Seaborn

Seaborn is a python data visaualization library based on Matplotlib that provides a high level interface for drawing attractive nad informative statistical graphics

In [1]:
```
#!pip install --upgrade seaborn
```

In [2]:
```
import warnings
warnings.filterwarnings("ignore", category=FutureWarning)
```

In [3]:
```
import seaborn as sns
```

In [4]:
```
sns.get_dataset_names()
```

Out[4]:
```
['anagrams',
 'anscombe',
 'attention',
 'brain_networks',
 'car_crashes',
 'diamonds',
 'dots',
 'dowjones',
 'exercise',
 'flights',
 'fmri',
 'geyser',
 'glue',
 'healthexp',
 'iris',
 'mpg',
 'penguins',
 'planets',
 'seaice',
 'taxis',
 'tips',
 'titanic']
```

In [5]:
```
tips=sns.load_dataset("tips")
tips.head()
```

Out[5]:

	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

In [6]:
```
titanic=sns.load_dataset("titanic")
titanic.head()
```

Out[6]:

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_m
0	0	3	male	22.0	1	0	7.2500	S	Third	man	T
1	1	1	female	38.0	1	0	71.2833	C	First	woman	Fa
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	Fa
3	1	1	female	35.0	1	0	53.1000	S	First	woman	Fa
4	0	3	male	35.0	0	0	8.0500	S	Third	man	T

In [7]:
```
tips
```

Out[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
...	...	...	...	...	...	...	...
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

244 rows × 7 columns

In [8]:
```
sns.set_theme(style="darkgrid")
```

Store default given data set(Ex:tips) to our system

In [9]:
```
#tips.to_csv("tips_dataset.csv",index=False)
import pandas as pd
```

In [10]:
```
import os
os.getcwd() # get current working directory
```

Out[10]:
```
'C:\\Users\\world\\Desktop\\FullStackDSandAI\\Day24-11July2025\\seaborn-workshop'
```

importing matplotlib

In [11]:
```
import matplotlib.pyplot as plt
```

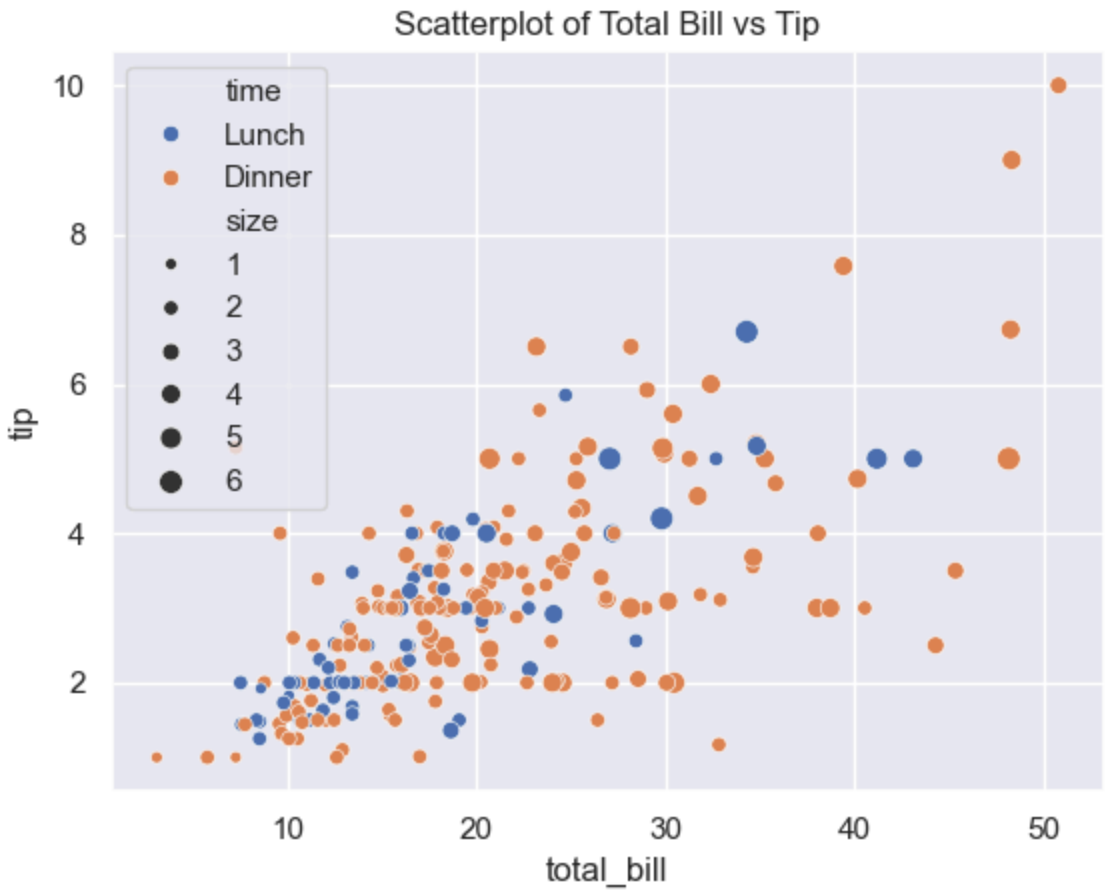
In [12]:
```
plt.figure(figsize=(8,6))
```

Out[12]:
```
<Figure size 800x600 with 0 Axes>
```

```
<Figure size 800x600 with 0 Axes>
```

