EXPERIMENT NO: 5

Data Visualization using Seaborn

Aim:

To explore and visualize the tips dataset using various plots to understand distributions, relationships, correlations, and categorical counts.

Algorithm:

1) **Load Data: Import the tips dataset from Seaborn.**
2) **Visualize Distributions:**
3) **Use displot for total_bill with and without KDE.**
4) **Visualize Relationships:**
5) **jointplot for tip vs total_bill (scatter, regression, and hex).**
6) **pairplot for all numerical features; add hue for time and day.**
7) **Correlation Analysis:**
8) **Use heatmap to display correlations between numeric features.**
9) **Outlier Detection:**
10) **Use boxplot for total_bill and tip.**
11) **Categorical Counts:**
12) **Use countplot for day and sex.**

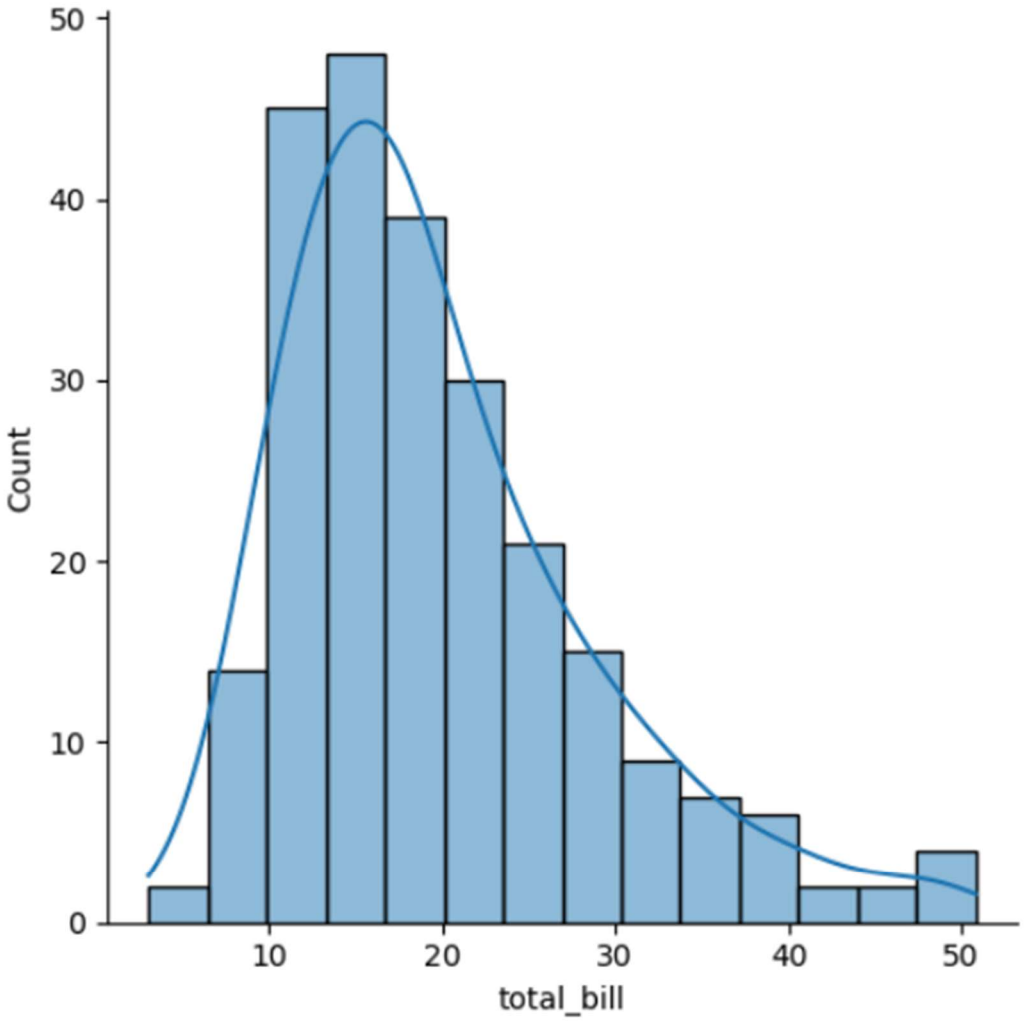
Program:

