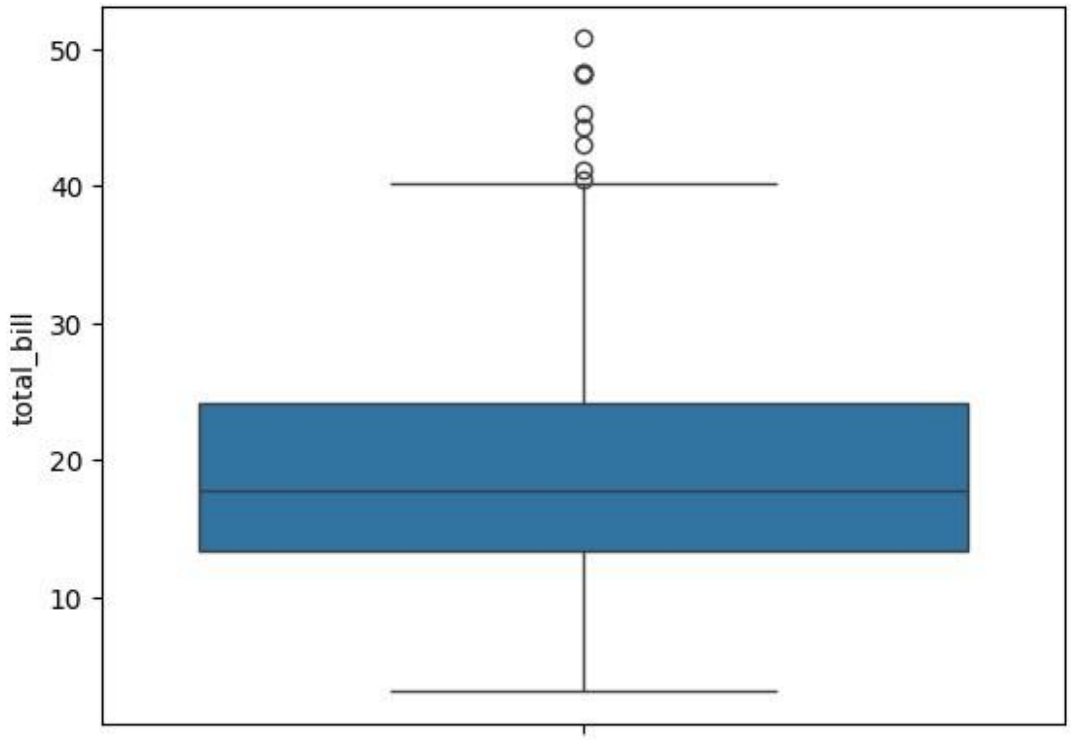

```
sns.pairplot(tips,hue='day')
```

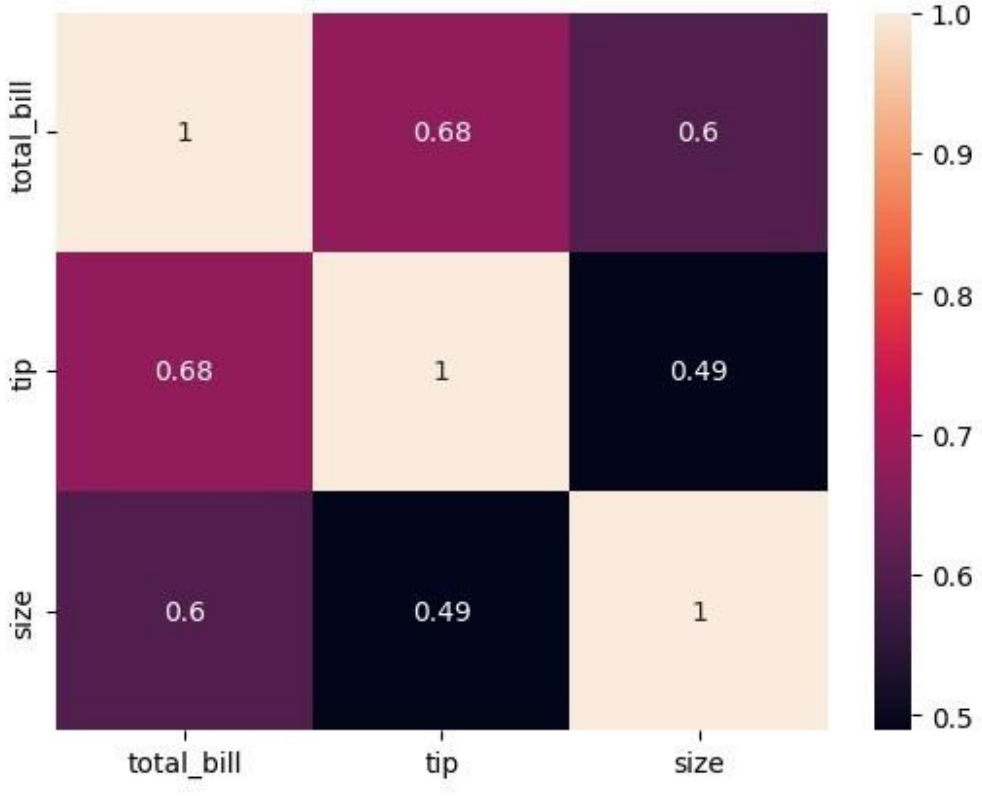
```
<seaborn.axisgrid.PairGrid at 0x15b1dda07d0>
```