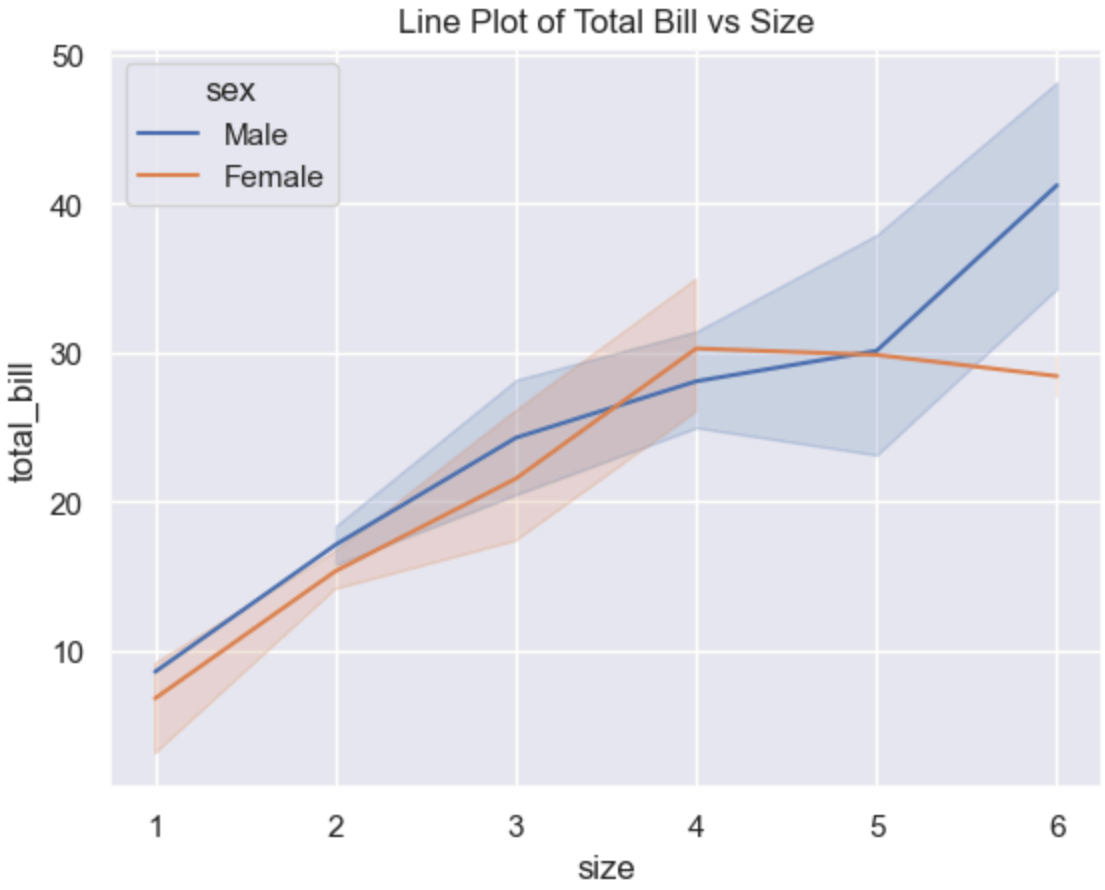
1. Scatter plot

In [13]:
```
sns.scatterplot(data=tips,x="total_bill",y="tip", hue="time", size="size", palette=
plt.title("Scatterplot of Total Bill vs Tip")
plt.show()
```

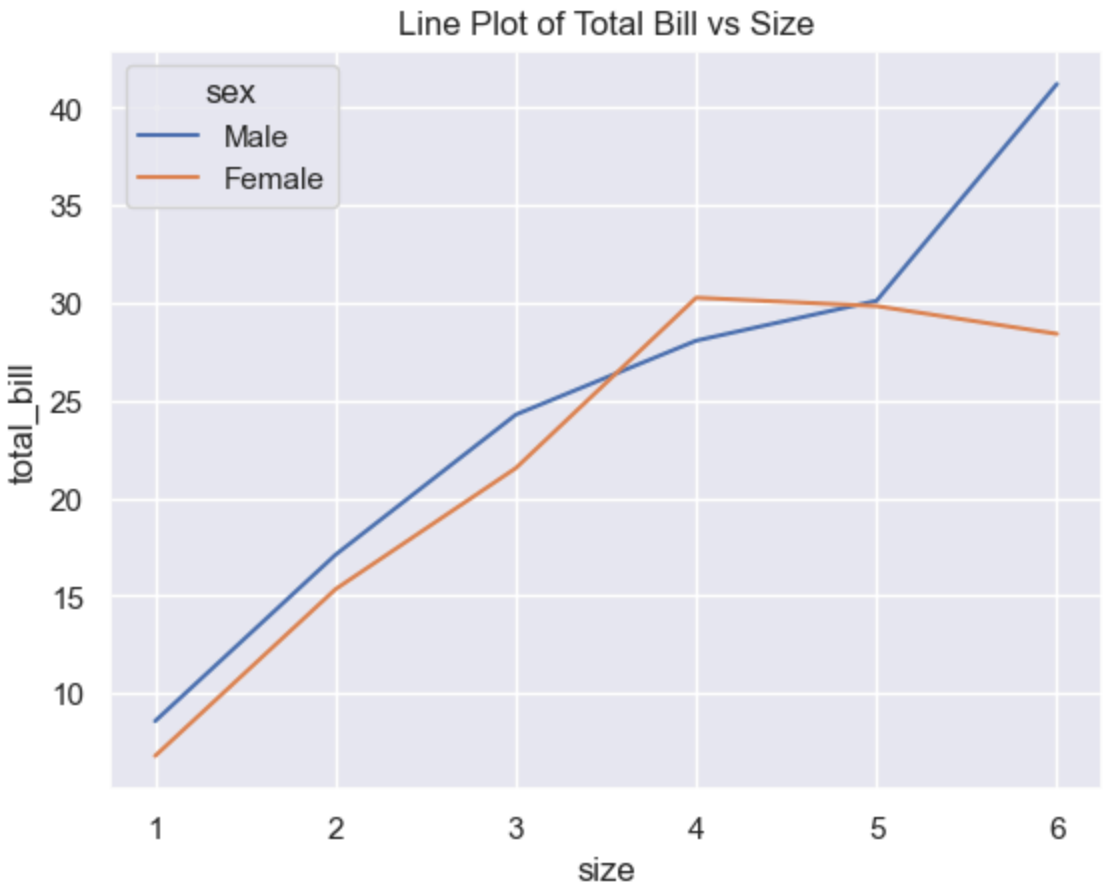


2. Line Plot

In [14]:
```
sns.lineplot(data=tips, x='size',y='total_bill', hue='sex', markers='o')
plt.title("Line Plot of Total Bill vs Size")
plt.show()
```