[1]:
```
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()
```

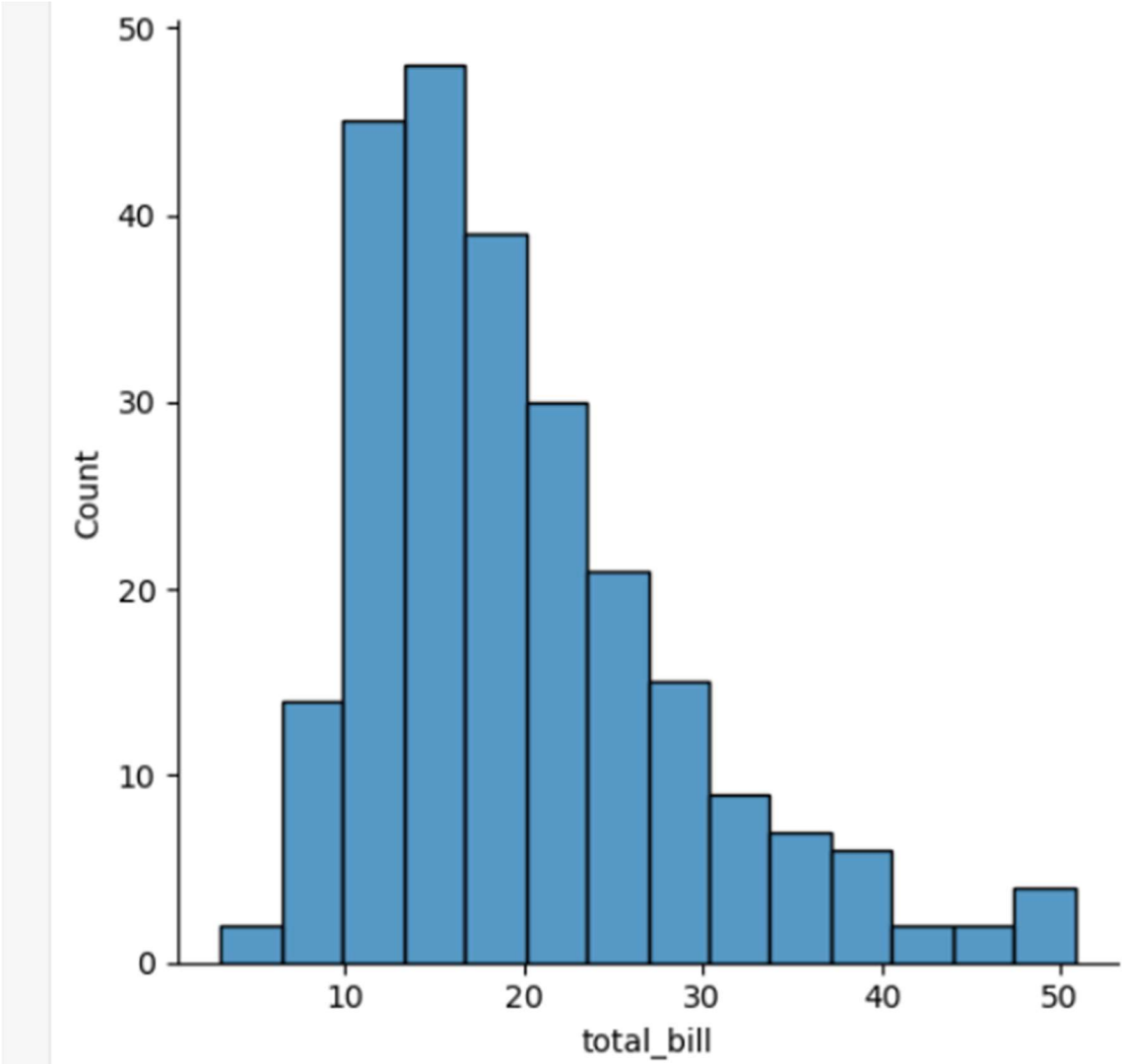
[1]:

	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

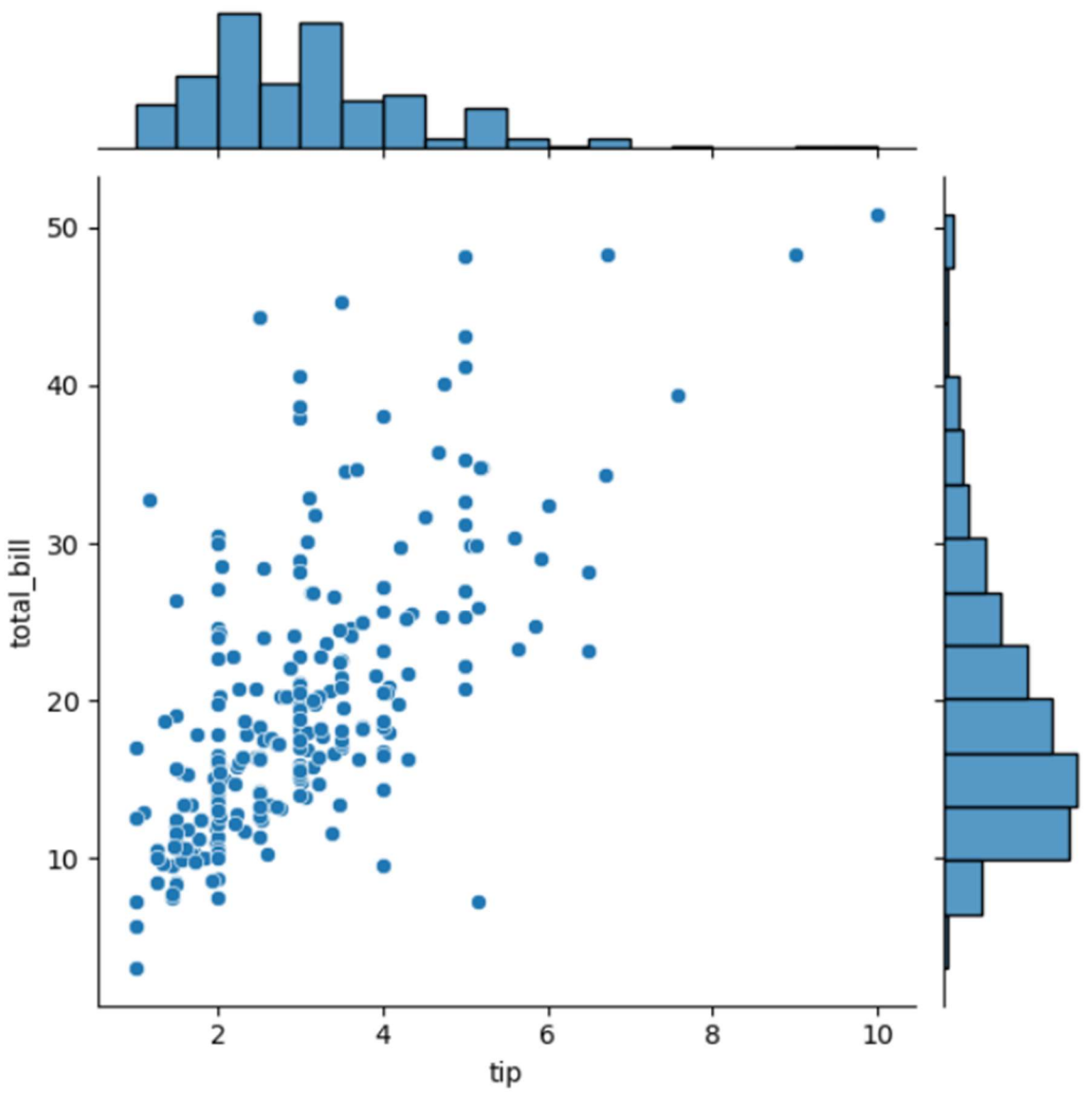
[2]:
```
m=sns.displot(tips.total_bill,kde=True)
plt.show()
```



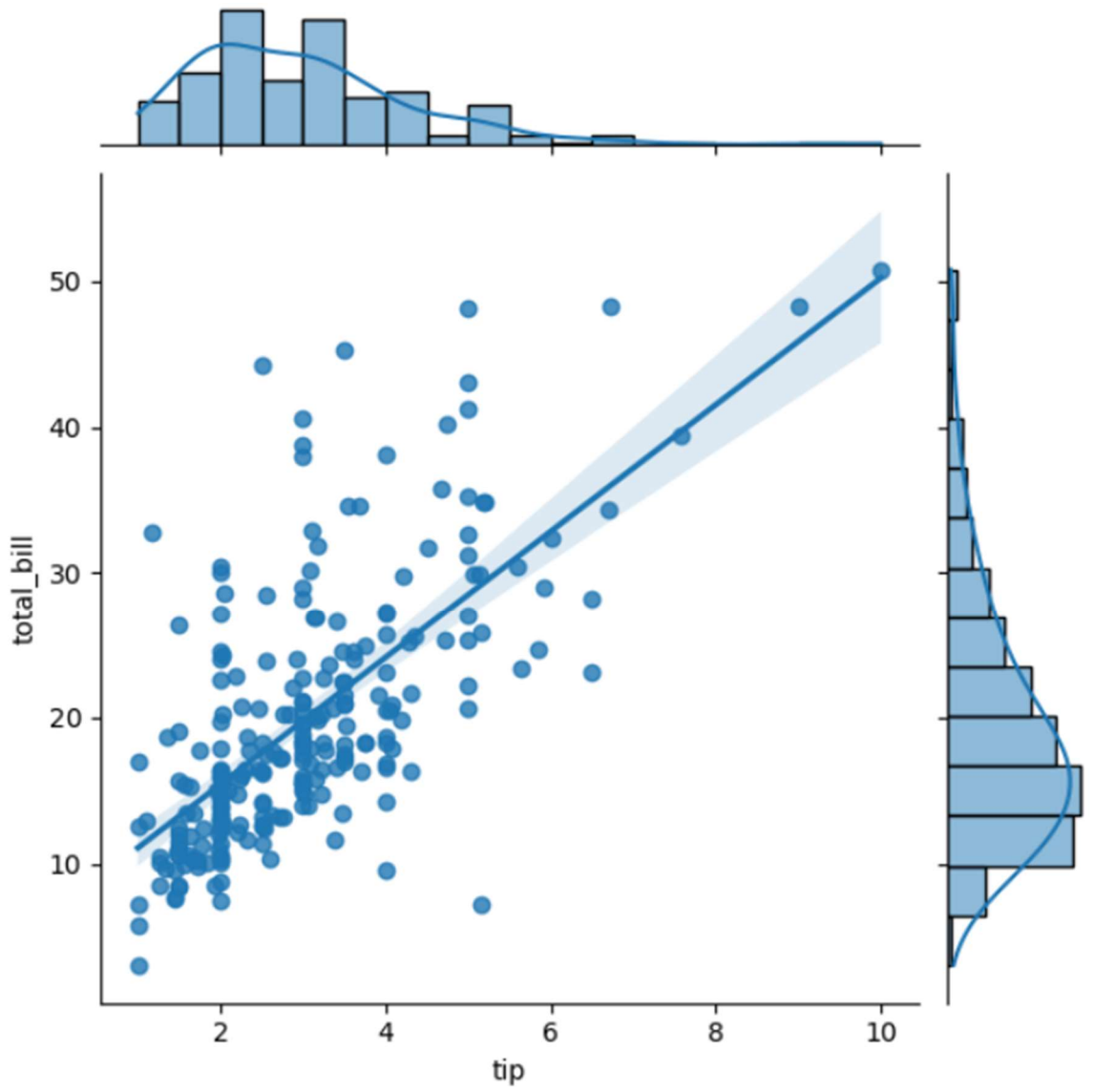
[3]:
```
n=sns.displot(tips.total_bill,kde=False)
plt.show()
```



