Data Visualization for the tip's dataset using matplot library in Python

AIM:

Generate the following for the tip's dataset using matplot

- Bar chart
- Scatter plot
- Line chart
- Heat map
- Line plot
- Histogram
- Box plot
- Error Chart

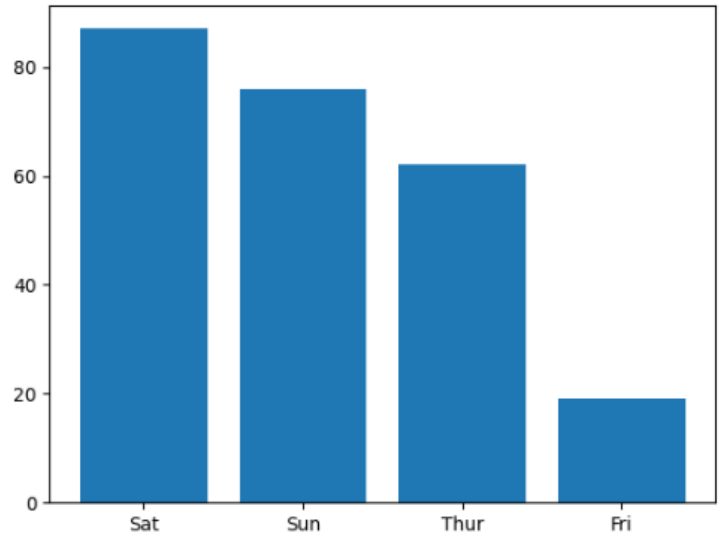
Procedure:

(1) Barchart :

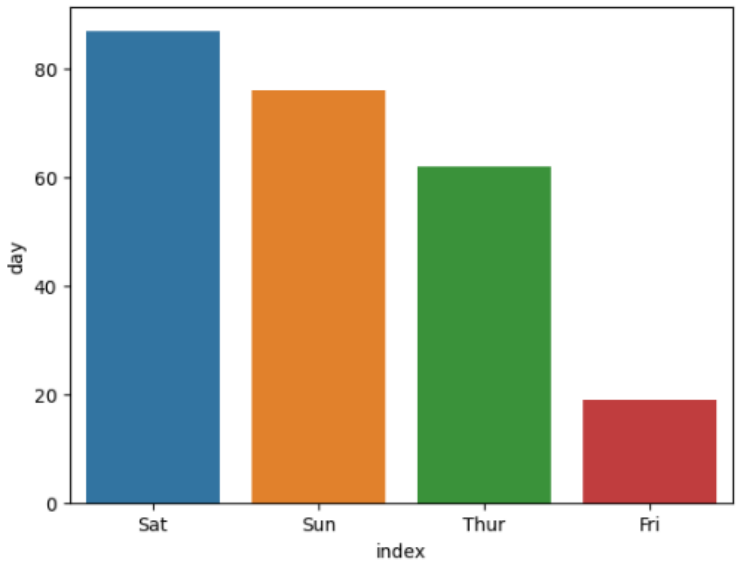
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
df = pd.read_csv('/content/drive/MyDrive/DATASETS/tips.csv')
df.head()
```

