EXPERIMENT NO: 6

To Do EDA for Qualitative data and Quantitative Data

Aim:

To write the Python program to understand and perform Exploratory Data Analysis (EDA) on the given dataset for both qualitative and quantitative data.

Algorithm:

1. Load the dataset and inspect its structure and contents.
2. Identify qualitative (categorical) and quantitative (numerical) features.
3. Perform univariate analysis using bar charts, pie charts, and histograms.
4. Use box plots and scatter plots to analyze distributions and relationships.
5. Apply correlation analysis and visualize using heatmaps.
6. Summarize insights from visual patterns and statistical summaries.

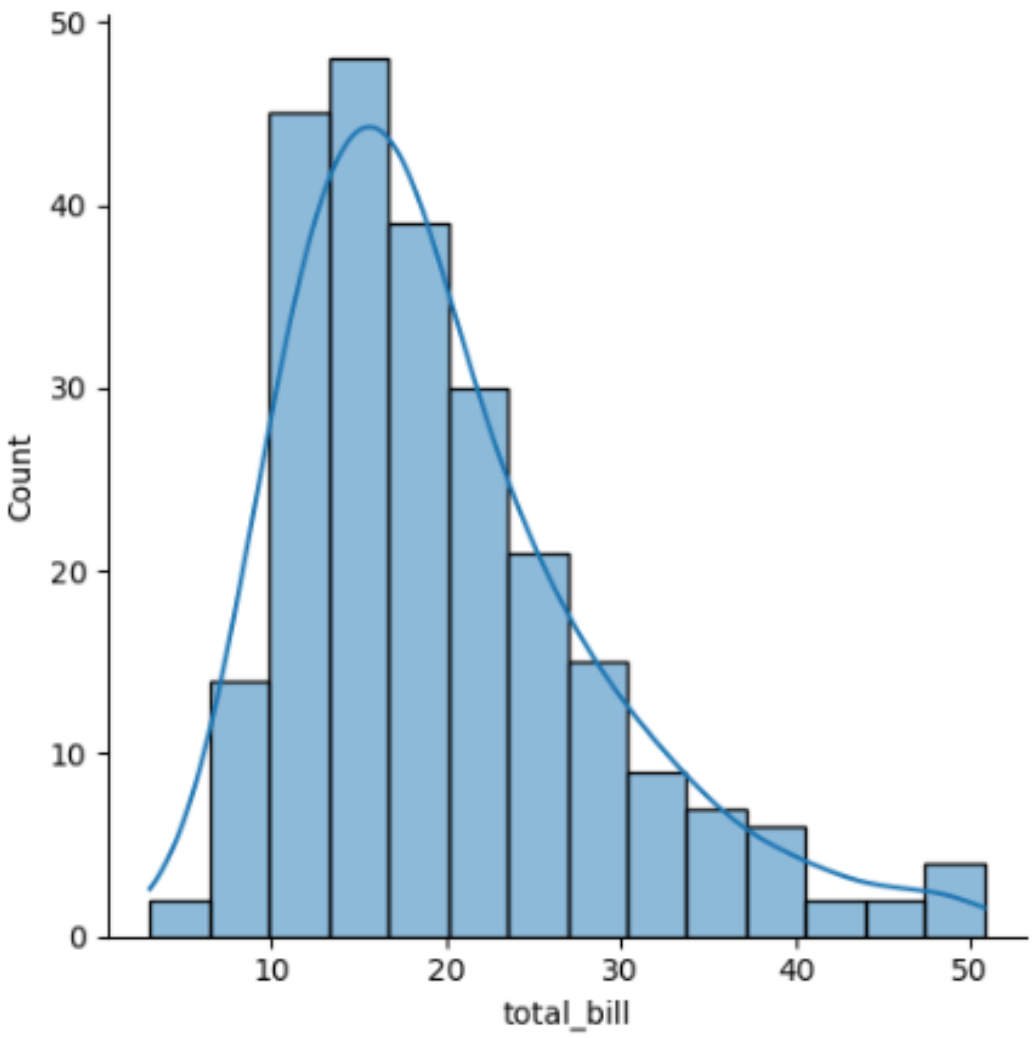
Program:

[7]:
```
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()
```

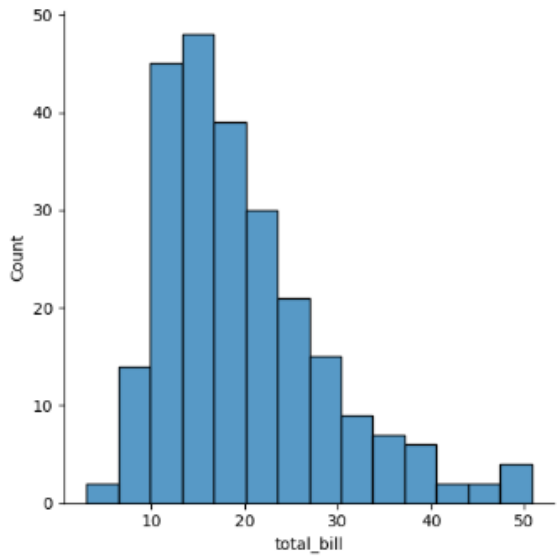
[7]:

	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

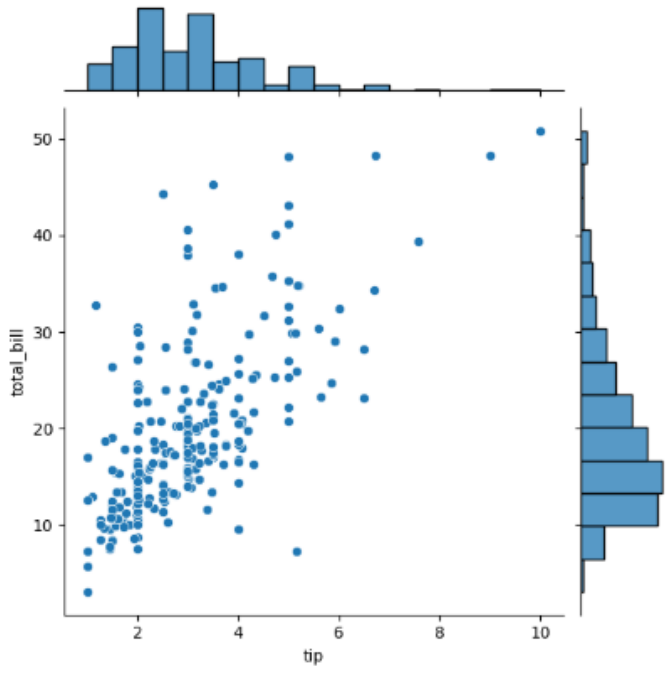
[9]:
```
sns.displot(tips.total_bill,kde=True)
plt.show()
```



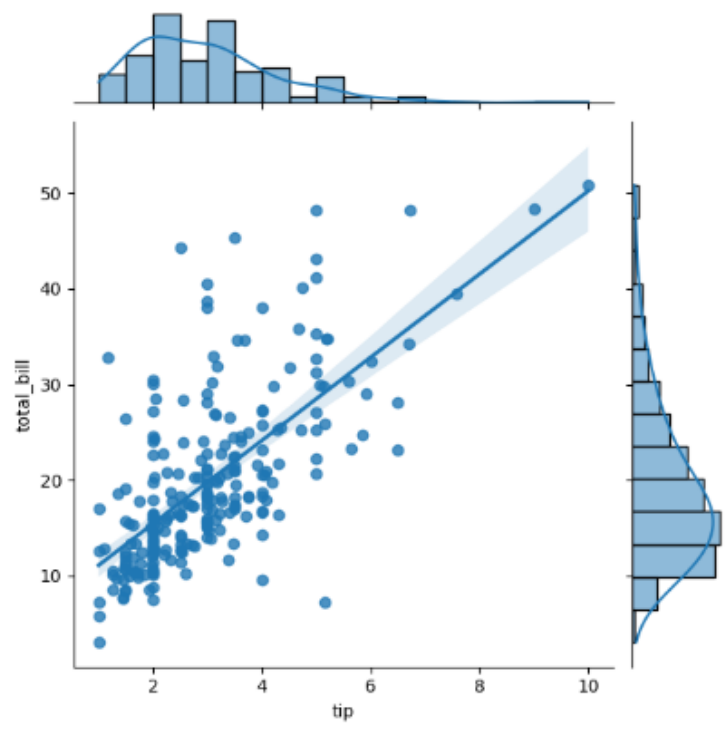
[10]:
```
sns.displot(tips.total_bill,kde=False)
plt.show()
```



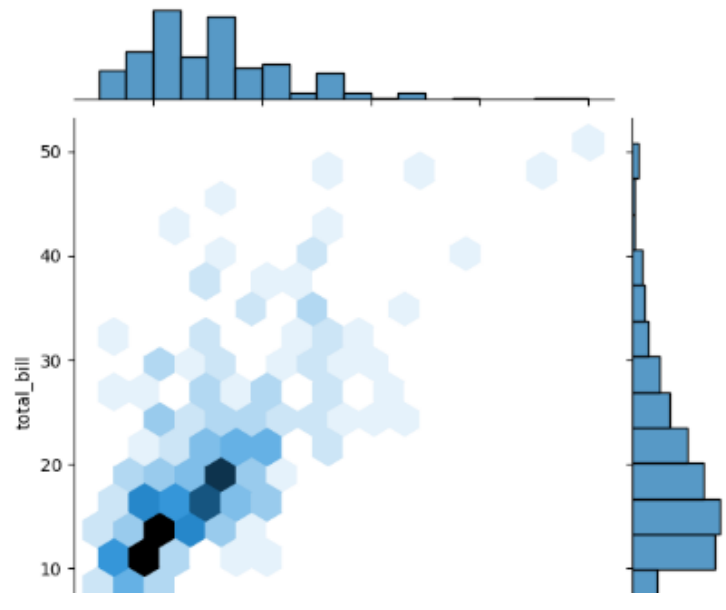
[11]:
```
sns.jointplot(x=tips.tip,y=tips.total_bill)
plt.show()
```



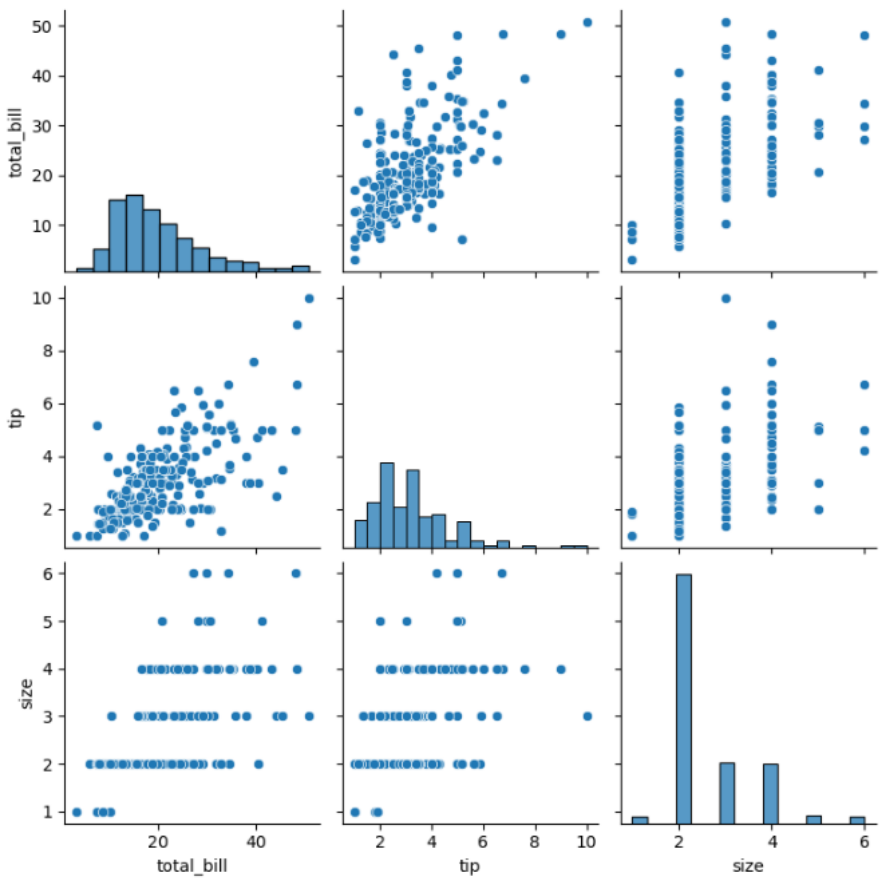
[12]:
```
sns.jointplot(x=tips.tip,y=tips.total_bill,kind="reg")
plt.show()
```



[13]:
```
sns.jointplot(x=tips.tip,y=tips.total_bill,kind="hex")
plt.show()
```



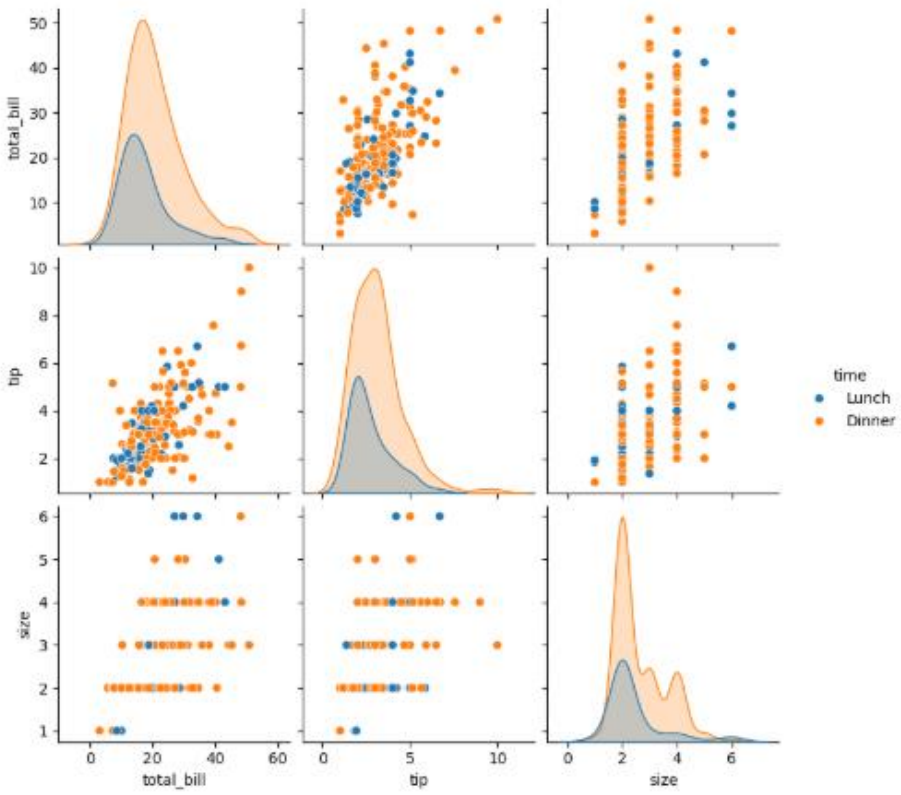
[14]:
```
sns.pairplot(tips)
plt.show()
```



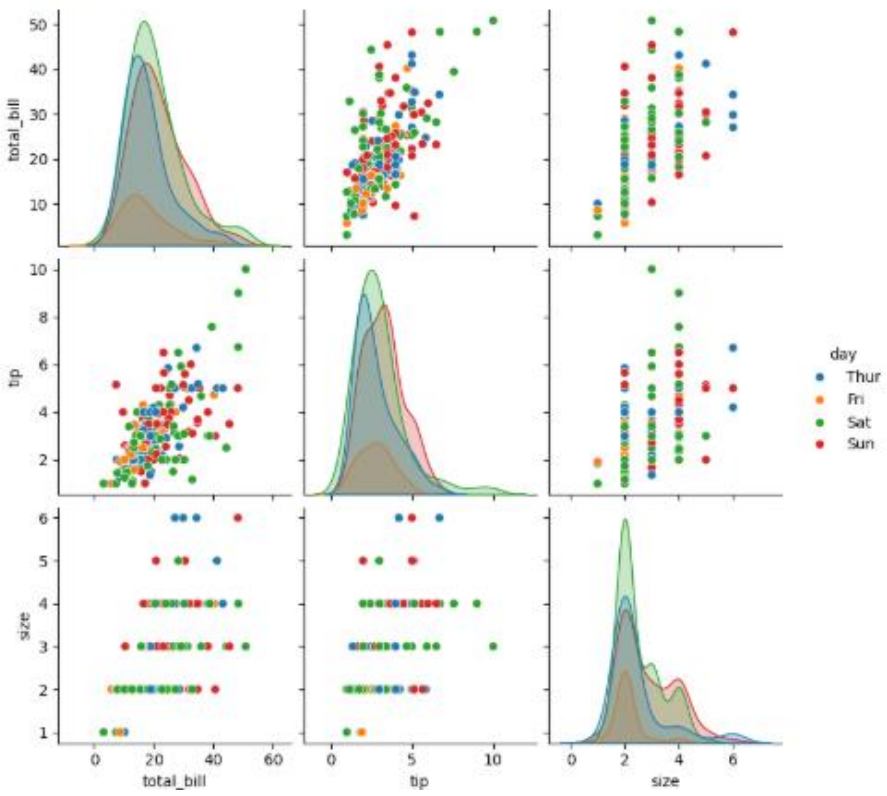
[15]:
```
tips.time.value_counts()
```

[15]:
```
time
Dinner    176
Lunch      68
Name: count, dtype: int64
```

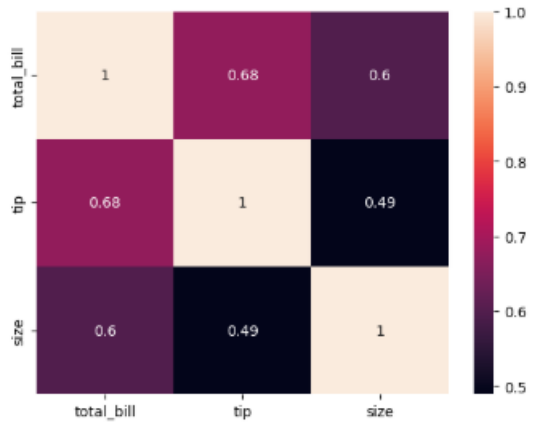
[16]:
```
sns.pairplot(tips,hue='time')
plt.show()
```



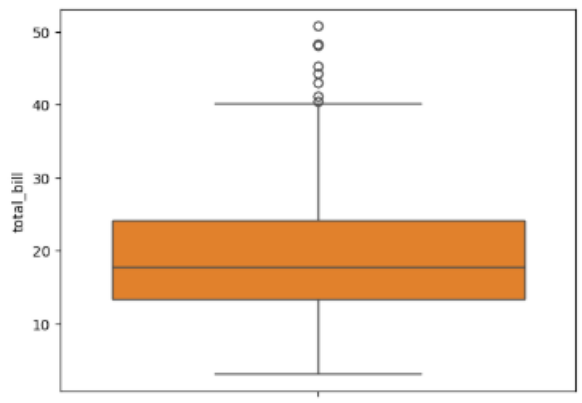
[17]:
```
sns.pairplot(tips,hue='day')
plt.show()
```



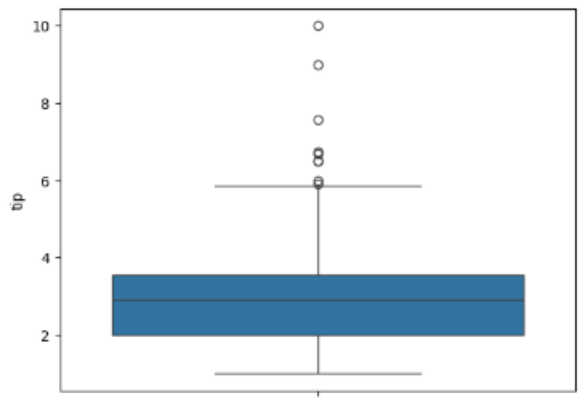
[18]:
```
sns.heatmap(tips.corr(numeric_only=True),annot=True)
plt.show()
```



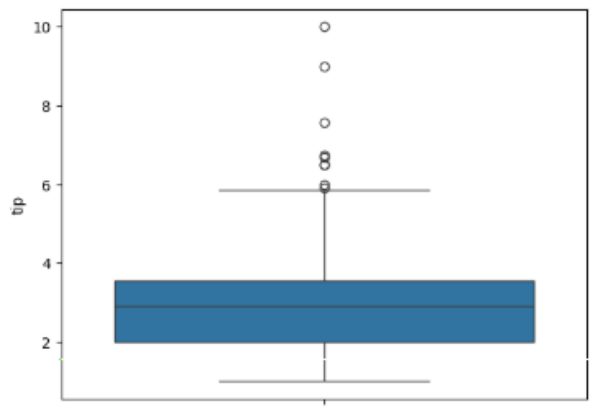
[20]:
```
sns.boxplot(tips.total_bill)
plt.show()
```



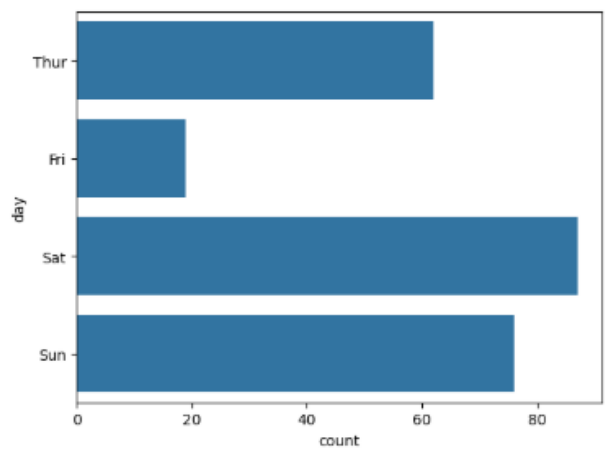
[21]:
```
sns.boxplot(tips.tip)
plt.show()
```



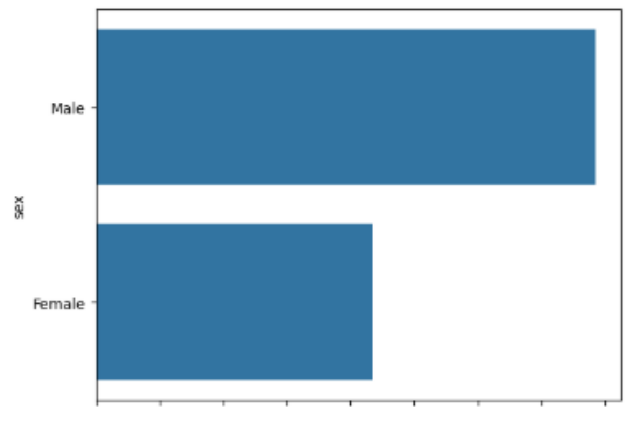
[21]:
```
sns.boxplot(tips.tip)
plt.show()
```

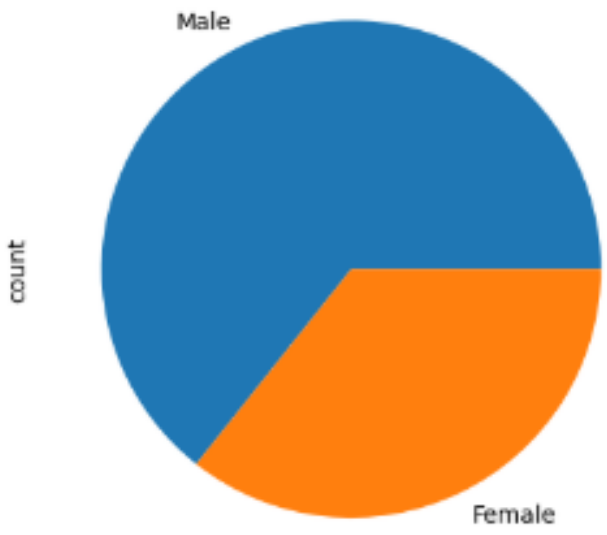


[22]:
```
sns.countplot(tips.day)
plt.show()
```

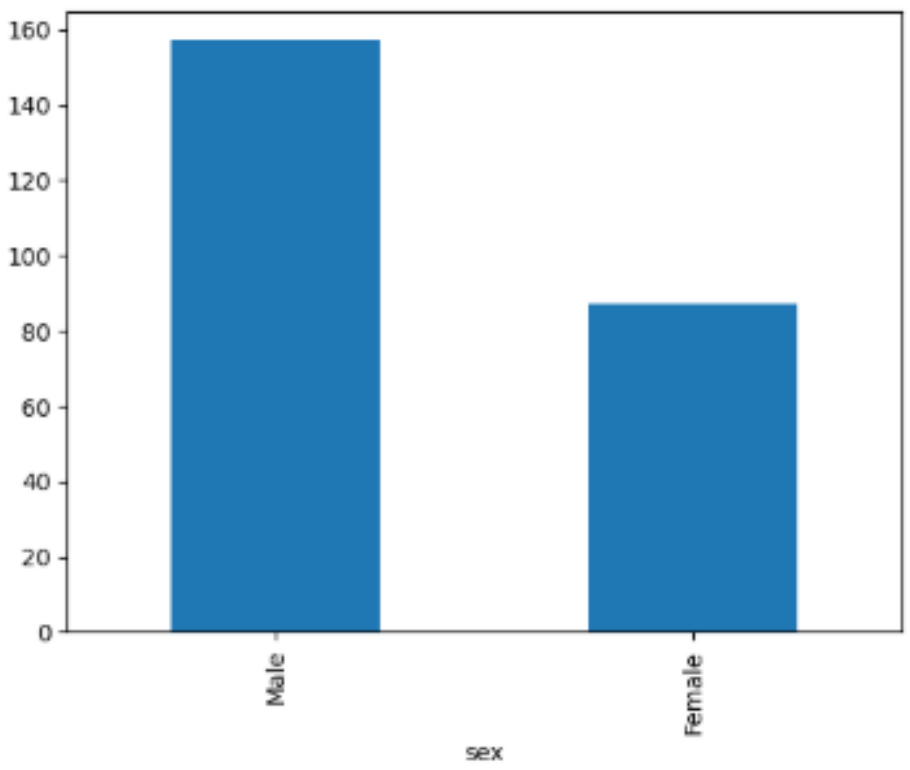


[23]:
```
sns.countplot(tips.sex)
plt.show()
```

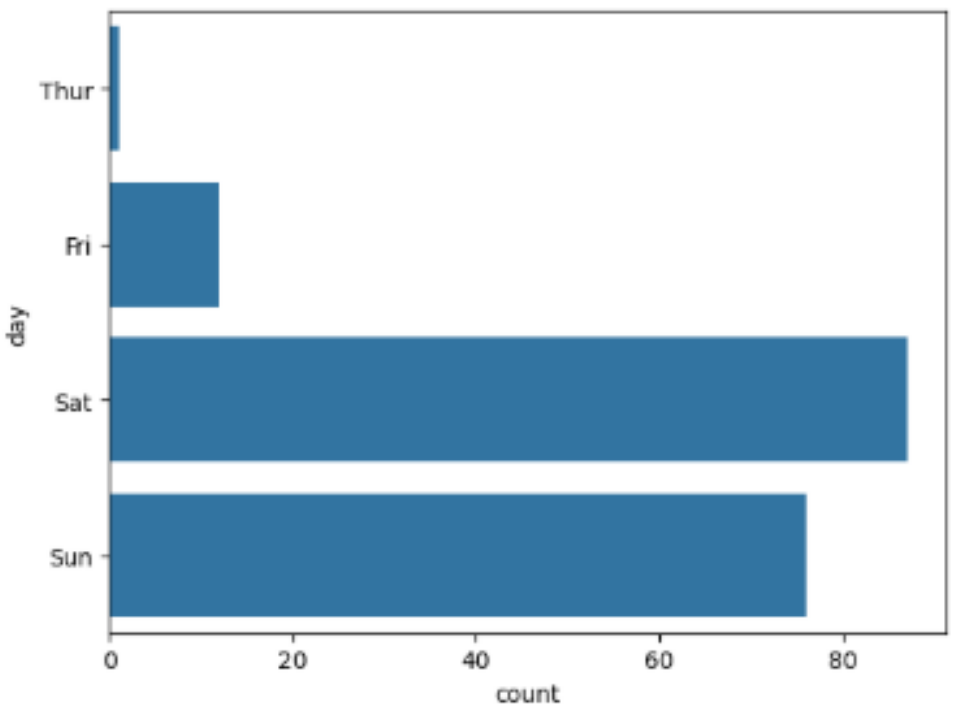




[25]:
```
tips.sex.value_counts().plot(kind='bar')
plt.show()
```



[26]:
```
sns.countplot(tips[tips.time=='Dinner']['day'])
plt.show()
```



Result:

Thus, the Python program is executed successfully for performing EDA on the given dataset for both qualitative and quantitative features.