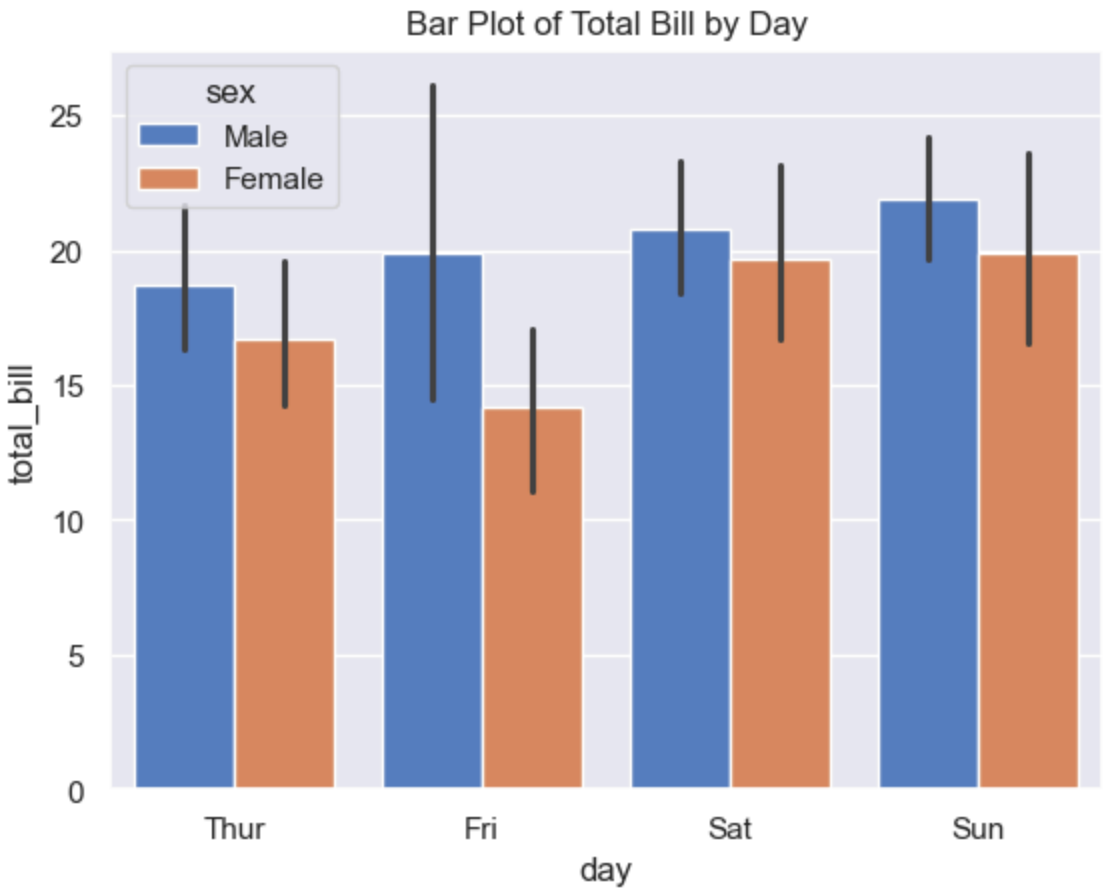


In [15]:
```
sns.lineplot(data=tips, x='size',y='total_bill', hue='sex', ci=None, markers='o')
plt.title("Line Plot of Total Bill vs Size")
plt.show()
```



3. Bar Plot

In [16]:
```
sns.barplot(data=tips,x='day', y='total_bill', hue='sex', palette='muted')
plt.title("Bar Plot of Total Bill by Day")
plt.show()
```

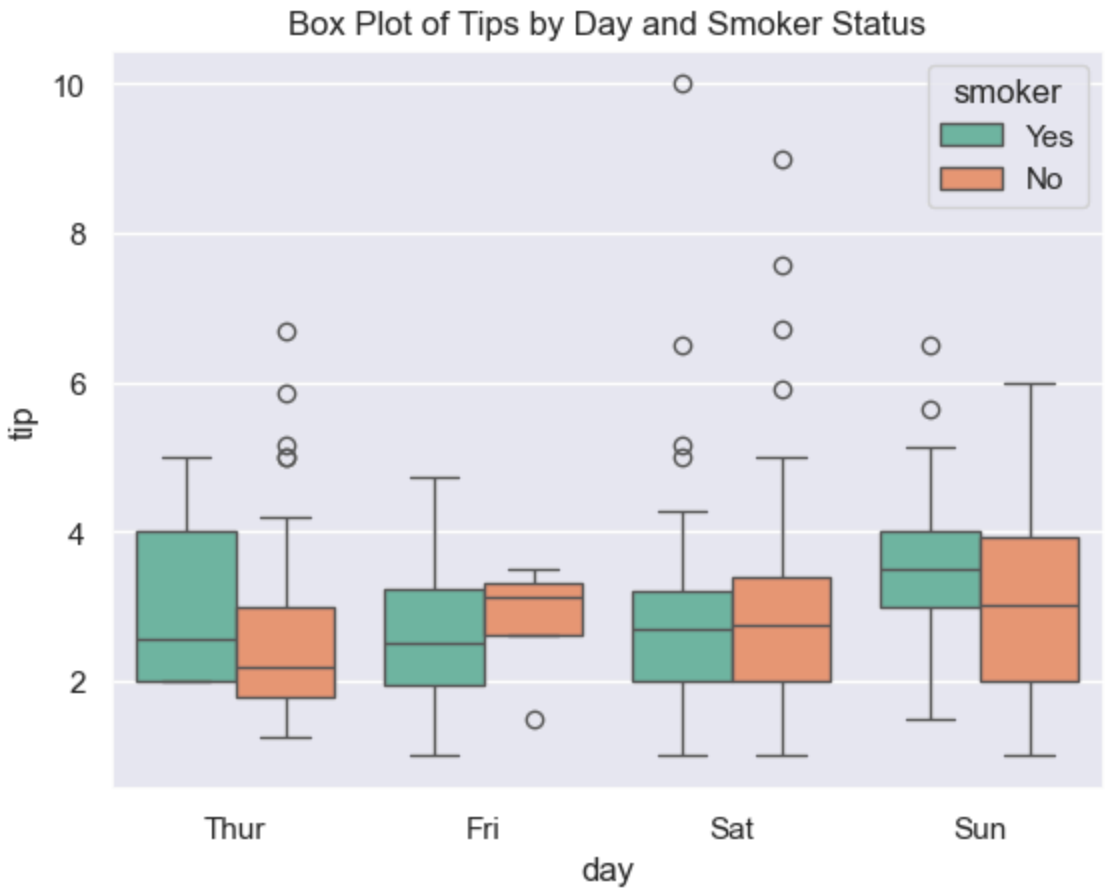


In [17]:
```
tips.columns
```

Out[17]:
```
Index(['total_bill', 'tip', 'sex', 'smoker', 'day', 'time', 'size'], dtype='objec
t')
```