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

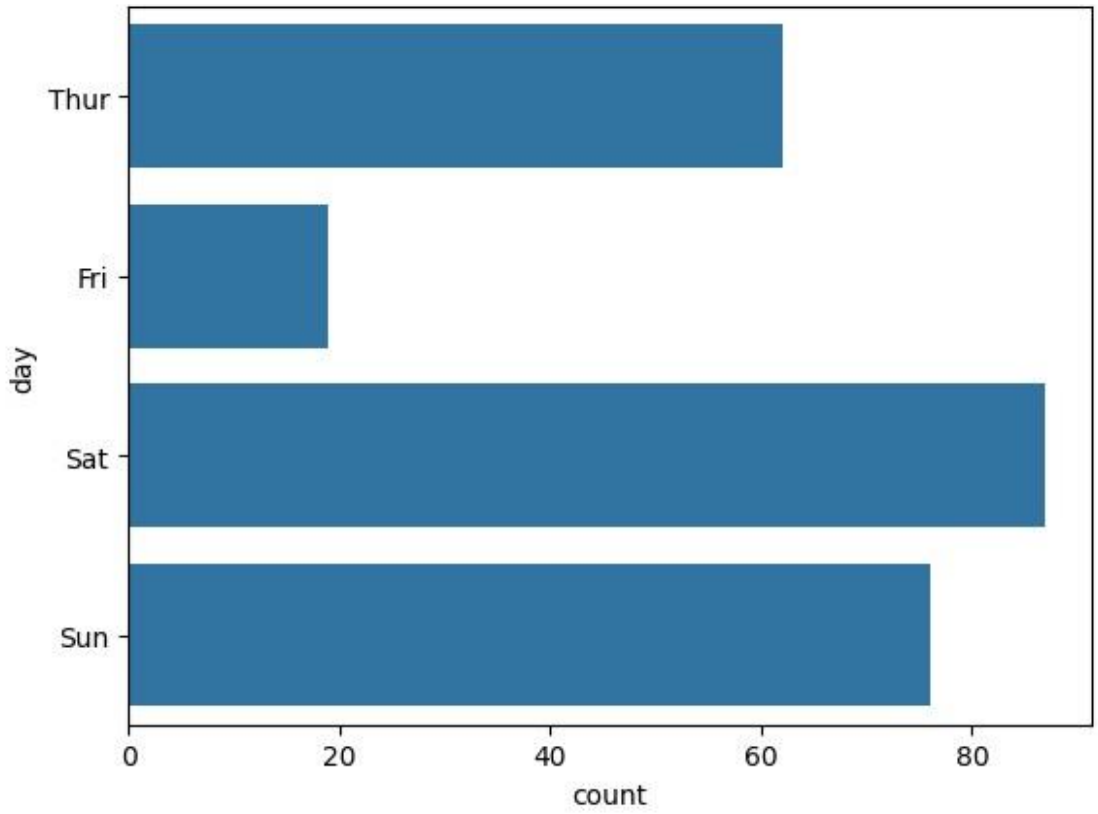
```
<Axes: >
```



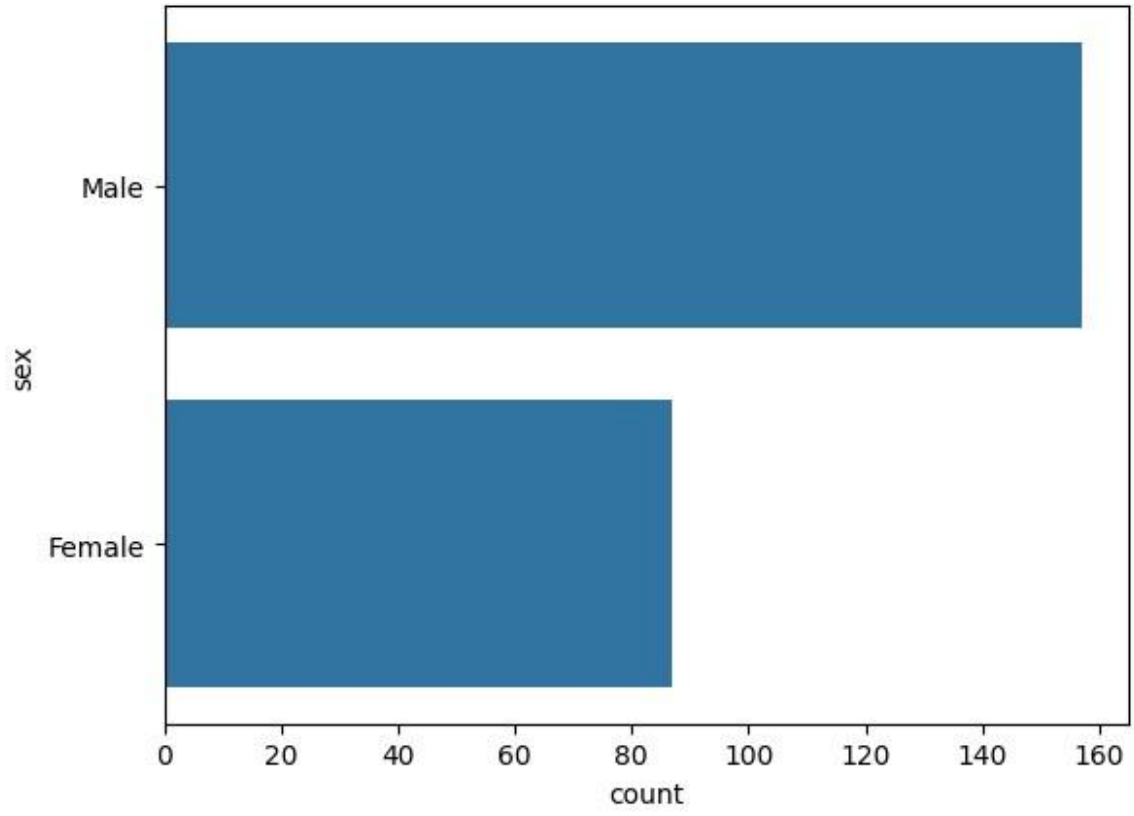



```
sns.boxplot(tips.total_bill) <Axes:
ylabel='total_bill'> sns.countplot(tips.day)
```

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

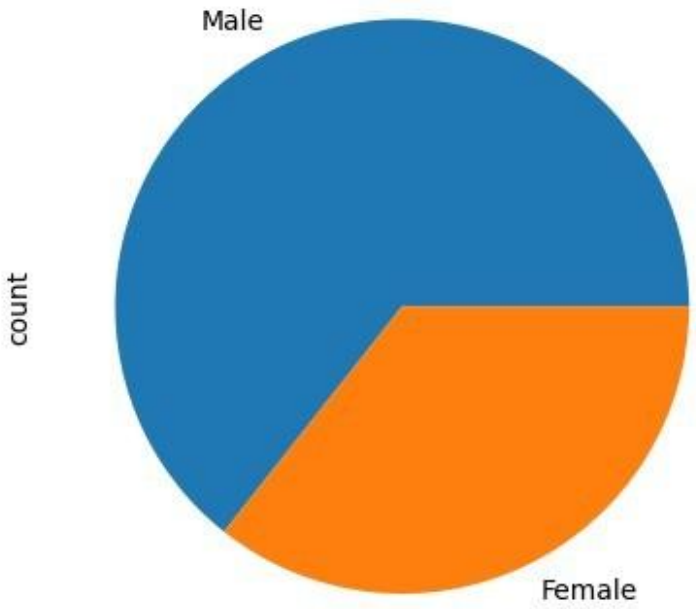


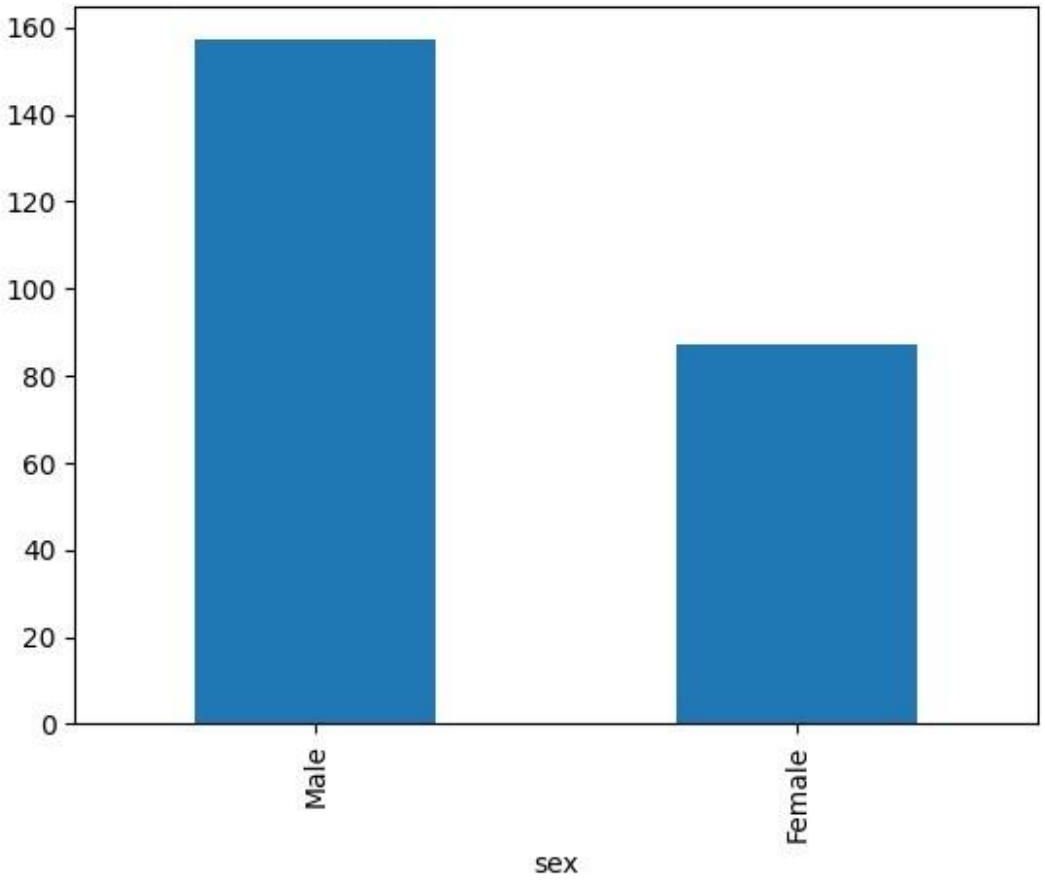

```
sns.countplot(tips.sex) <Axes: xlabel='count',
