NAME : OM RAKH

ROLL NO. : 547

DIV : E3

SUB : EDS

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('D:\\547_OM Rakh\\tips .csv')
df['tip_percentage'] = df['tip'] / df['total_bill'] * 100



# 1.Distribution of tip amounts:
plt.hist(df['tip'], bins=20)
plt.xlabel('Tip Amount')
plt.ylabel('Frequency')
plt.show()

# 2.This will create a histogram showing the distribution of tip amounts.
sns.boxplot(x='day', y='total_bill', data=df)
plt.xlabel('Day of the Week')
```

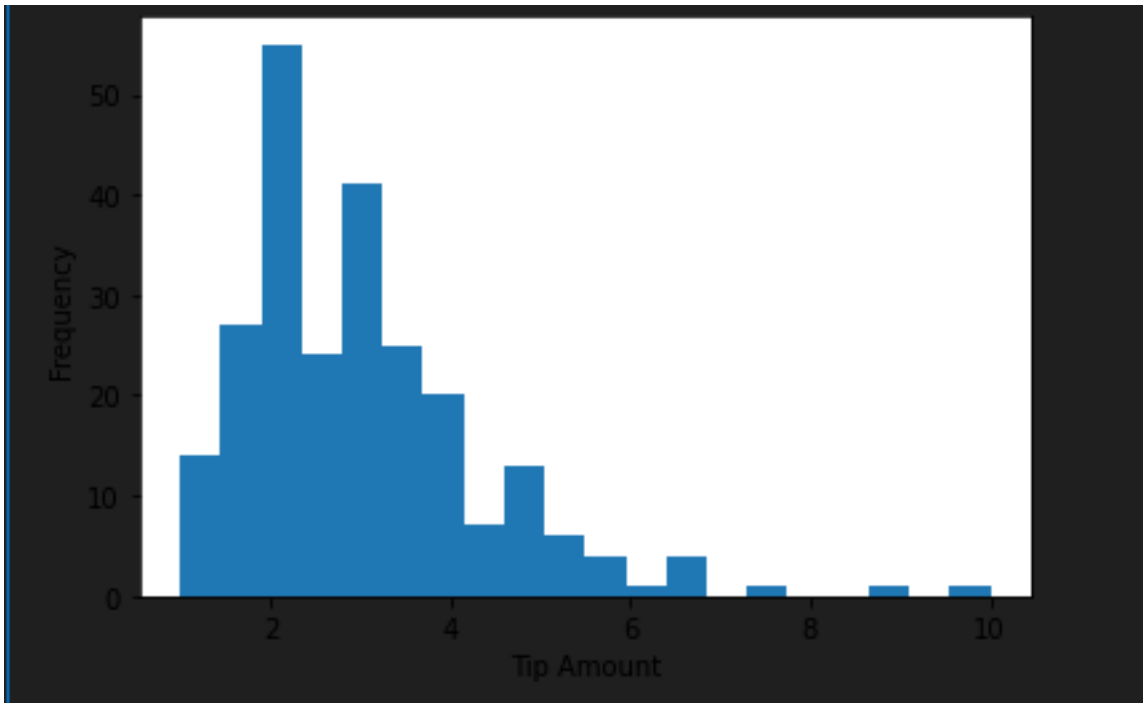
```
plt.ylabel('Total Bill Amount')
plt.show()

# 3.Average tip amount for different party sizes:
size_avg_tip = df.groupby('size')['tip'].mean()
size_avg_tip.plot(kind='bar')
plt.xlabel('Party Size')
plt.ylabel('Average Tip Amount')
plt.show()

# 4.Correlation between tip amount and total bill amount:
plt.scatter(df['total_bill'], df['tip'])
plt.xlabel('Total Bill Amount')
plt.ylabel('Tip Amount')
plt.show()


# 5.plt.scatter(df['total_bill'], df['tip'])
plt.bar(df['total_bill'], df['tip'])
plt.xlabel('Total Bill Amount')
plt.ylabel('Tip Amount')
plt.show()

# 6.Variation of tip percentage across different days of the week
```

```
sns.boxplot(x='day', y='tip_percentage', data=df)
plt.xlabel('Day of the Week')
plt.ylabel('Tip Percentage')
plt.show()

# 7.Distribution of tip percentages for different party sizes:
sns.boxplot(x='size', y='tip_percentage', data=df)
plt.xlabel('Party Size')
plt.ylabel('Tip Percentage')
plt.show()


# 8.Correlation between tip percentage and total bill amount:
plt.scatter(df['total_bill'], df['tip_percentage'])
plt.xlabel('Total Bill Amount')
plt.ylabel('Tip Percentage')
plt.show()

# 9.Variation of tip amount between smokers and non-smokers:
sns.boxplot(x='smoker', y='tip', data=df)