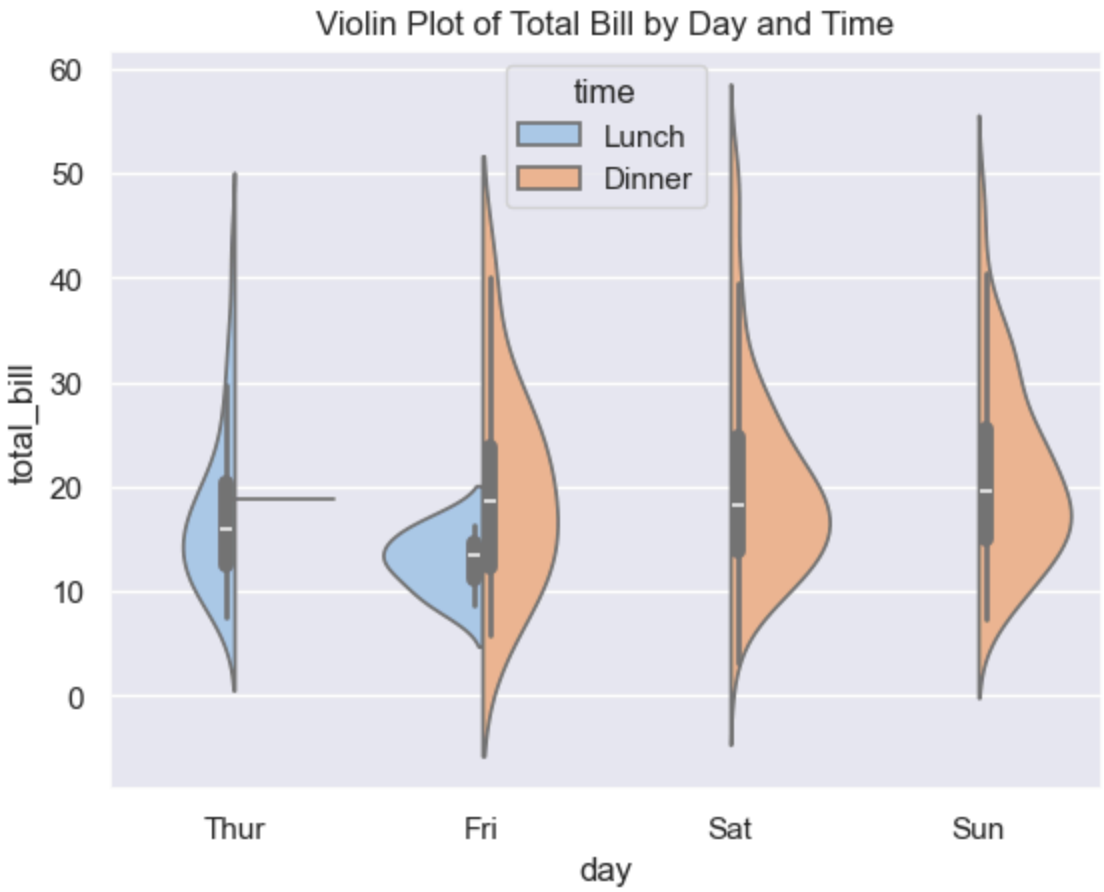
4. Box Plot

In [18]:
```
sns.boxplot(data=tips, x='day', y='tip', hue='smoker', palette='Set2')
plt.title("Box Plot of Tips by Day and Smoker Status")
plt.show()
```



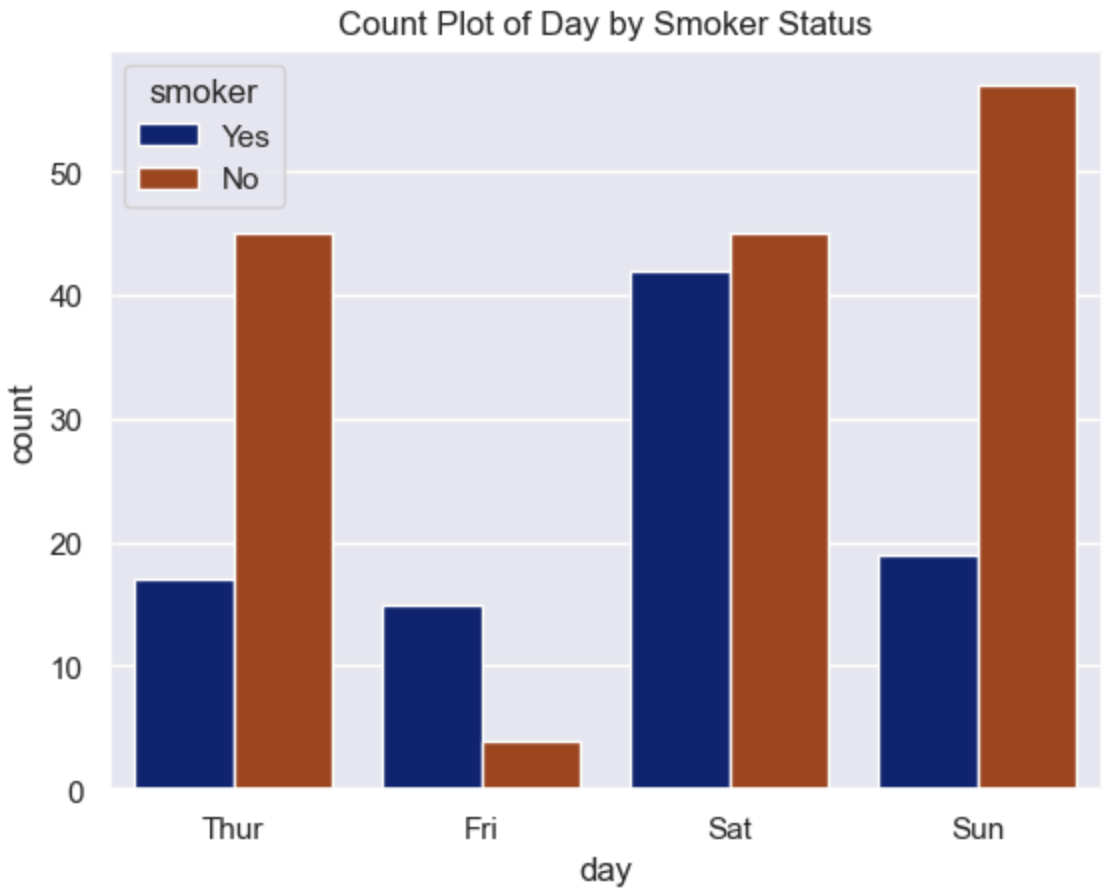
5. Violin Plot

In [19]:
```
sns.violinplot(data=tips, x='day',y='total_bill',hue='time', split=True, palette='p
plt.title("Violin Plot of Total Bill by Day and Time")
plt.show()
```