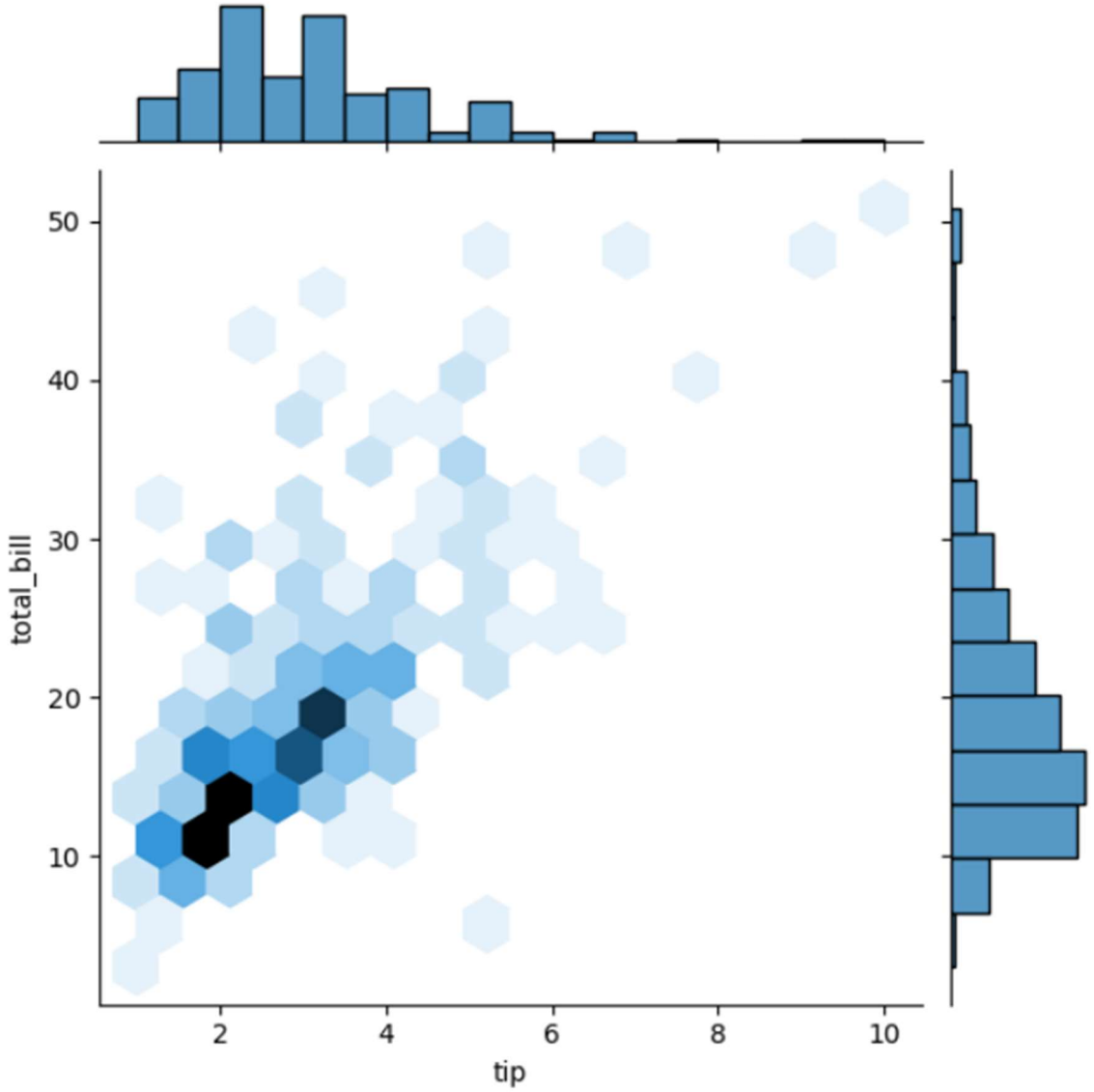

```
]: p=sns.jointplot(x=tips.tip,y=tips.total_bill)
   plt.show()
```



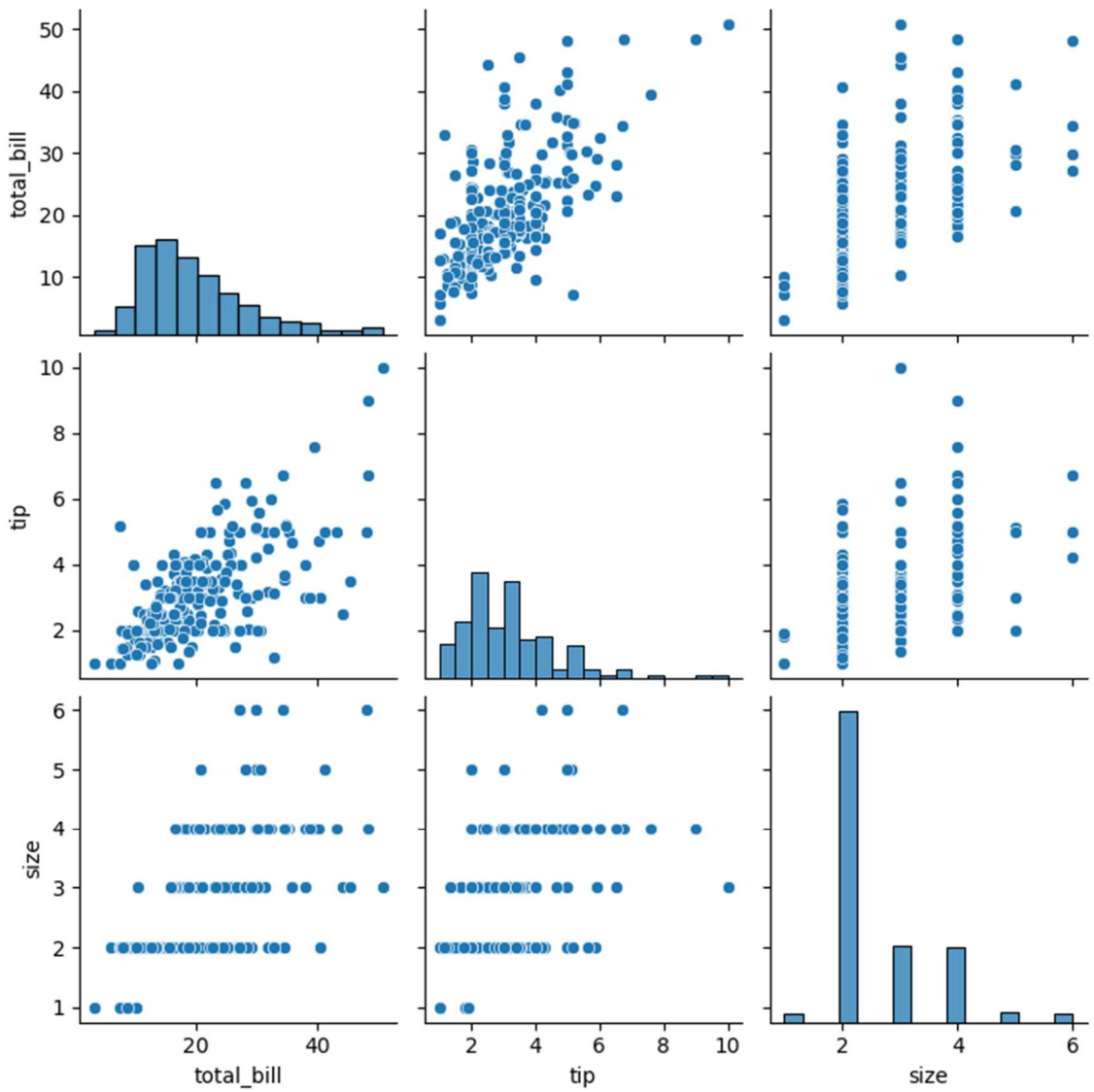

```
l=sns.jointplot(x=tips.tip,y=tips.total_bill,kind="reg")
plt.show()
```