ylabel='sex'>
```




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

```
<Axes: xlabel='sex'>
```

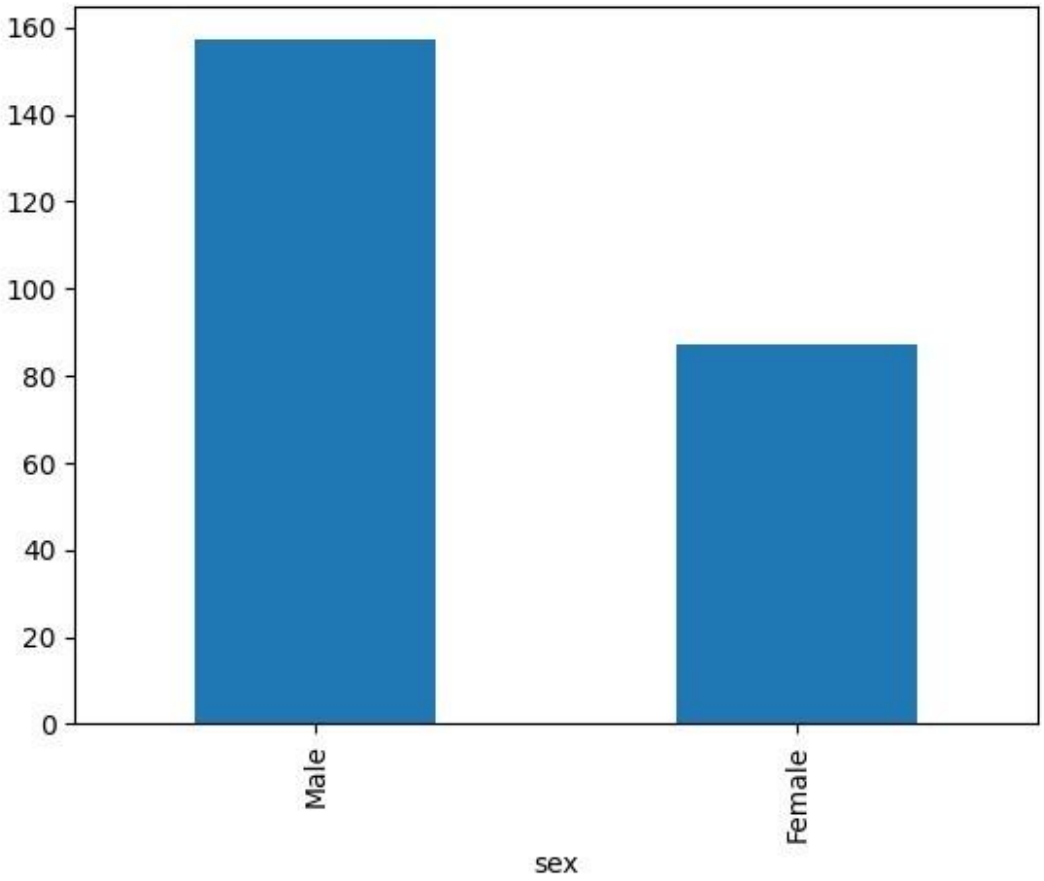





```
tips.sex.value_counts().plot(kind='pie')
```

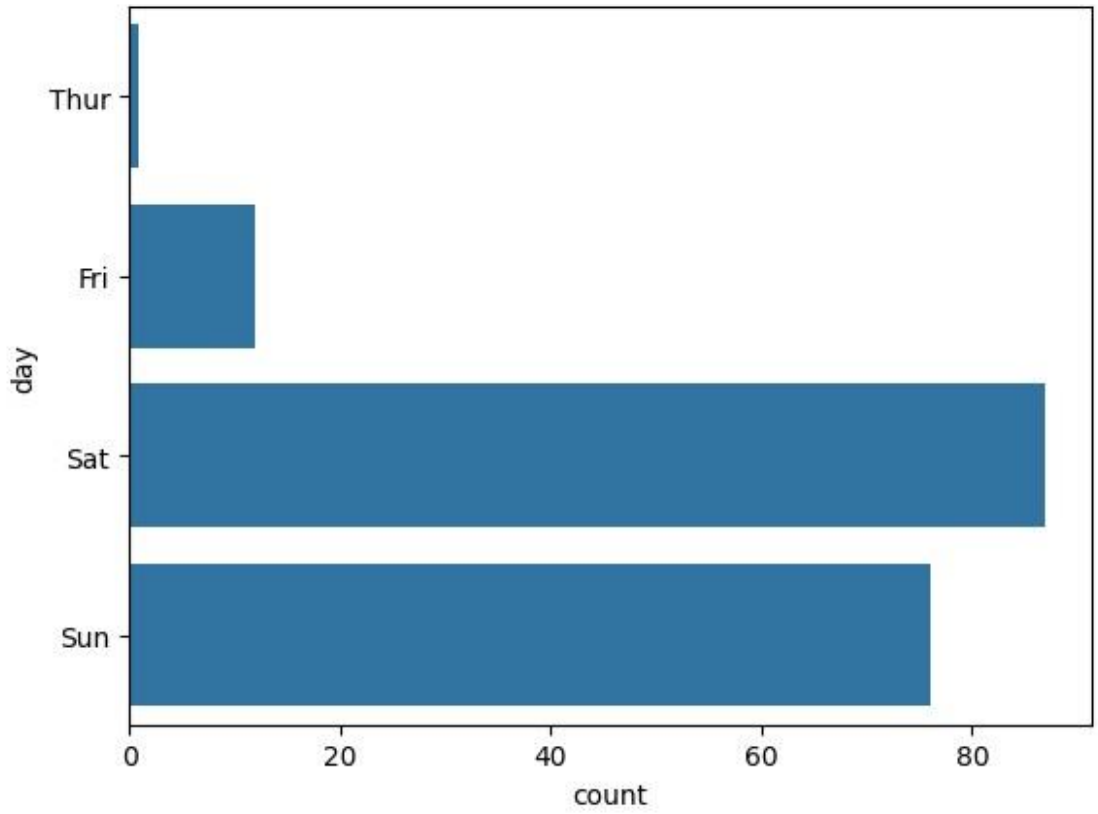
```
<Axes: ylabel='count'> tips.sex.value_counts().plot(kind='bar')
```

```
<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