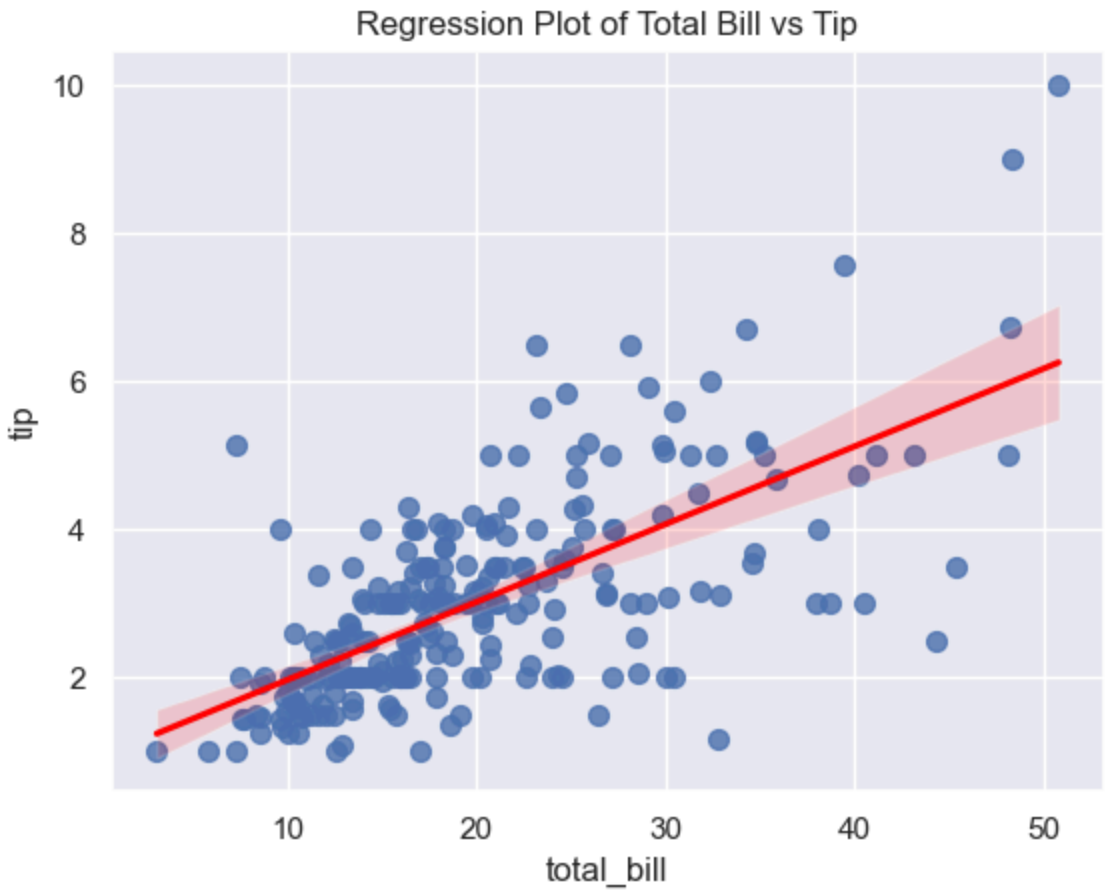
Count Plot

In [20]:
```
sns.countplot(data=tips, x='day', hue='smoker', palette='dark')
plt.title('Count Plot of Day by Smoker Status')
plt.show()
```



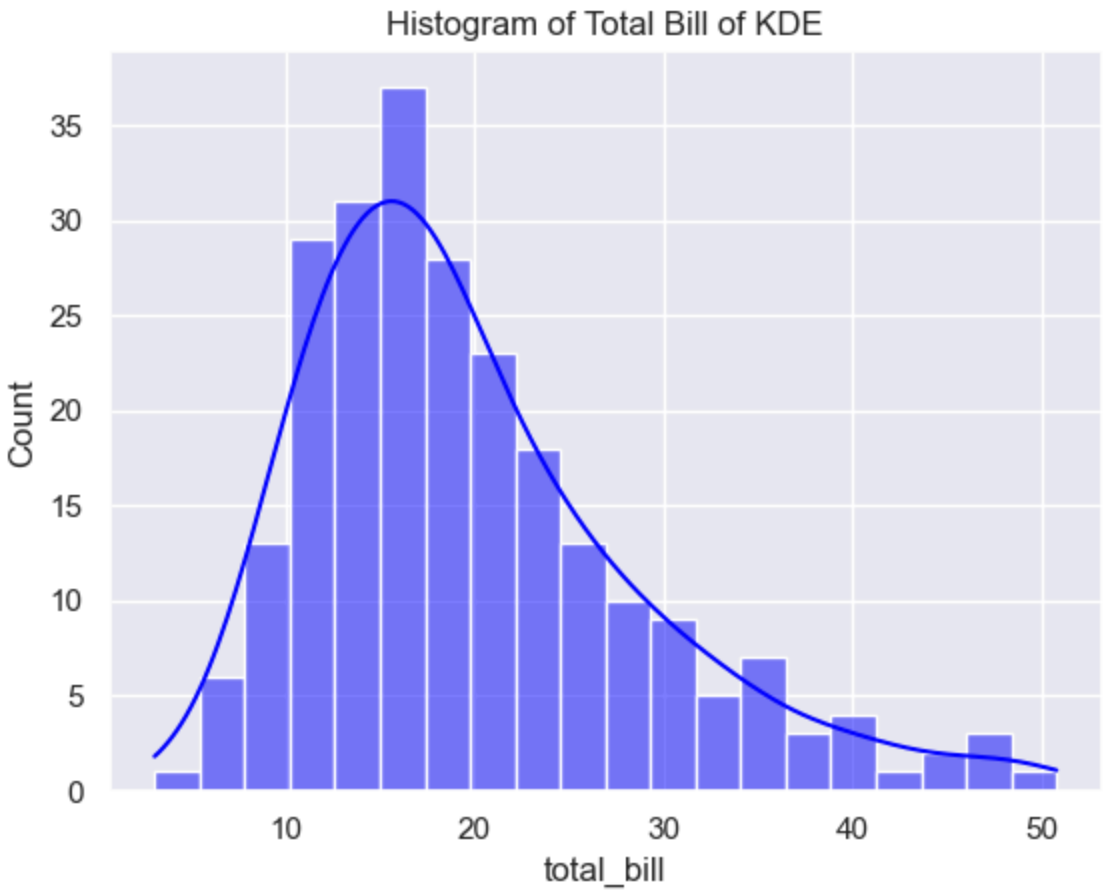
7. Regression plot

In [21]:
```
sns.regplot(data=tips, x='total_bill', y='tip', scatter_kws={'s':50}, line_kws={'co
plt.title('Regression Plot of Total Bill vs Tip')
plt.show()
```



8. Histogram

In [22]:
```
sns.histplot(data=tips, x='total_bill', bins=20, kde=True, color='blue')
plt.title('Histogram of Total Bill of KDE')
plt.show()
```

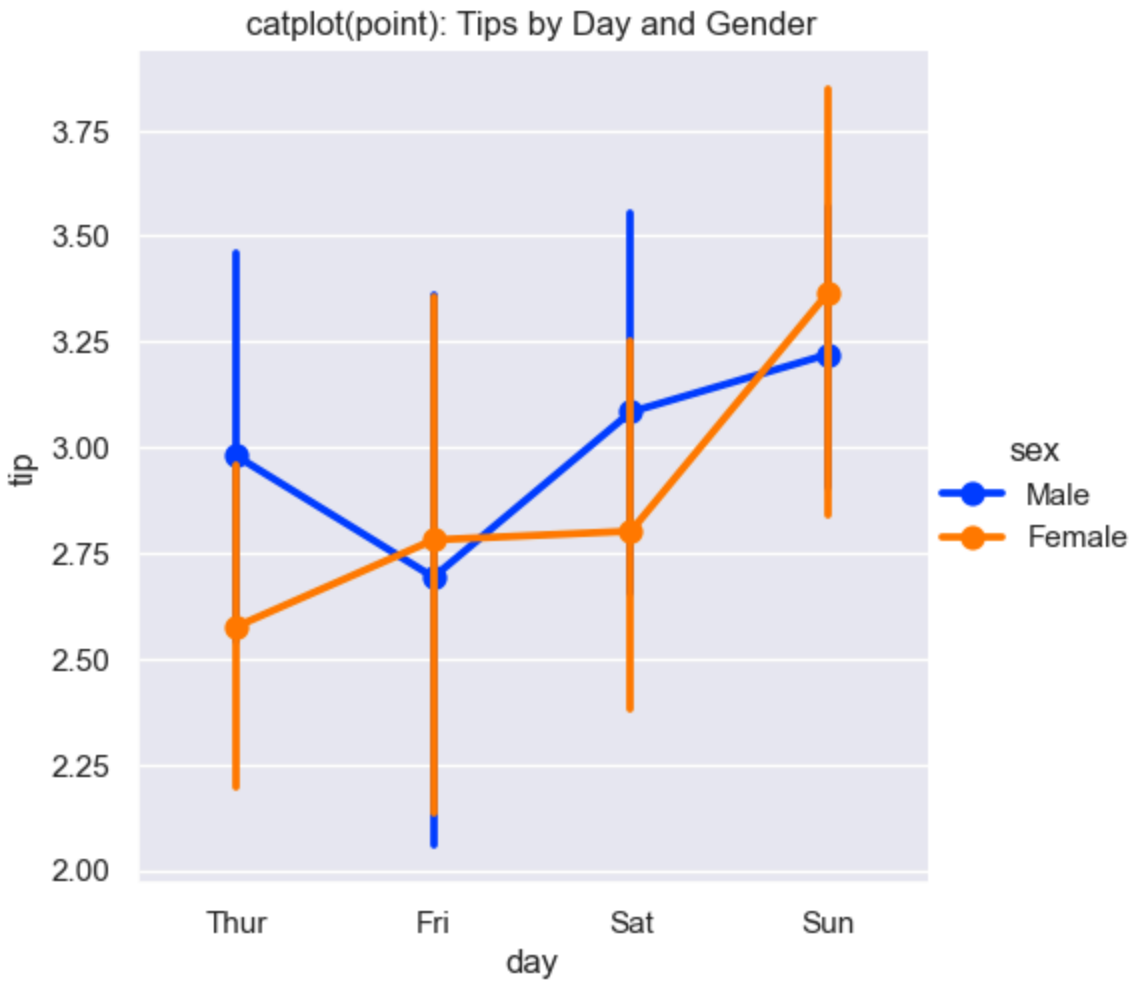


Pair Plot

In [23]:
```
sns.pairplot(tips, hue='sex', vars=["total_bill","tip","size"], palette='husl')
plt.suptitle("Pair Plot: Numeric Variable by gender", y=1.02)
plt.show()
```

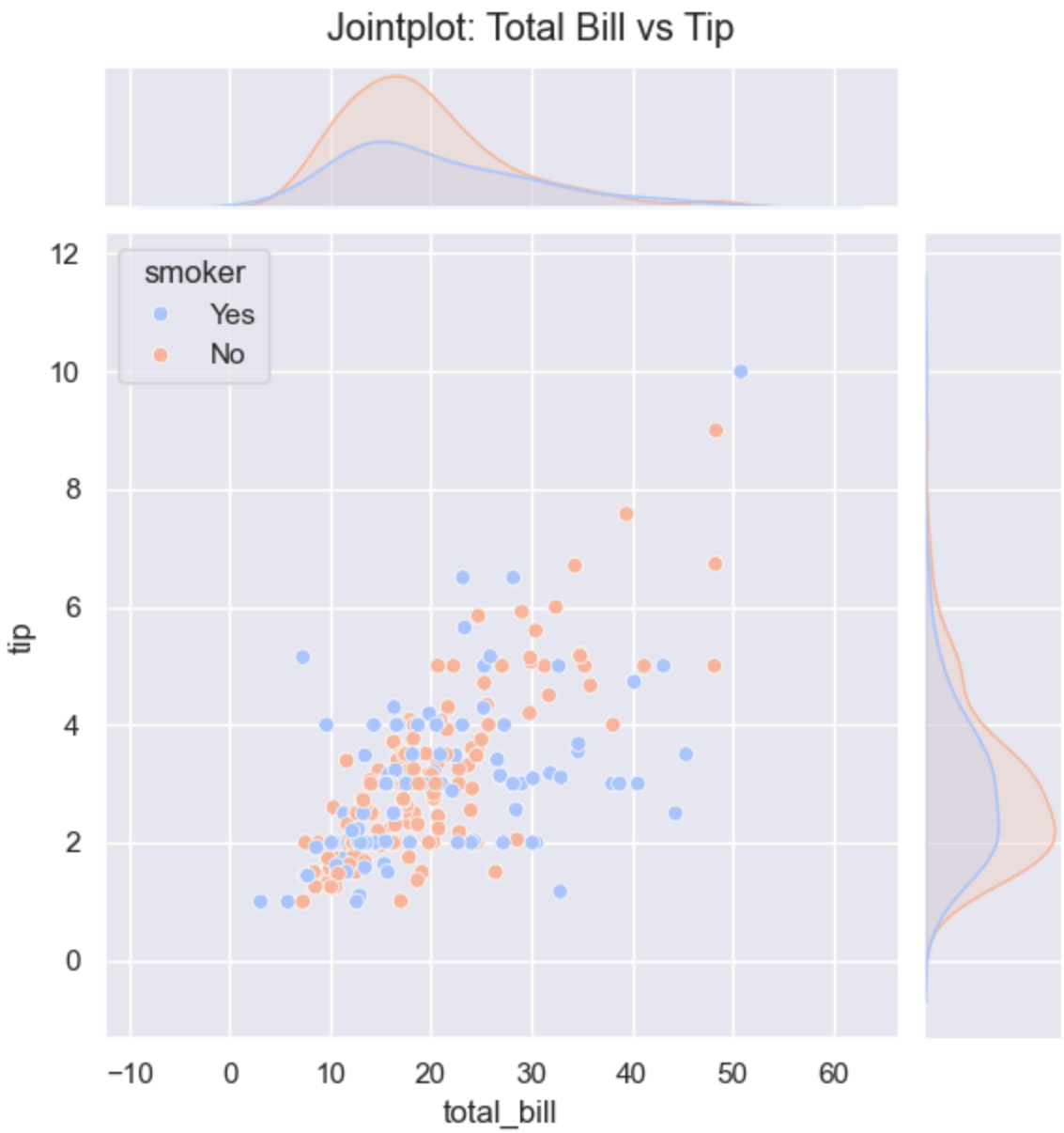
10.catplot(categoral plot)

In [24]:
```
sns.catplot(data=tips, x='day',y='tip',hue='sex',kind='point',palette='bright')
plt.title("catplot(point): Tips by Day and Gender")
plt.show()
```



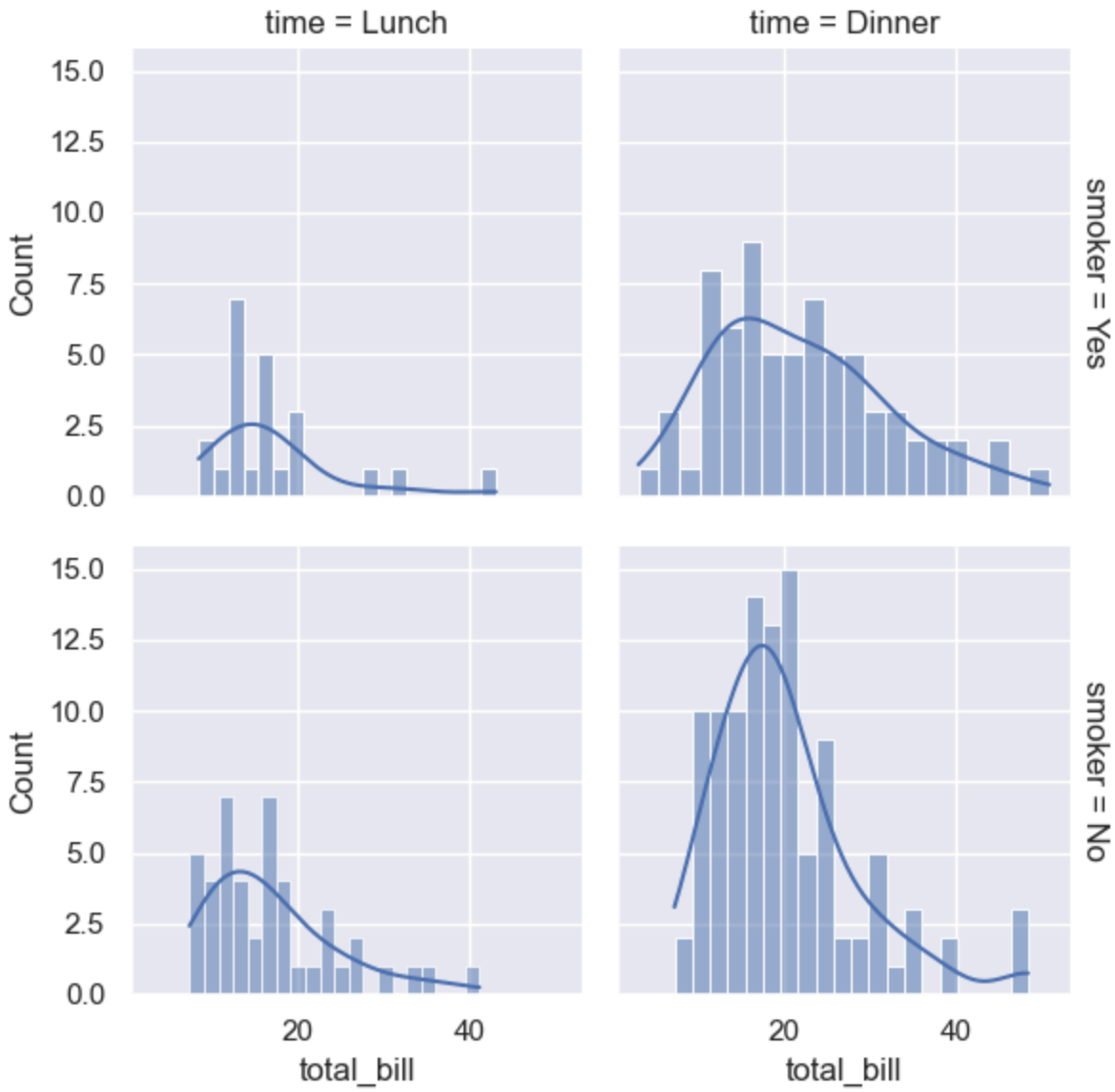
11. joint plot

In [25]:
```
sns.jointplot(data=tips, x='total_bill', y='tip', kind='scatter',hue='smoker', colo
plt.suptitle("Jointplot: Total Bill vs Tip", y=1.02)
plt.show()
```



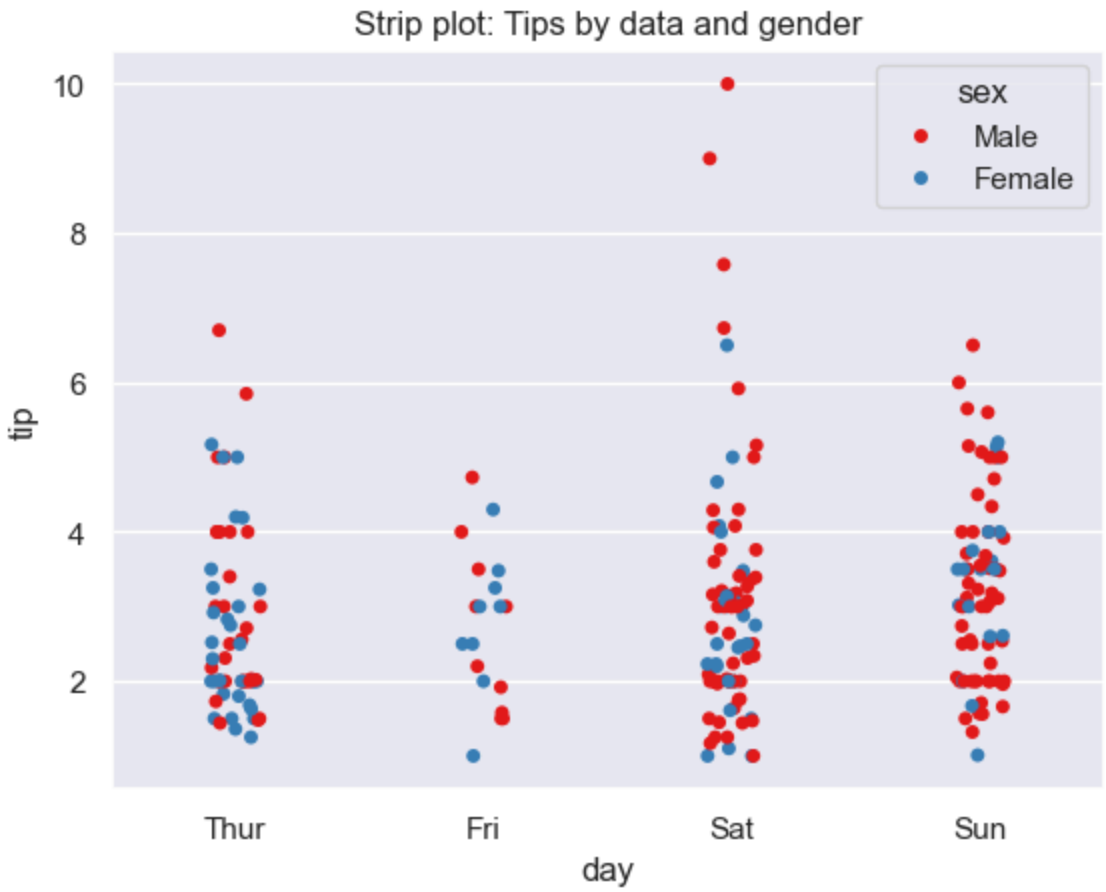
12.facetgrid

In [26]:
```
g=sns.FacetGrid(tips, col='time', row='smoker', margin_titles=True).map(sns.histplo
plt.show(g)
```



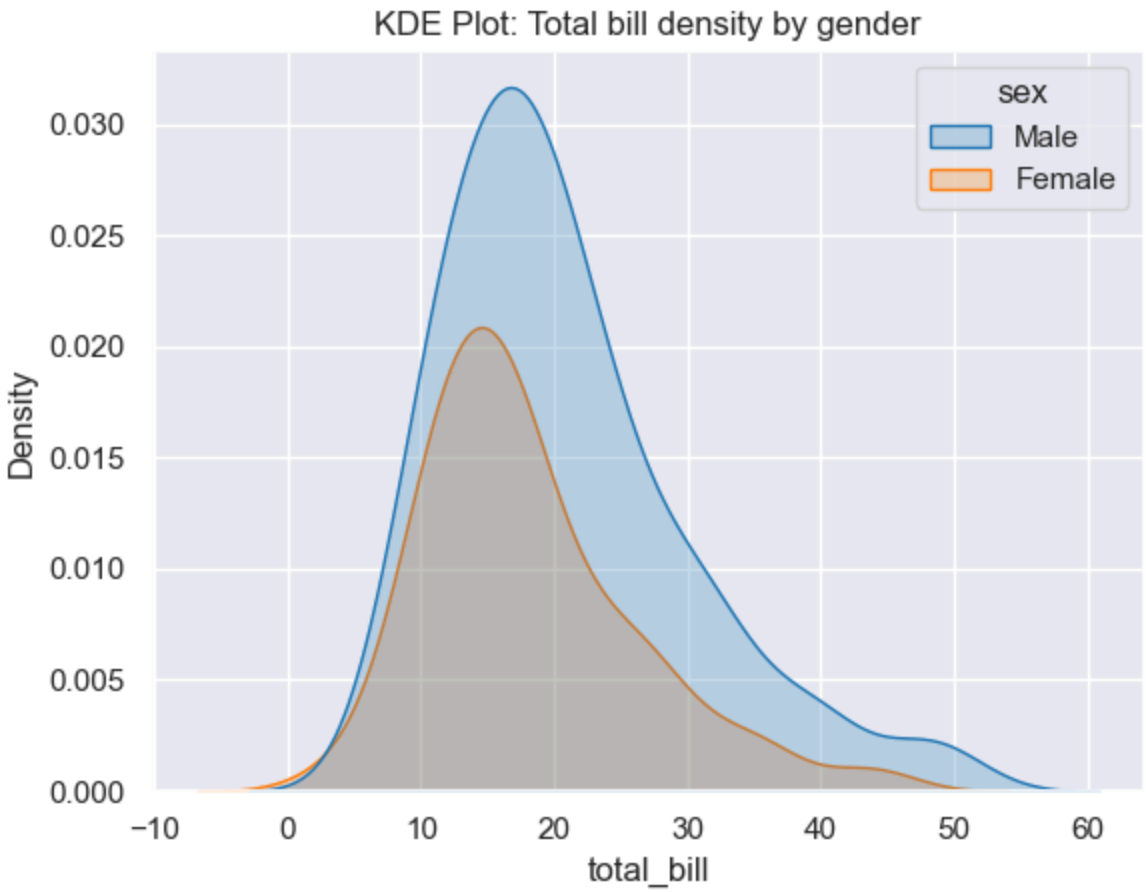
13. Strip plot

In [27]:
```
sns.stripplot(data=tips, x='day',y='tip',hue='sex',jitter=True, palette='Set1')
plt.title("Strip plot: Tips by data and gender")
plt.show()
```



14. KDE Plot

In [28]:
```
sns.kdeplot(data=tips, x='total_bill', hue='sex', fill=True, palette='tab10')
plt.title("KDE Plot: Total bill density by gender")
plt.show()
```


KDE Plot: Total bill density by gender
sex
Male
Female
Density
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−10
0
10
20
30
40
50
60
total_bill

In [ ]: