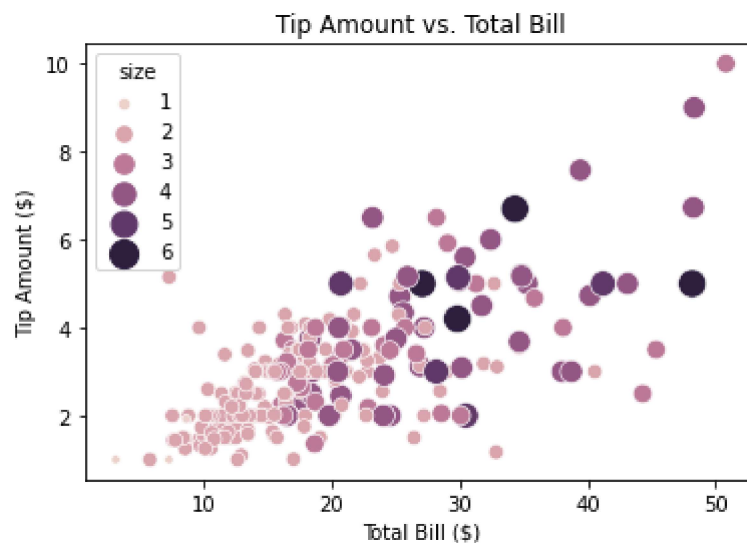


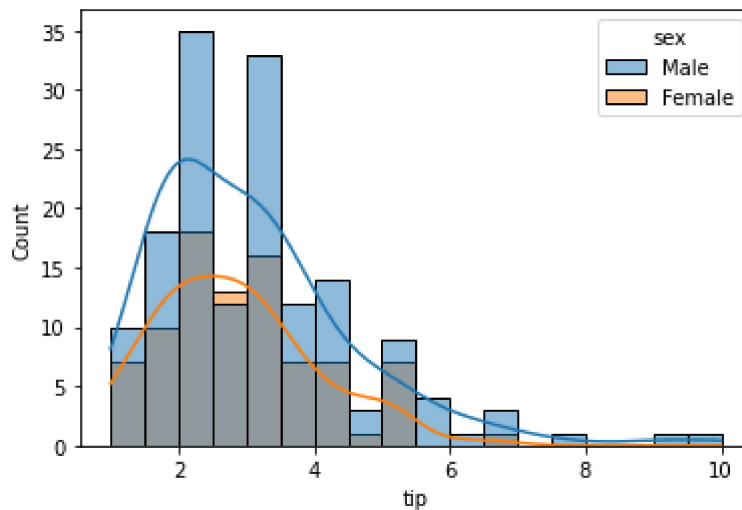
```
In [4]: #Harini Rajarathinam  
#Exploring Tips Data: Visualizing Patterns and Drawing Insights
```

```
In [2]: # Import necessary Libraries  
import seaborn as sns  
import matplotlib.pyplot as plt  
  
# Load the tips dataset  
tips = sns.load_dataset('tips')  
  
#Analysis 1  
# Create a scatter plot of total bill vs. tip, with point size representing party size  
sns.scatterplot(x='total_bill', y='tip', data=tips, hue='size', size='size', s=100)  
  
# Set the title and axis labels  
plt.title('Tip Amount vs. Total Bill')  
plt.xlabel('Total Bill ($)')  
plt.ylabel('Tip Amount ($)')  
  
# Display the plot  
plt.show()
```



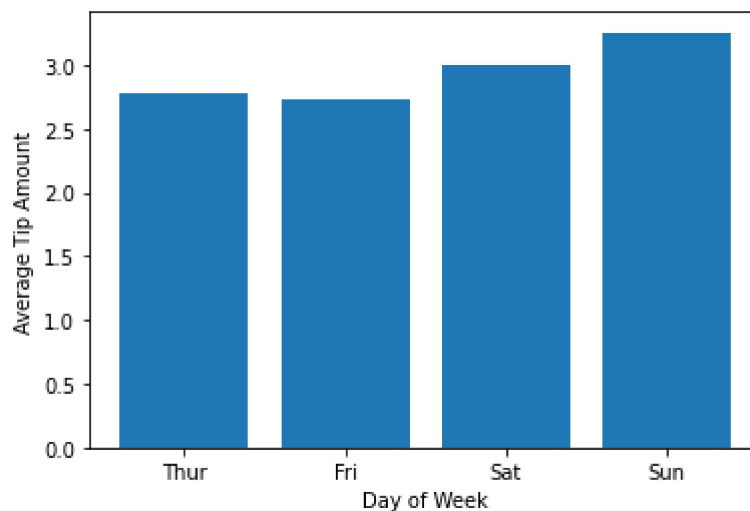
```
In [3]: #Analysis 2
#Distribution of tips by sex: plot the distribution of tips for males and fema
sns.histplot(data=tips, x='tip', hue='sex', kde=True)
```

Out[3]: <AxesSubplot:xlabel='tip', ylabel='Count'>



```
In [6]: #Analysis 3
#Average tip by day of week: calculate the average tip for each day of the week
avg_tips_by_day = tips.groupby('day')['tip'].mean()
plt.bar(avg_tips_by_day.index, avg_tips_by_day.values)
plt.xlabel('Day of Week')
plt.ylabel('Average Tip Amount')
```

Out[6]: Text(0, 0.5, 'Average Tip Amount')

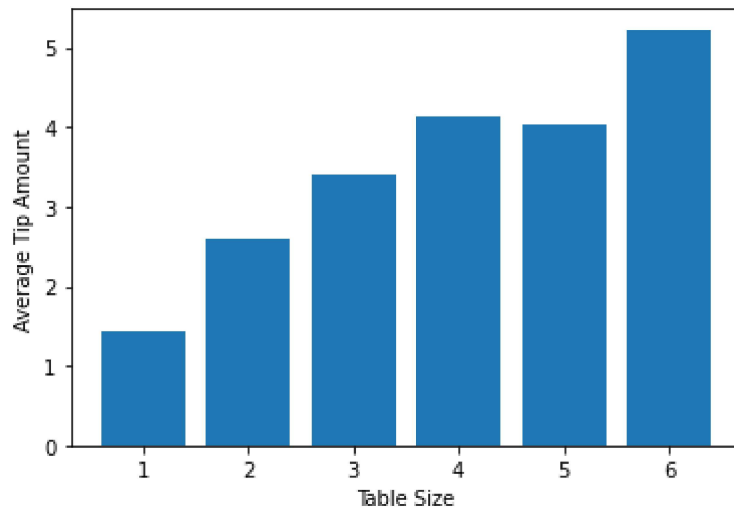


```
In [7]: #Analysis 4
#Correlation between total bill and tip amount: calculate the correlation between
import numpy as np
corr = np.corrcoef(tips['total_bill'], tips['tip'])[0, 1]
print(f"Correlation between total bill and tip amount: {corr}")
```

Correlation between total bill and tip amount: 0.6757341092113641

```
In [8]: #Analysis 5
#Average tip by table size: calculate the average tip for tables of different sizes
avg_tips_by_size = tips.groupby('size')['tip'].mean()
plt.bar(avg_tips_by_size.index, avg_tips_by_size.values)
plt.xlabel('Table Size')
plt.ylabel('Average Tip Amount')
```

Out[8]: Text(0, 0.5, 'Average Tip Amount')



```
In [9]: #Analysis 6  
#Relationship between smoker status and tip amount: plot the relationship between  
sns.stripplot(data=tips, x='smoker', y='tip')
```

Out[9]: <AxesSubplot:xlabel='smoker', ylabel='tip'>