]:
```
q=sns.jointplot(x=tips.tip,y=tips.total_bill,kind="hex")
plt.show()
```



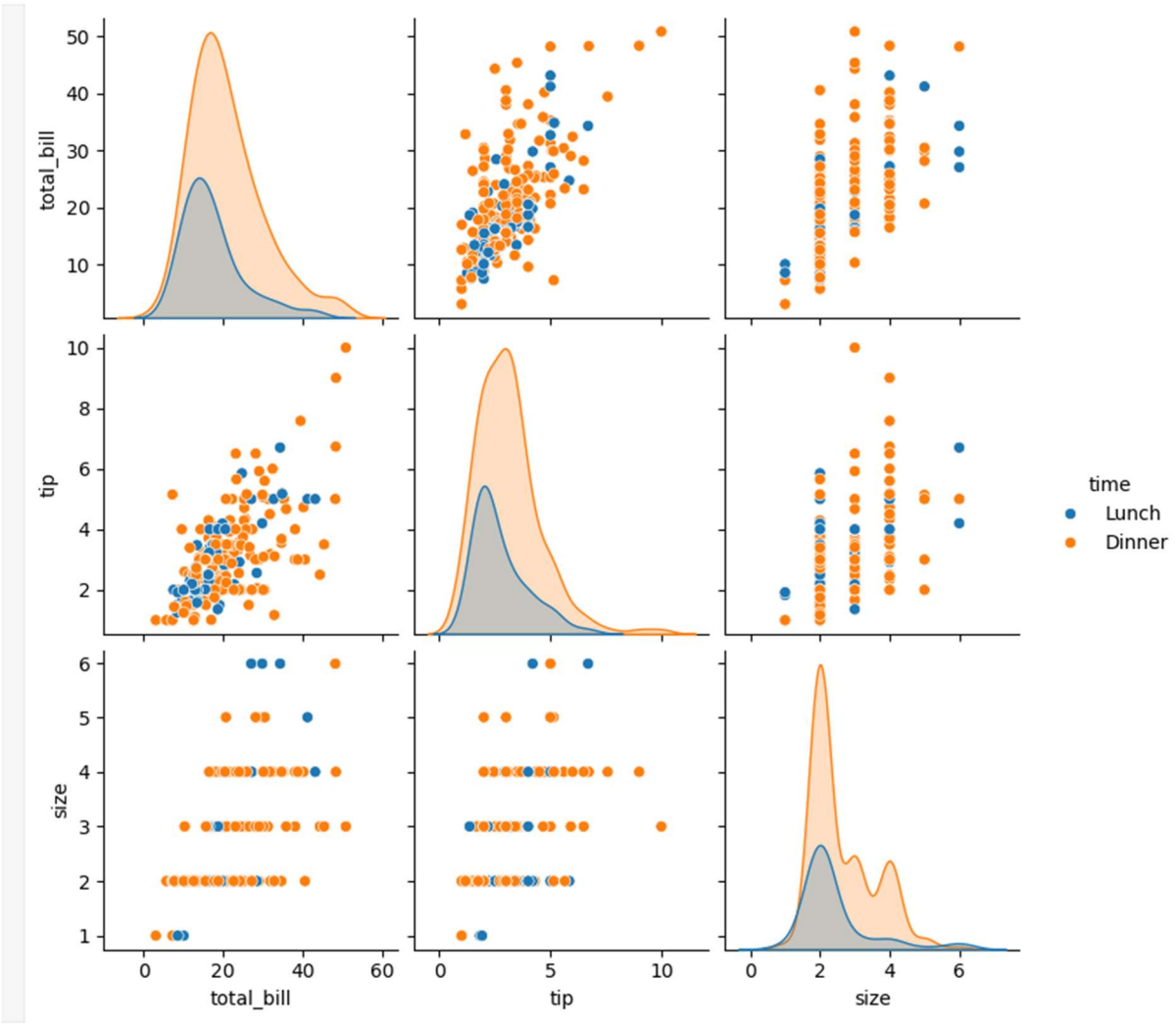

```
sns.pairplot(tips)
plt.show()
```



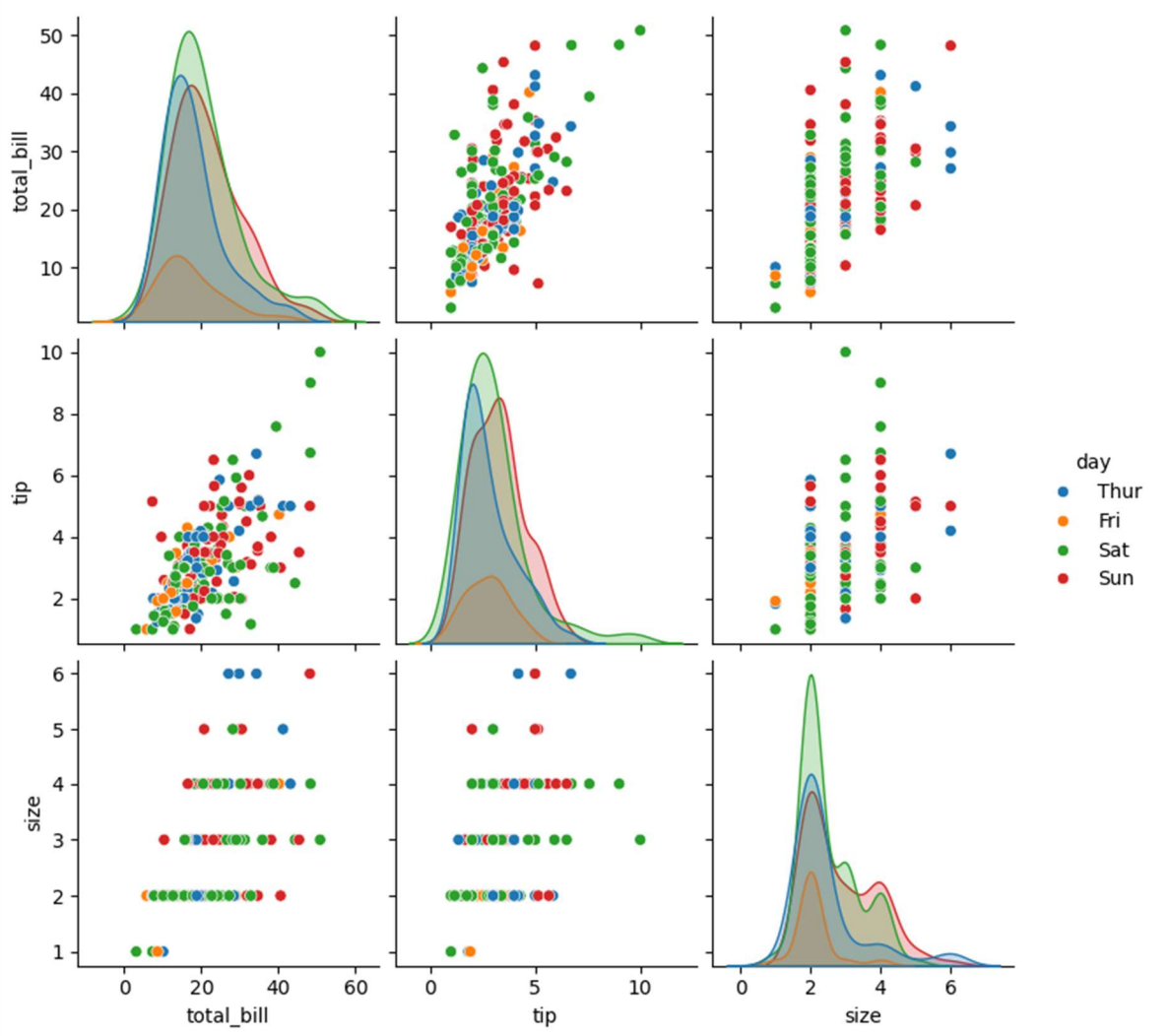
]:
```
tips.time.value_counts()
```

]:
```
time
Dinner    176
Lunch      68
Name: count, dtype: int64
```

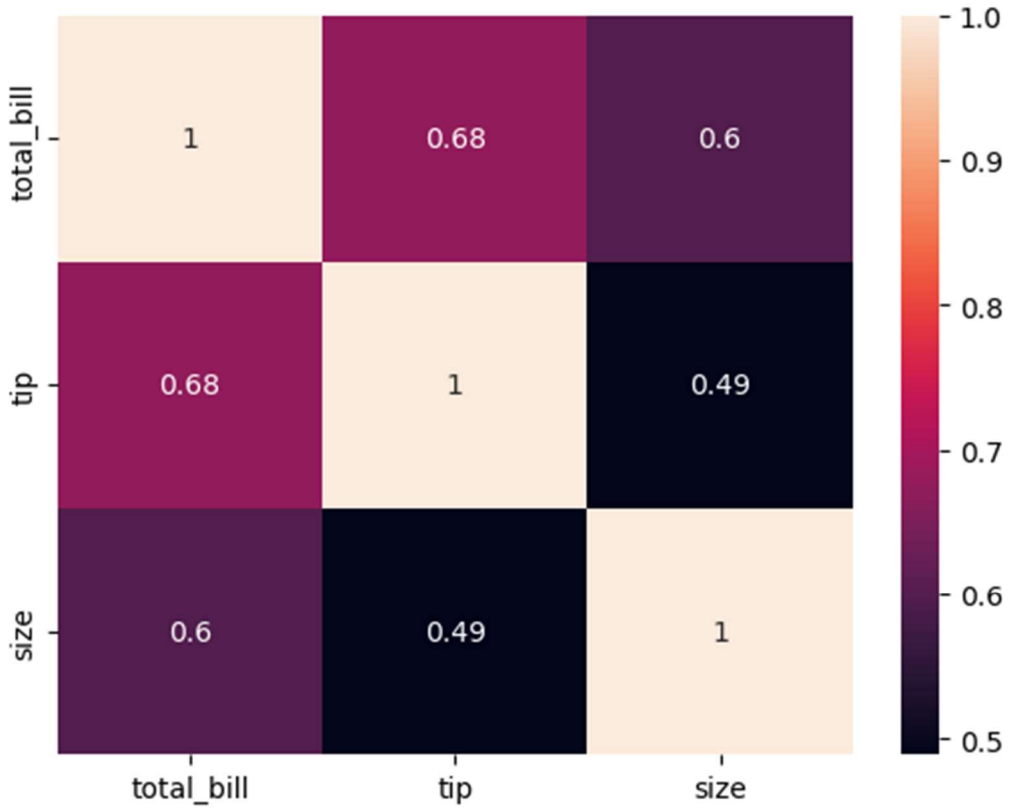
]:
```
sns.pairplot(tips,hue='time')
plt.show()
```