```
a=pd.DataFrame(df['day'].value_counts())
a.reset_index(inplace=True)
```

```
plt.bar(a['index'],a['day'])
```

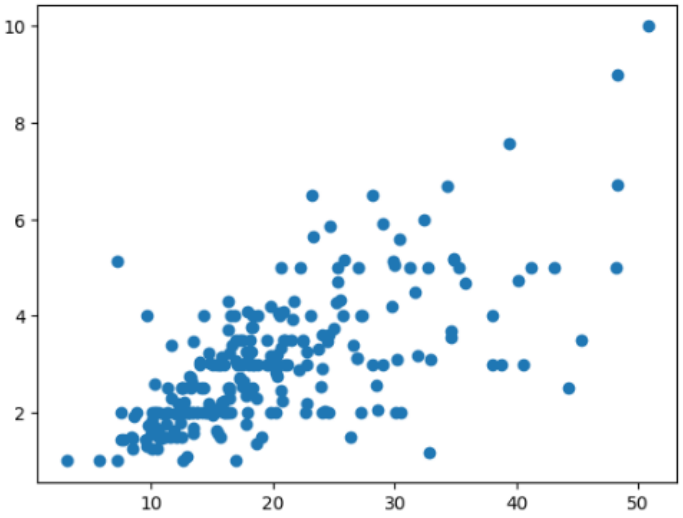


```
sns.barplot(x='index', y='day', data=a)
plt.show()
```

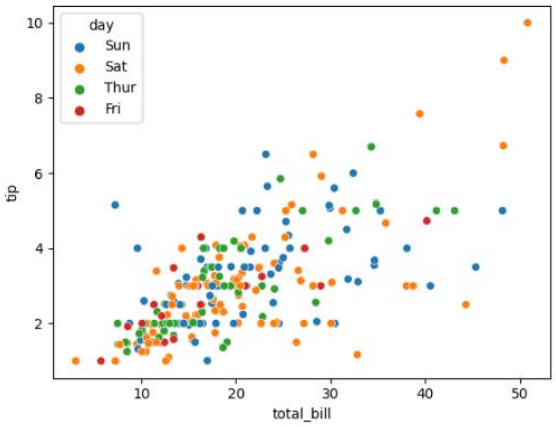


2. Scatter plot

```
plt.scatter(df['total_bill'],df['tip'])
plt.show()
```

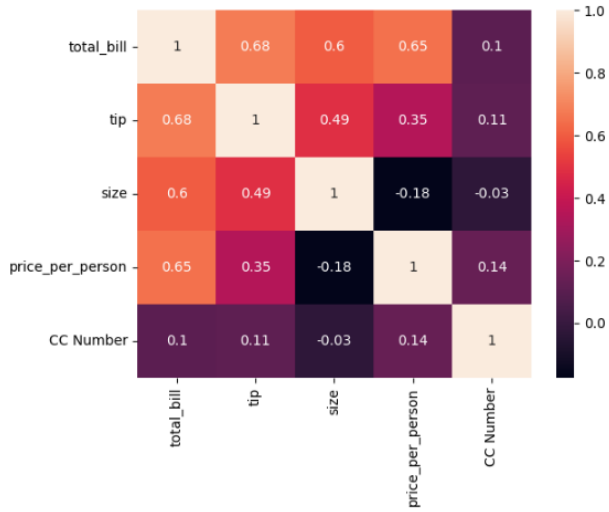



```
sns.scatterplot(x='total_bill',y='tip',data=df,hue='day')
plt.show()
```



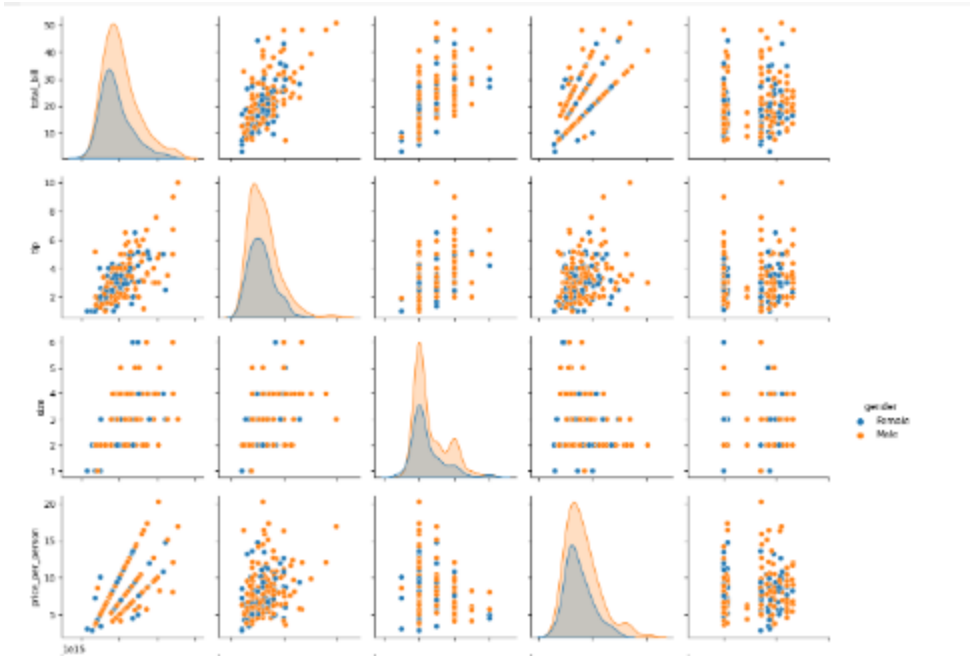
3.Heat Map