plt.xlabel('Smoker')
plt.ylabel('Tip Amount')
plt.show()
```

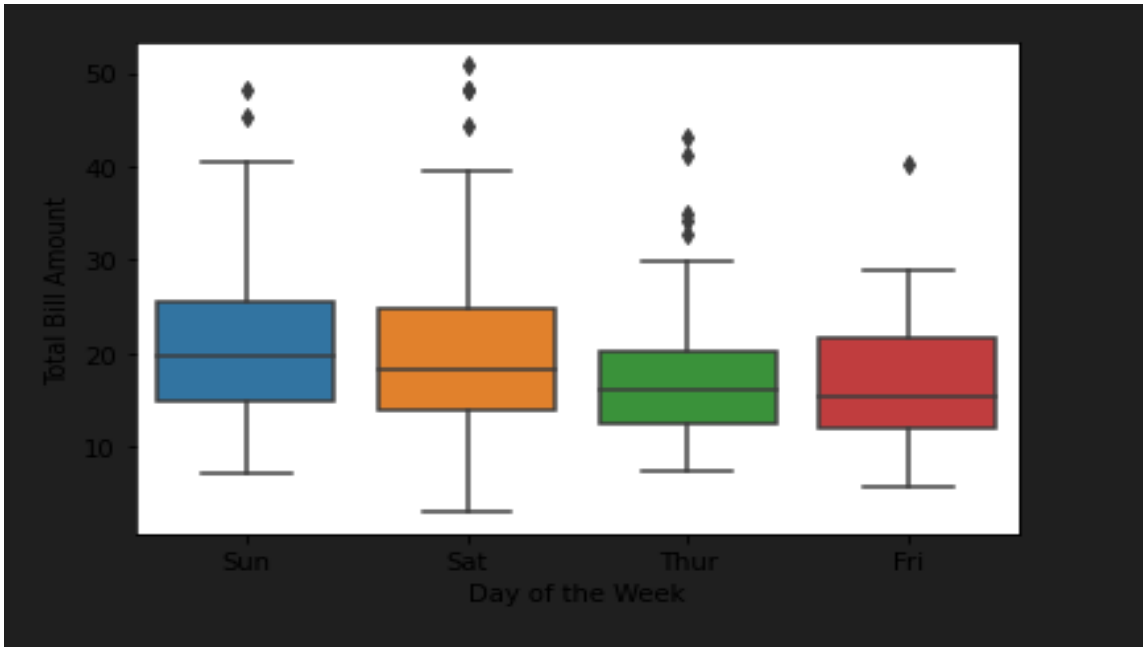
```
# 10.Average tip amount for lunch and dinner
meal_type_avg_tip = df.groupby('time')['tip'].mean()
meal_type_avg_tip.plot(kind='bar')
plt.xlabel('Meal Type')
plt.ylabel('Average Tip Amount')
plt.show()
```

Output :

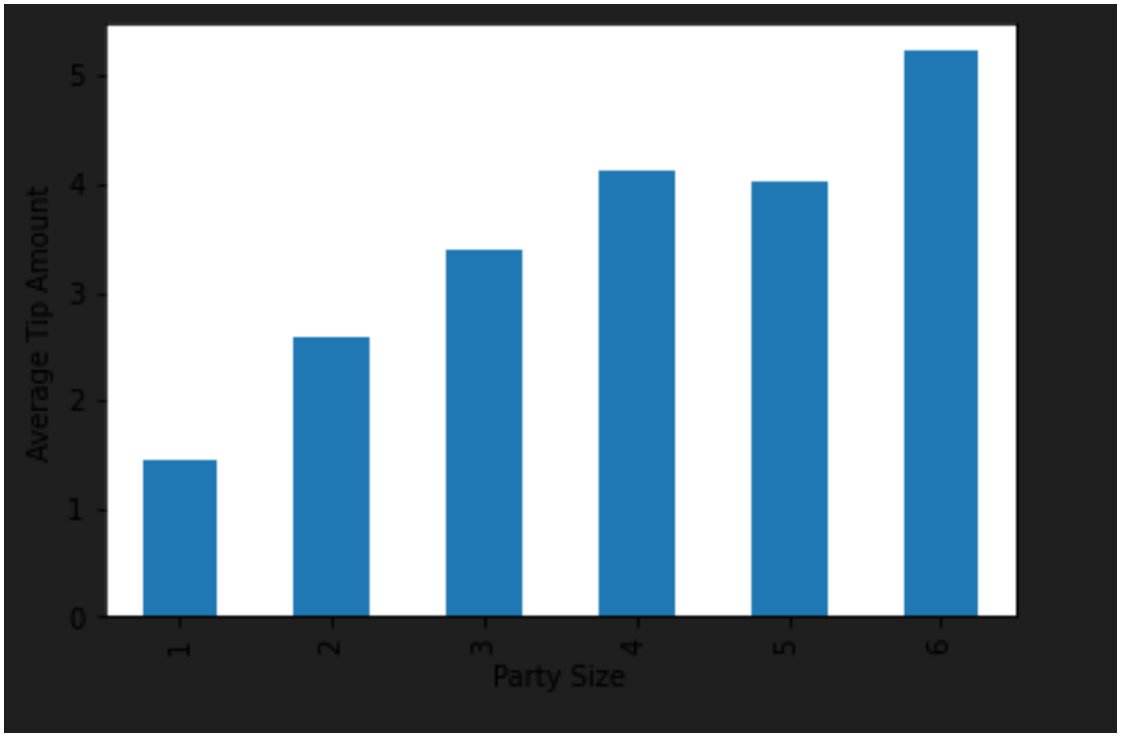
1.


Frequency
Tip Amount
0
10
20
30
40
50
2
4
6
8
10

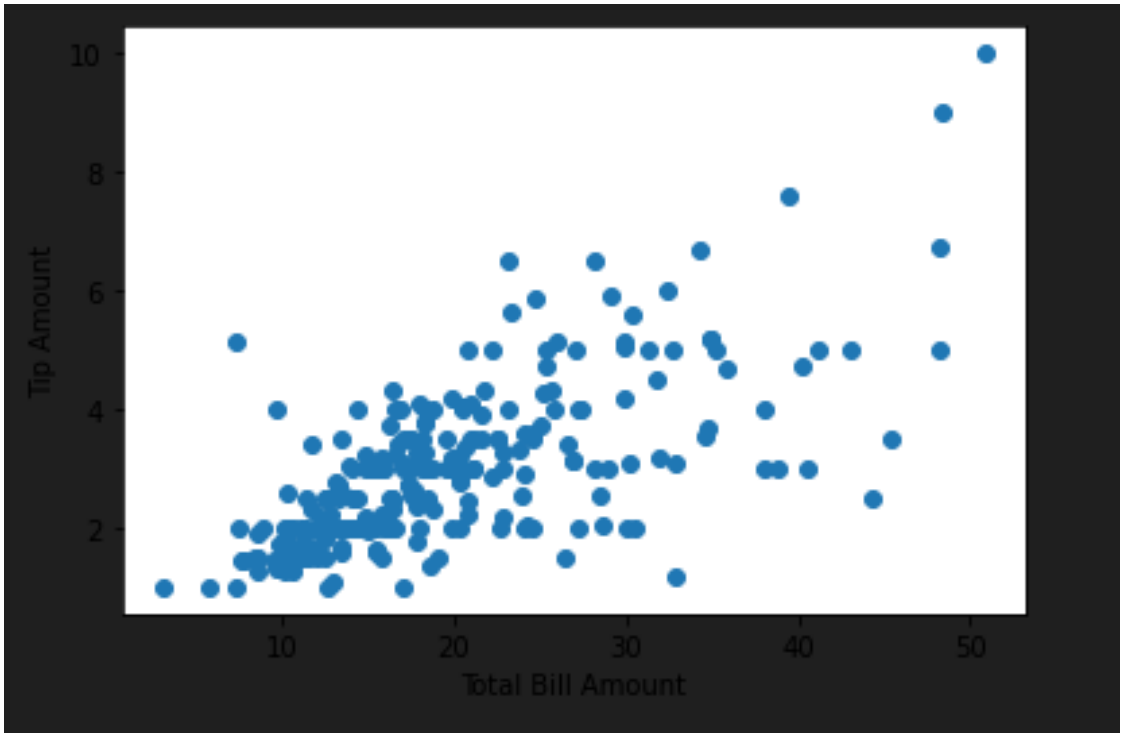
2.


Total Bill Amount
Day of the Week
10
20
30
40
50
Sun
Sat
Thur
Fri

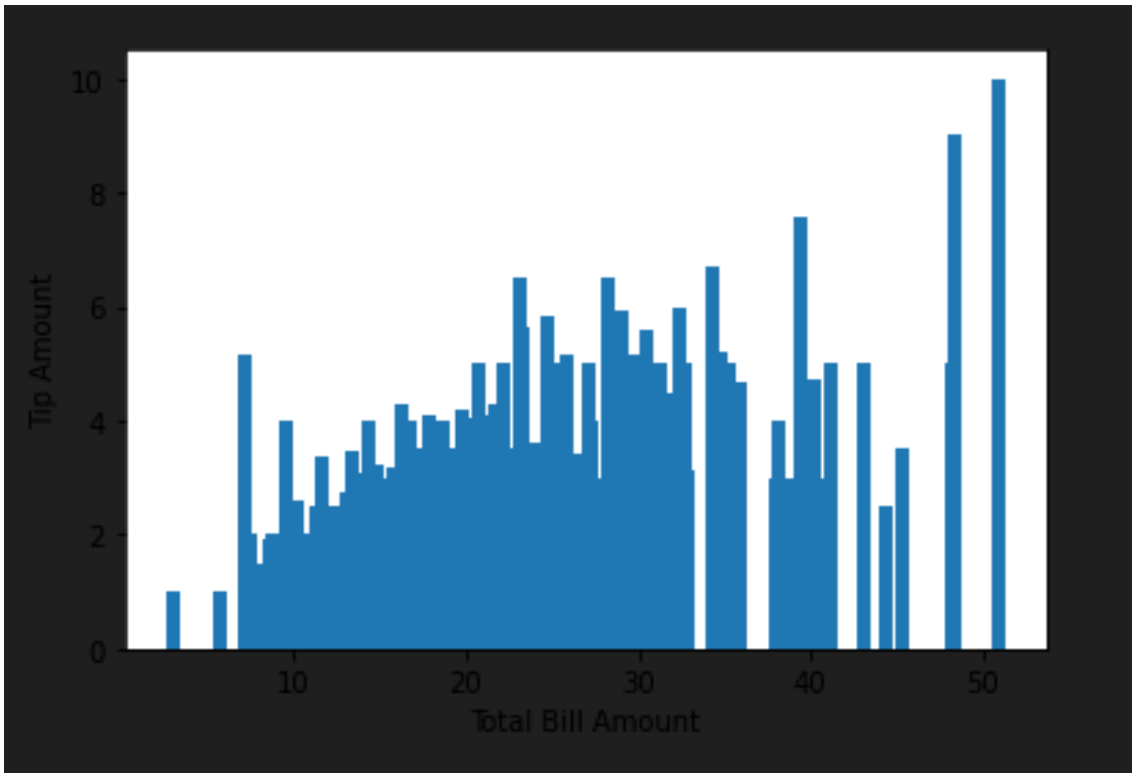
3.


Average Tip Amount
0
1
2
3
4
5
1
2
3
4
5
6
Party Size

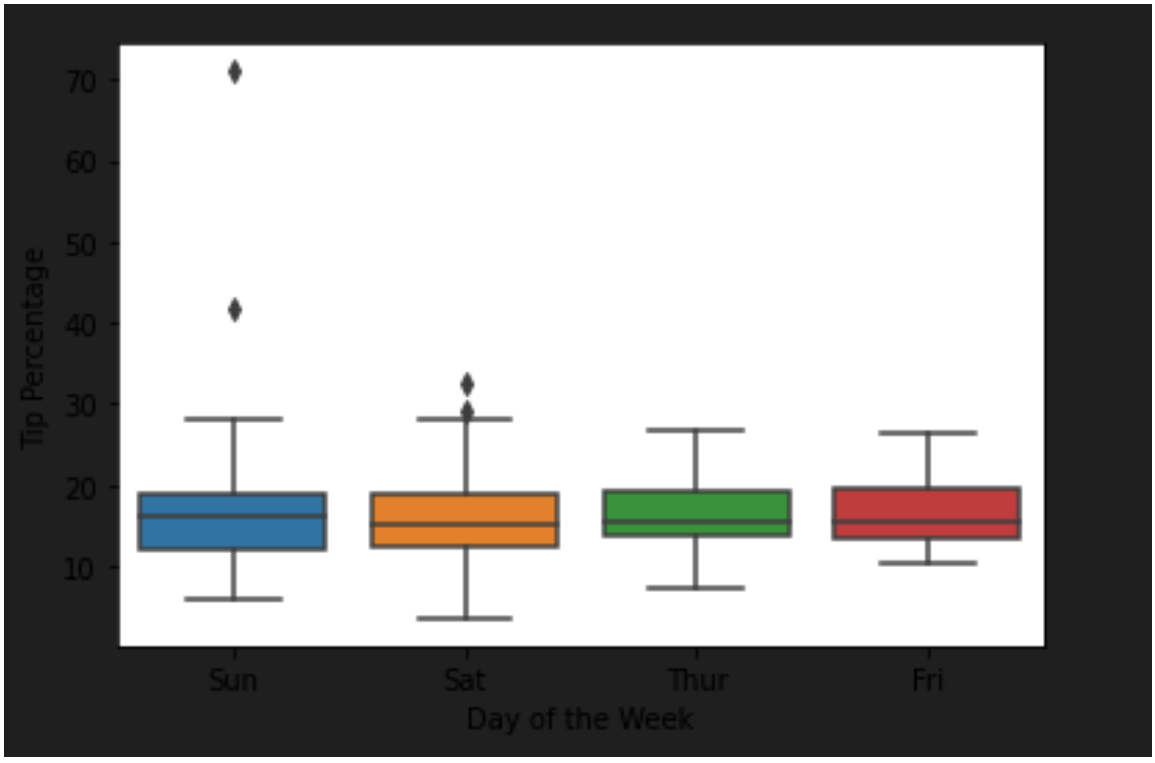
4.


Tip Amount
2
4
6
8
10
10
20
30
40
50
Total Bill Amount

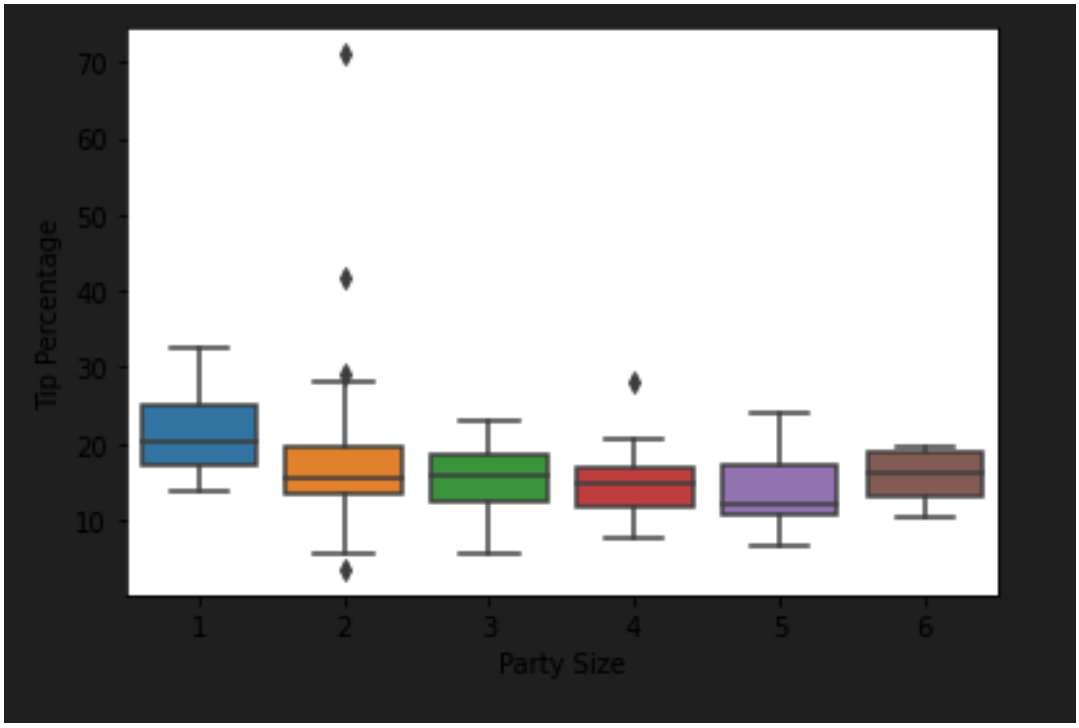
5.


Tip Amount
Total Bill Amount
0
2
4
6
8
10
10
20
30
40
50

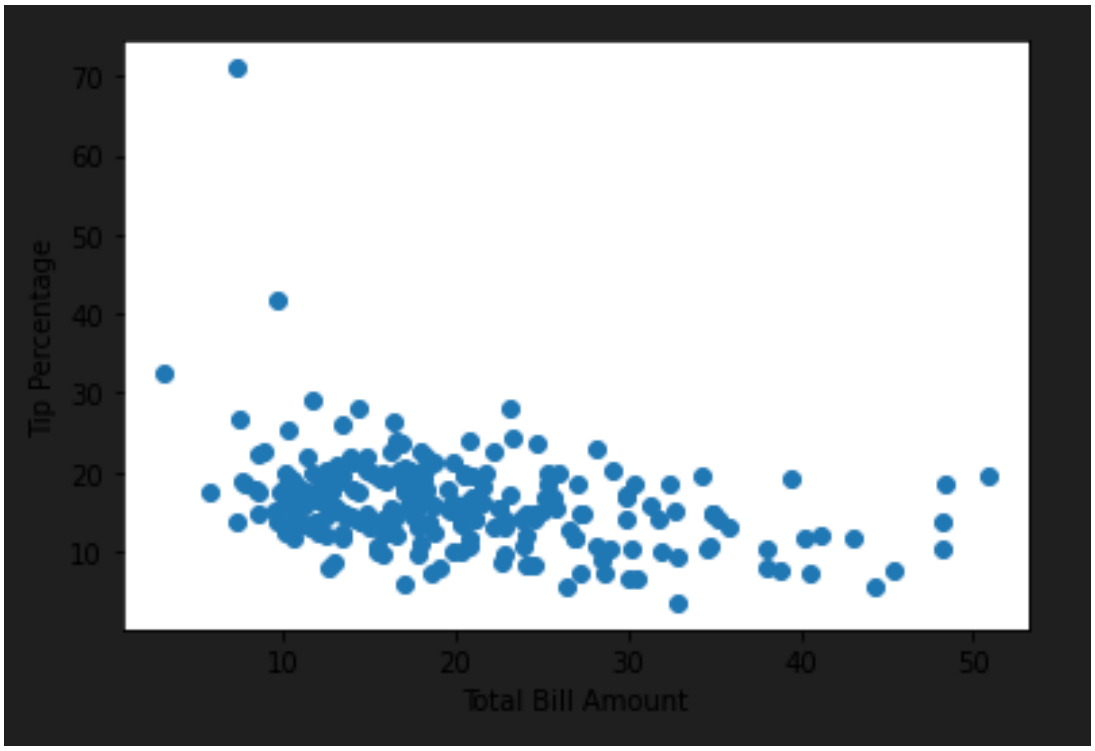
6.


Tip Percentage
Day of the Week
10
20
30
40
50
60
70
Sun
Sat
Thur
Fri

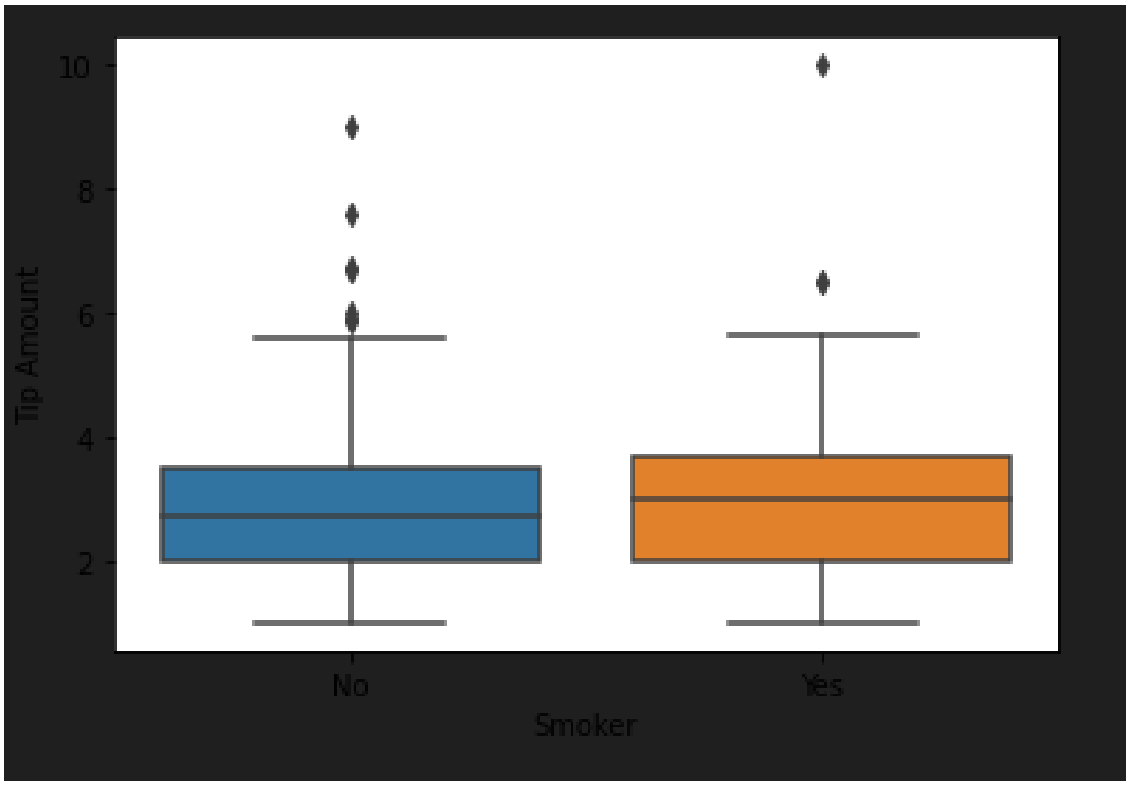
7.


Tip Percentage
70
60
50
40
30
20
10
1
2
3
4
5
6
Party Size

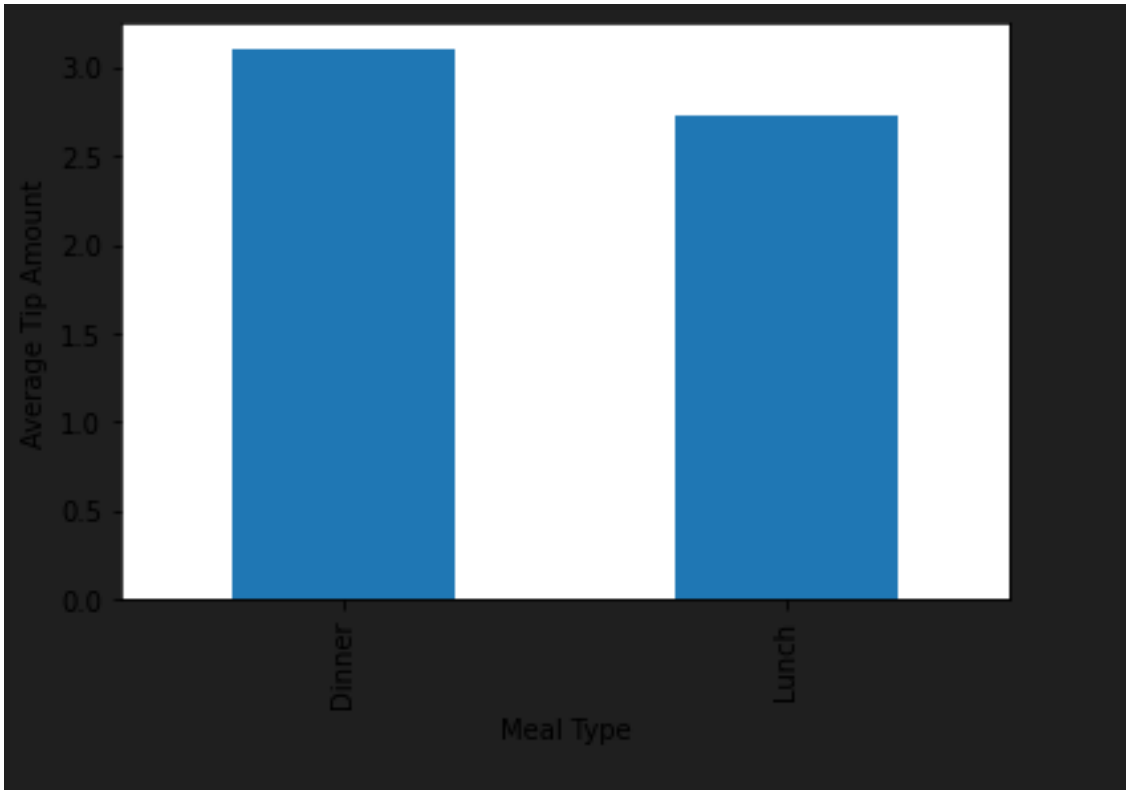
8.


Tip Percentage
70
60
50
40
30
20
10
10
20
30
40
50
Total Bill Amount

9.


10
8
6
4
2
Tip Amount
No
Yes
Smoker

10.


3.0
2.5
2.0
1.5
1.0
0.5
0.0
Average Tip Amount
Dinner
Lunch
Meal Type