total_bill
tip
size
total_bill
tip
size
time
Lunch
Dinner

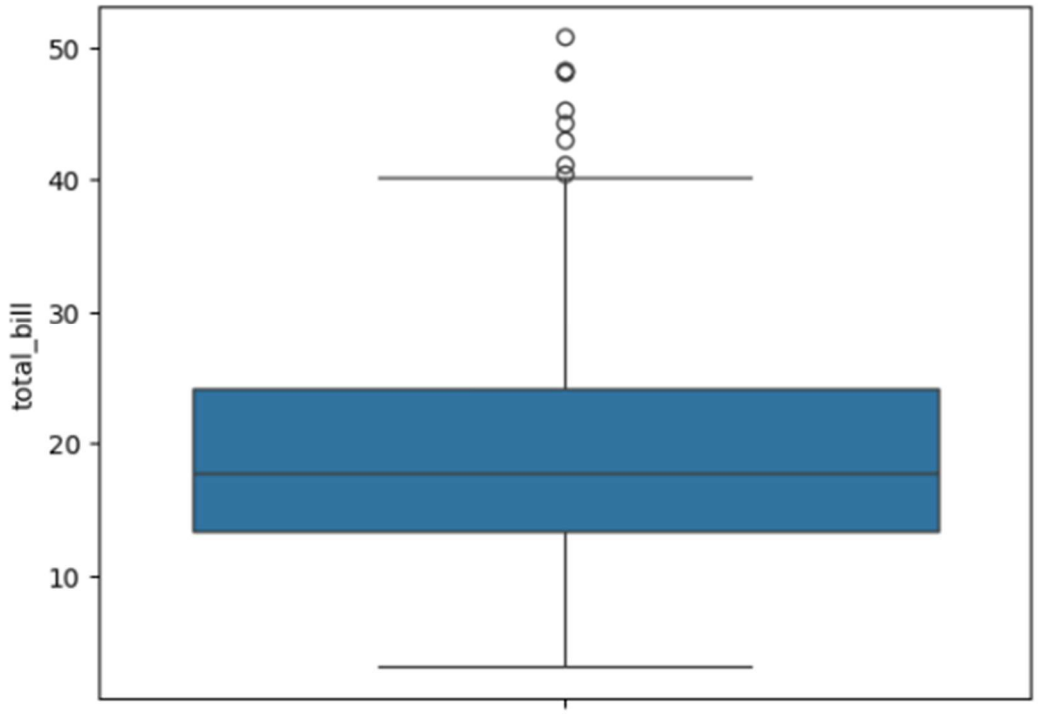
```
sns.pairplot(tips,hue='day')
plt.show()
```



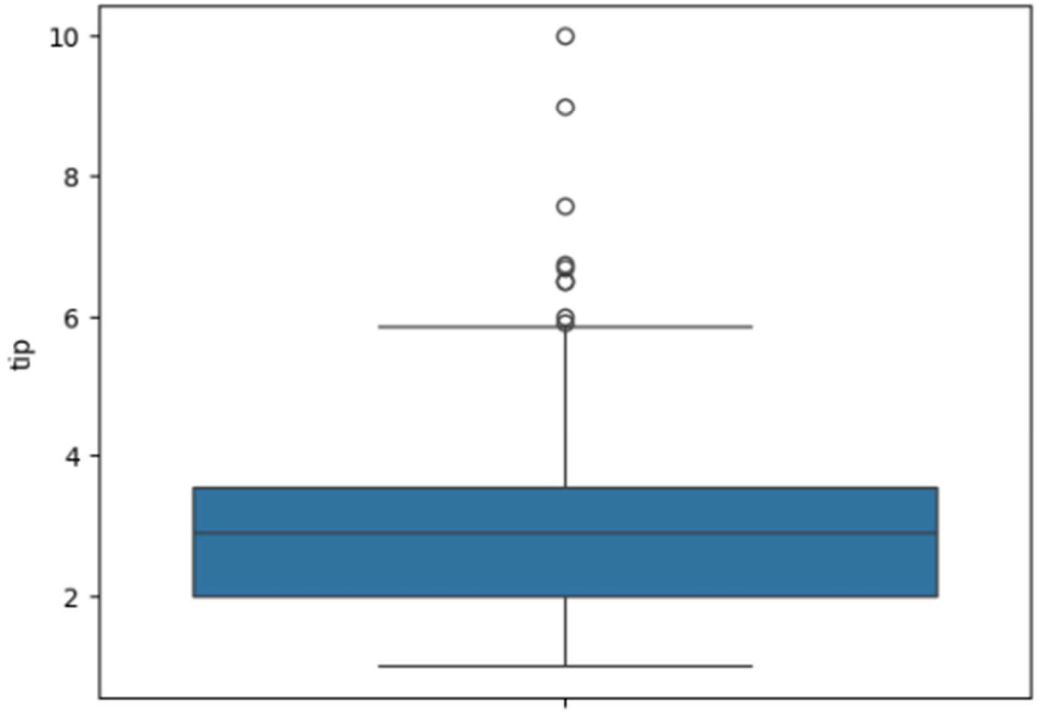
```
sns.heatmap(tips.corr(numeric_only=True),annot=True)
plt.show()
```



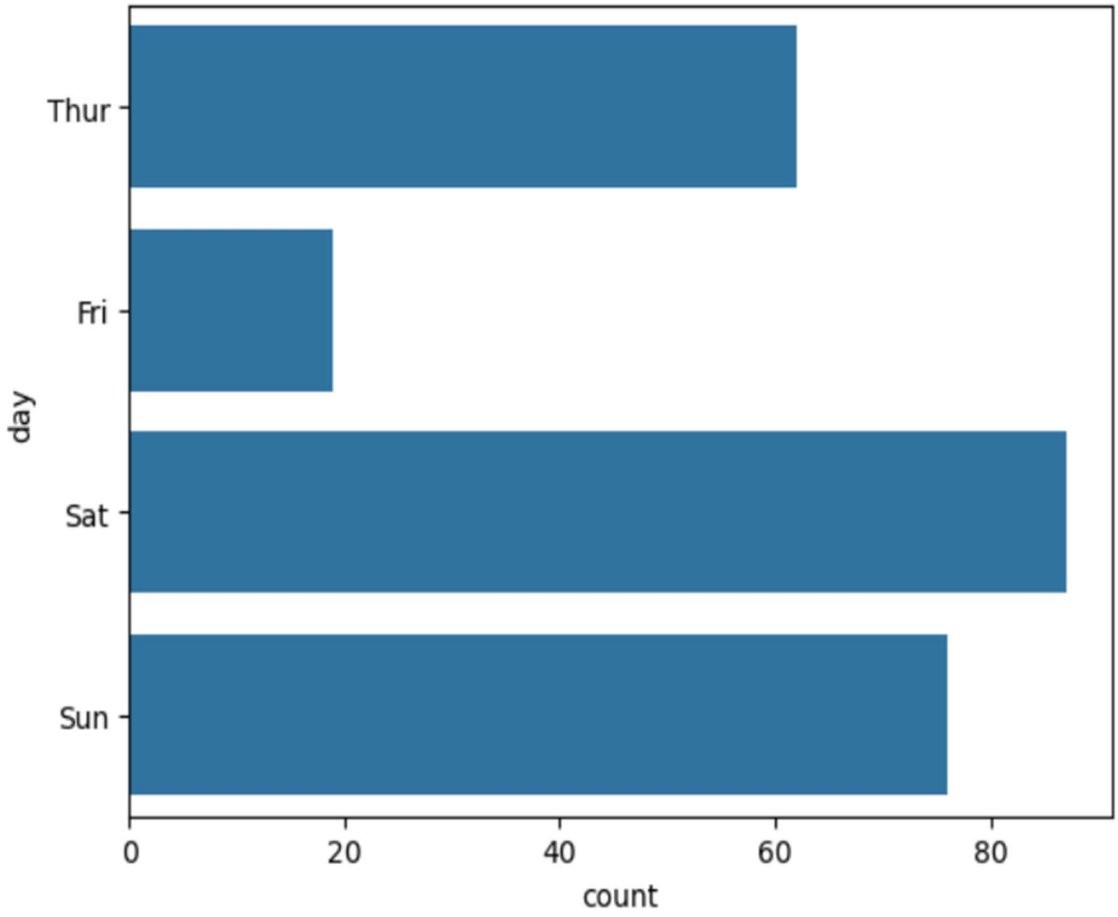

```
sns.boxplot(tips.total_bill)
plt.show()
```



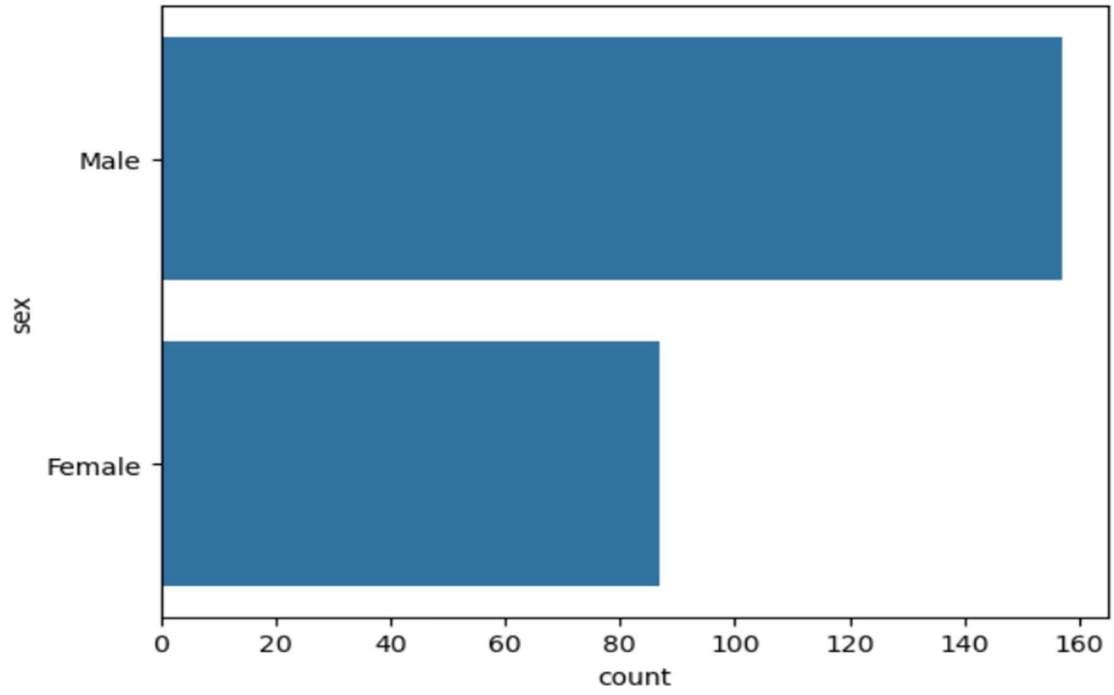

```
]: sns.boxplot(tips.tip)
   plt.show()
```



```
sns.countplot(tips.day)
plt.show()
```




```
sns.countplot(tips.sex)
plt.show()
```



Result:

The visualizations show distributions of bills and tips, relationships between tip and total bill, correlations among numeric features, outliers, and counts by day and gender, providing a clear overview of the dataset.