```
sns.heatmap(df.corr(),annot=True)
plt.figure(figsize=(5,5))
plt.show()
```



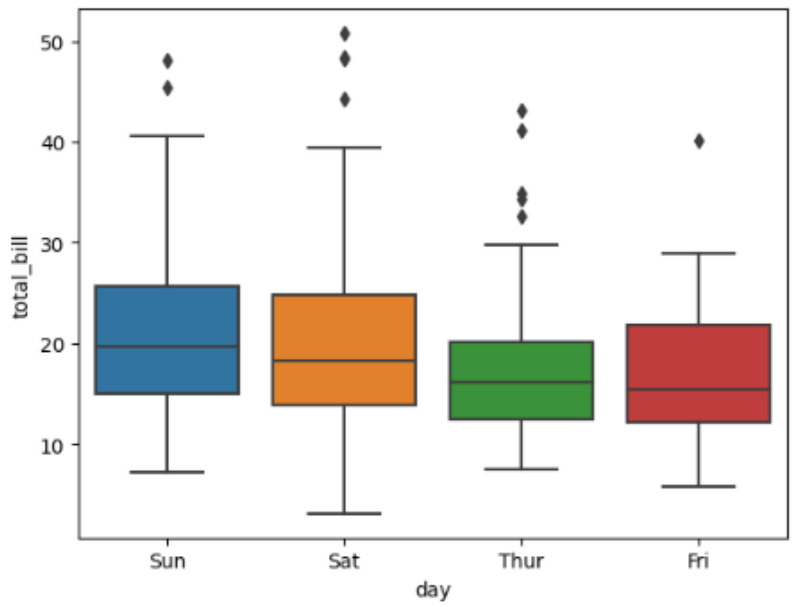
4. Pair Plot

```
sns.pairplot(data=df,hue='gender')
plt.show()
```



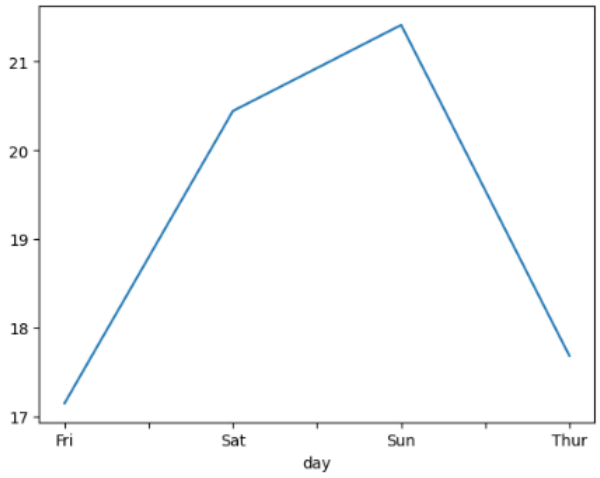
5.BoxPlot

```
sns.boxplot(x='day',y='total_bill',data=df)
plt.show()
```



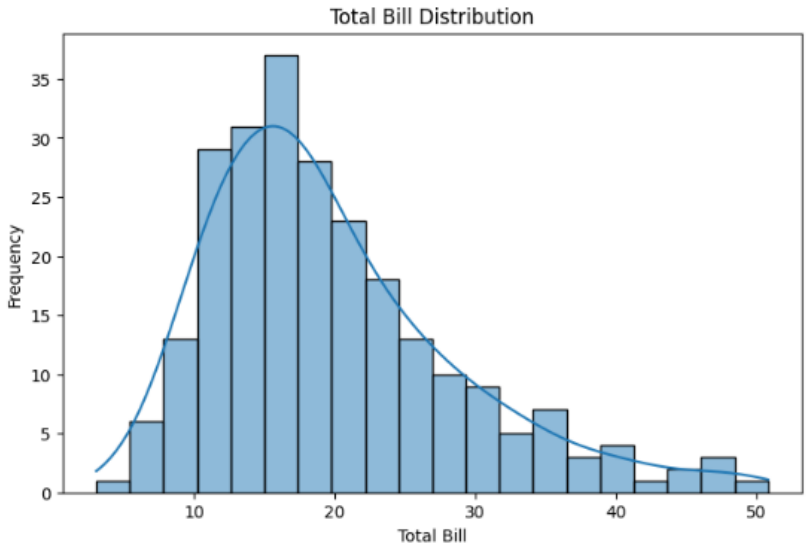
6. Line Chart

```
df.groupby('day').mean()['total_bill'].plot(kind='line') # bar,line,barh,hist,box,scatter,kde,area,pie,hexbin
plt.show()
```



7.Histogram

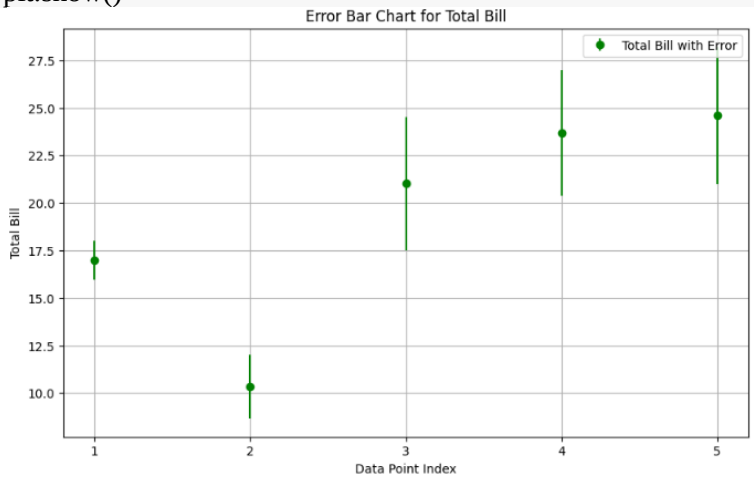
```
# f. Histogram (Distribution of total_bill)
plt.figure(figsize=(8, 5))
sns.histplot(tips_df['total_bill'], bins=20, kde=True)
plt.title("Total Bill Distribution")
plt.xlabel("Total Bill")
plt.ylabel("Frequency")
plt.show()
```



8.Error Plot

```
data = {
    'total_bill': [16.99, 10.34, 21.01, 23.68, 24.59],
    'tip': [1.01, 1.66, 3.5, 3.31, 3.61]
}

df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.errorbar(range(len(df)), df['total_bill'], yerr=df['tip'], fmt='o', color='g', label='Total Bill with Error')
plt.xticks(range(len(df)), range(1, len(df) + 1))
plt.xlabel('Data Point Index')
plt.ylabel('Total Bill')
plt.title('Error Bar Chart for Total Bill')
plt.legend()
plt.grid(True)
plt.show()
```



Result: