```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns

x = np.linspace(0,5,11)
y = x
x
```

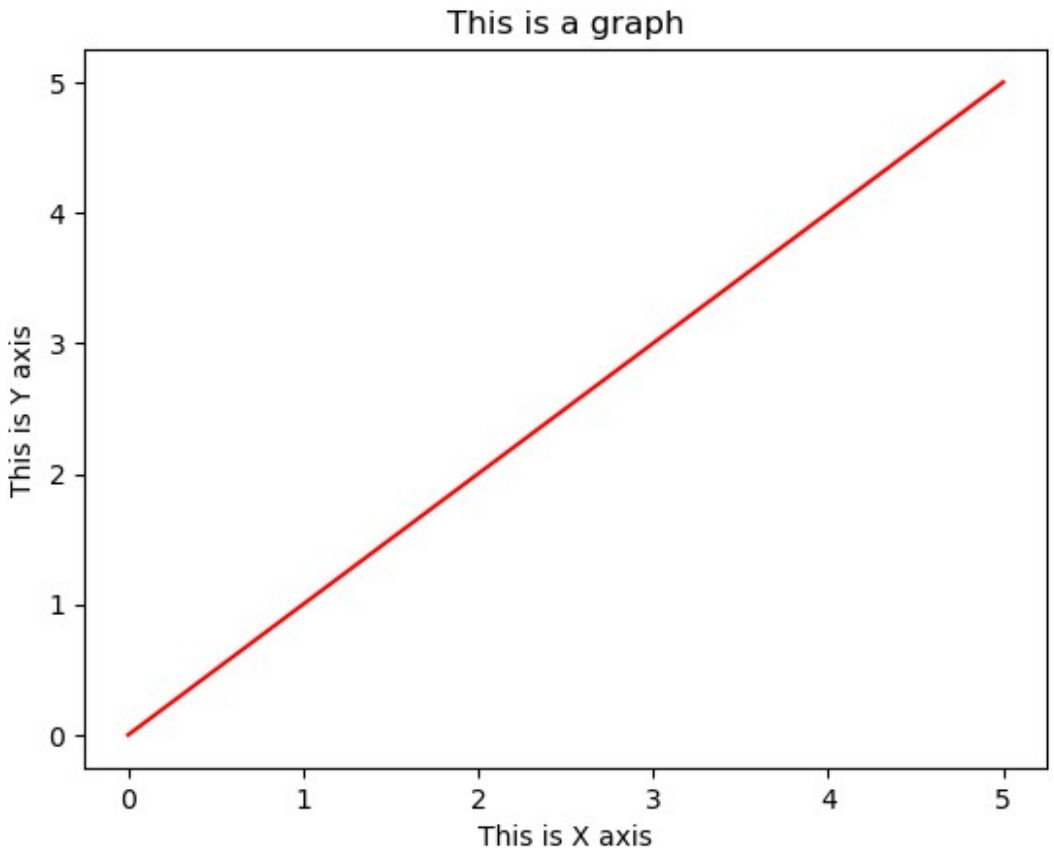
```
array([0. , 0.5, 1. , 1.5, 2. , 2.5, 3. , 3.5, 4. , 4.5, 5. ])
```

```
y
```

```
array([0. , 0.5, 1. , 1.5, 2. , 2.5, 3. , 3.5, 4. , 4.5, 5. ])
```

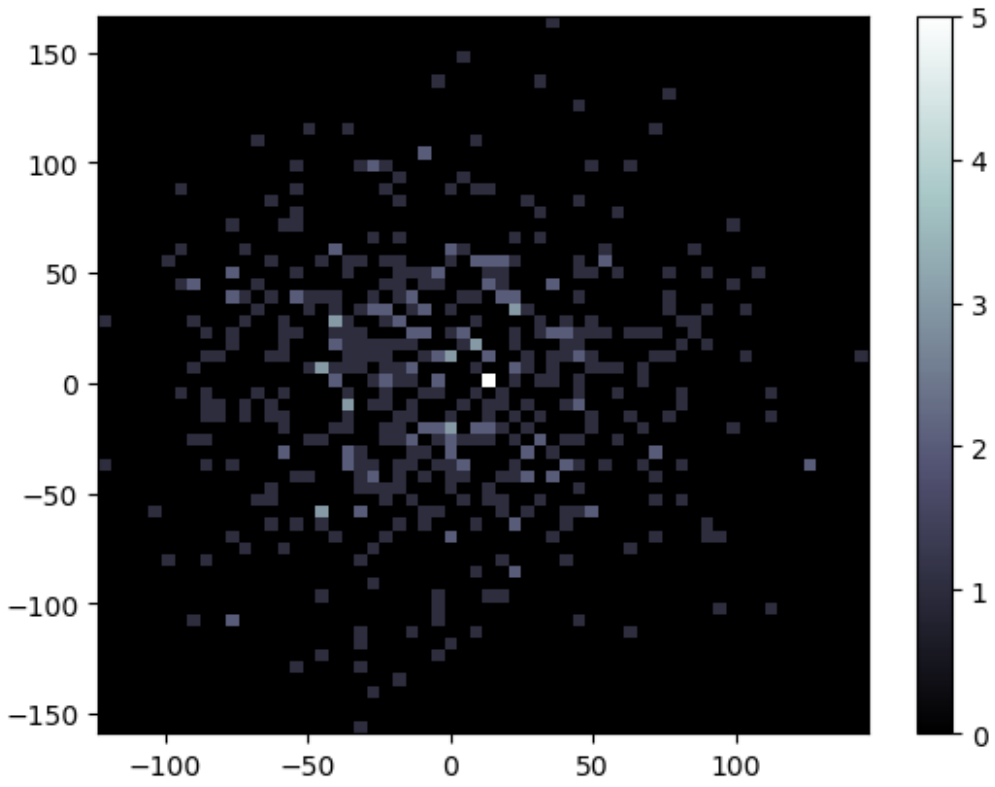
```
plt.plot(x,y,'r')
#plt.plot(x+2,y+3,'g.-')
#plt.xlim(-2,12)
#plt.ylim(-3,4)
plt.xlabel('This is X axis')
plt.ylabel('This is Y axis')
plt.title('This is a graph')
plt.show
```

```
<function matplotlib.pyplot.show(close=None, block=None)>
```




```
a = np.random.normal(0,50,500)
b = np.random.normal(0,50,500)

plt.hist2d(a,b, bins = 60, cmap = 'bone')
plt.colorbar()
```

```
<matplotlib.colorbar.Colorbar at 0x1d006f72ee0>
```



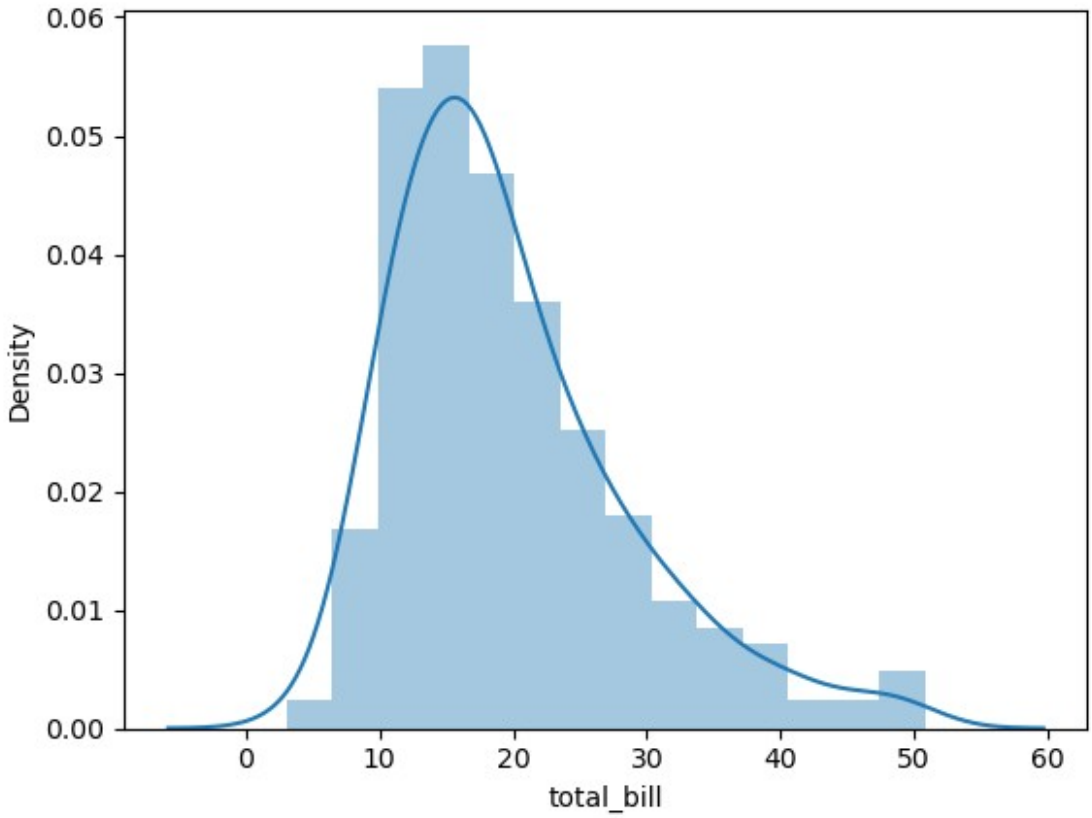

```
tips = sns.load_dataset('tips')
tips.head()
```

	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

Distplot

```
sns.distplot(tips['total_bill'], kde='False')
```

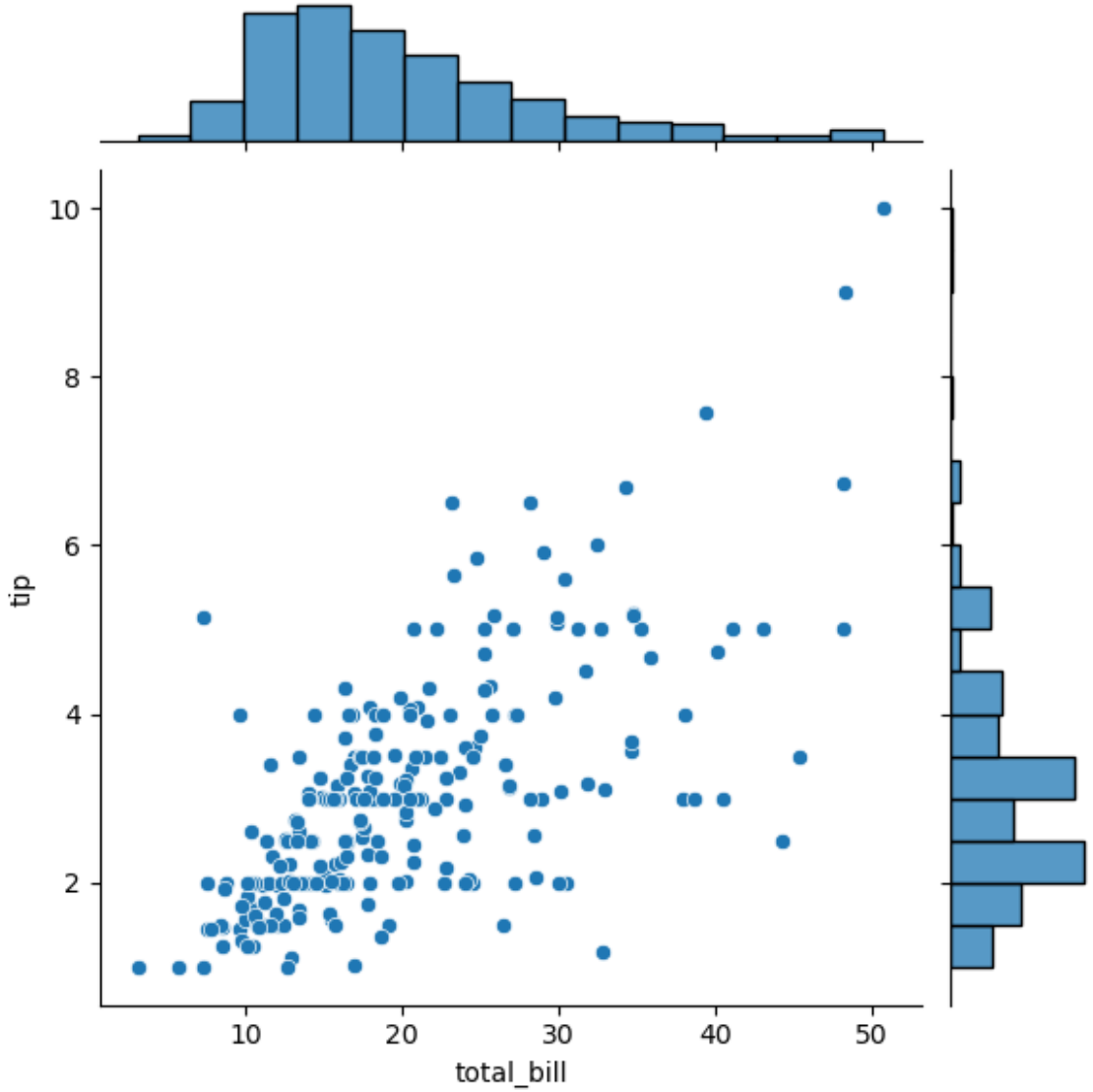
```
C:\Users\DELL\anaconda3\lib\site-packages\seaborn\
distributions.py:2619: FutureWarning: `distplot` is a deprecated
function and will be removed in a future version. Please adapt your
code to use either `displot` (a figure-level function with similar
flexibility) or `histplot` (an axes-level function for histograms).
  warnings.warn(msg, FutureWarning)

<AxesSubplot:xlabel='total_bill', ylabel='Density'>
```



Jointplot

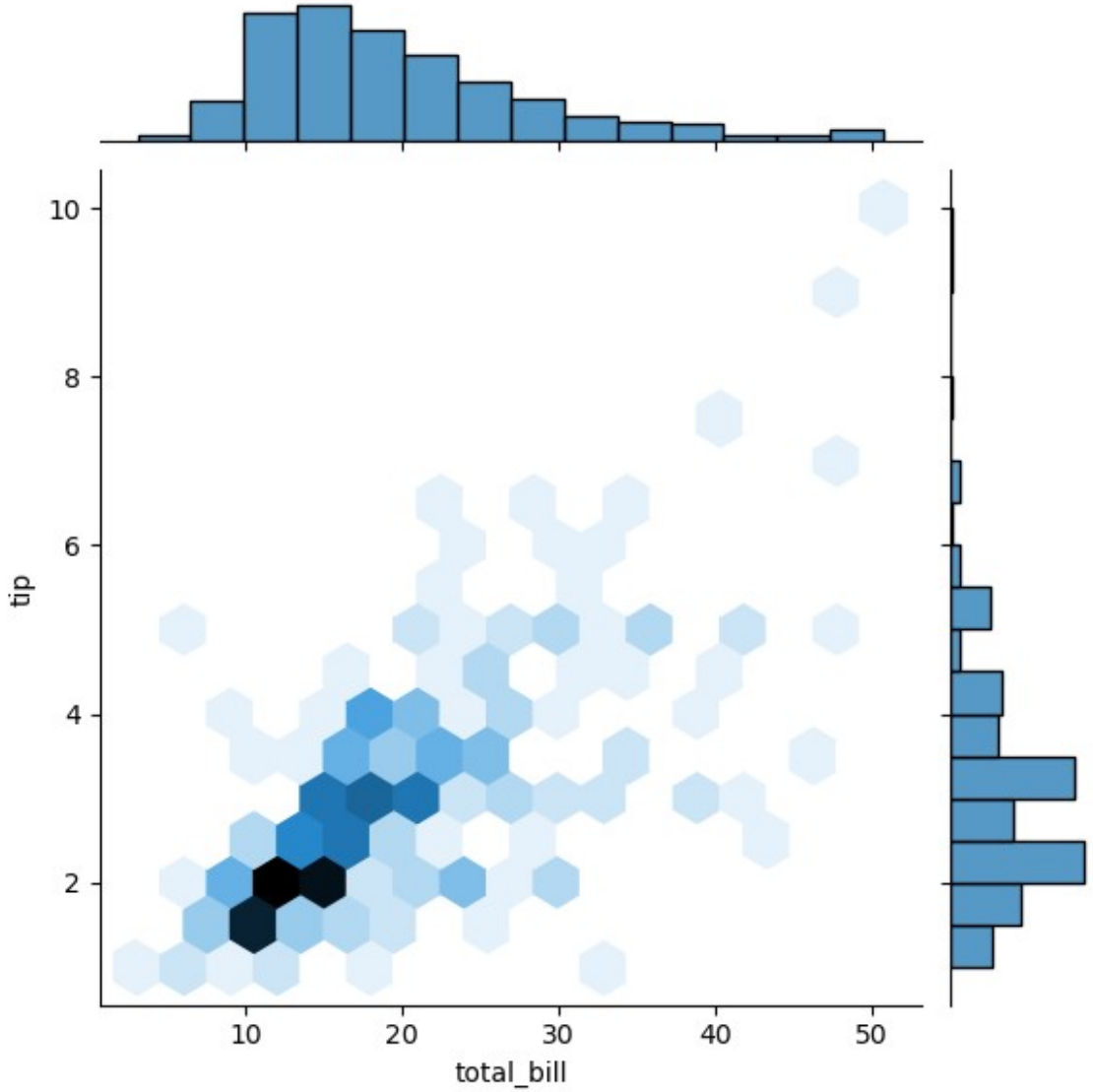
```
sns.jointplot(x='total_bill',y='tip',data=tips,kind='scatter')
```

```
<seaborn.axisgrid.JointGrid at 0x1d00434ce50>
```




```
sns.jointplot(x='total_bill',y='tip',data=tips,kind='hex')
```

```
<seaborn.axisgrid.JointGrid at 0x1d006fe48b0>
```

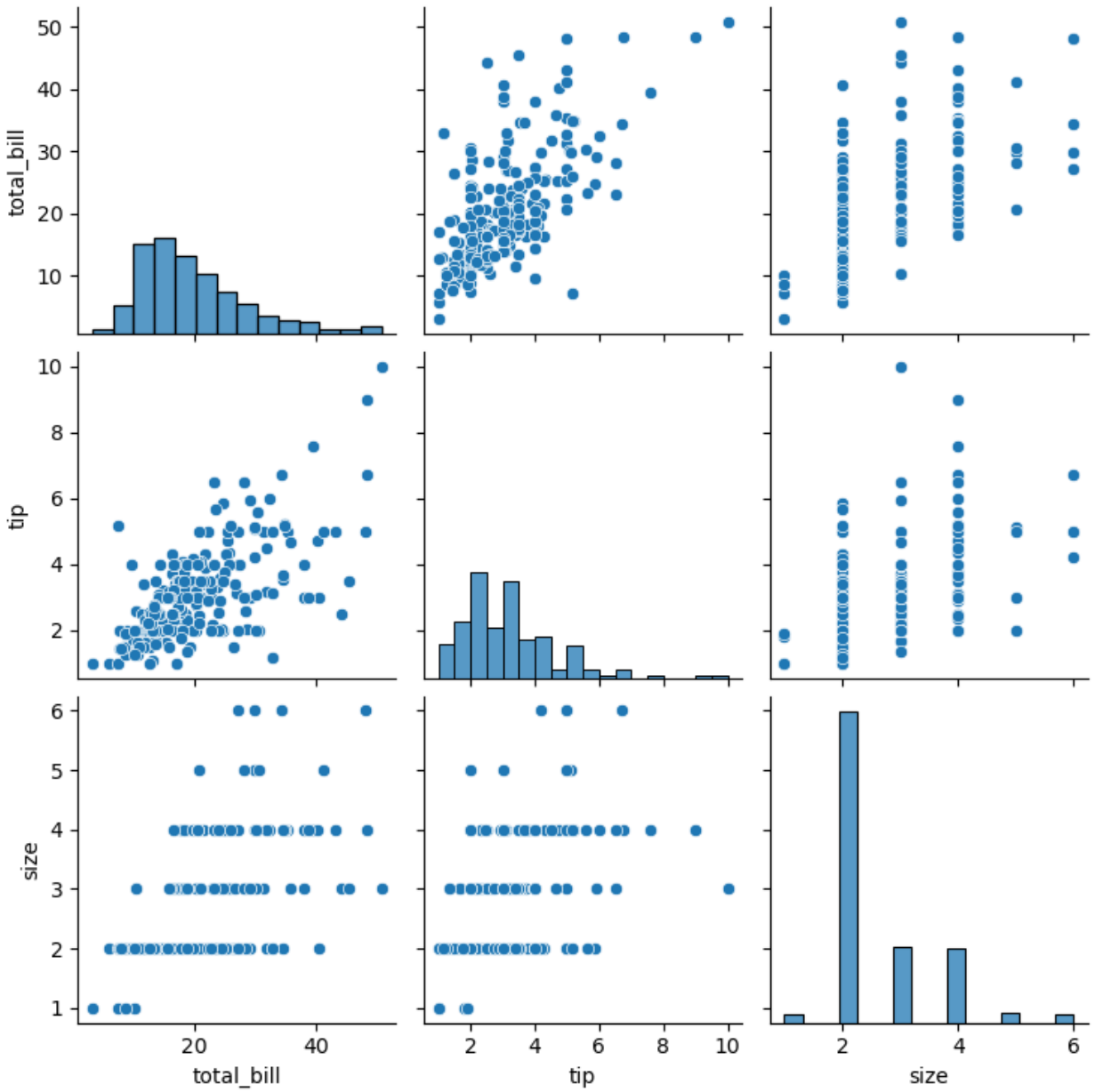


Pairplot

Pairplot will plot pairwise relatioships across am entire dataframe (for the numerical columns) and supports a color hue argument (for categorical columns).

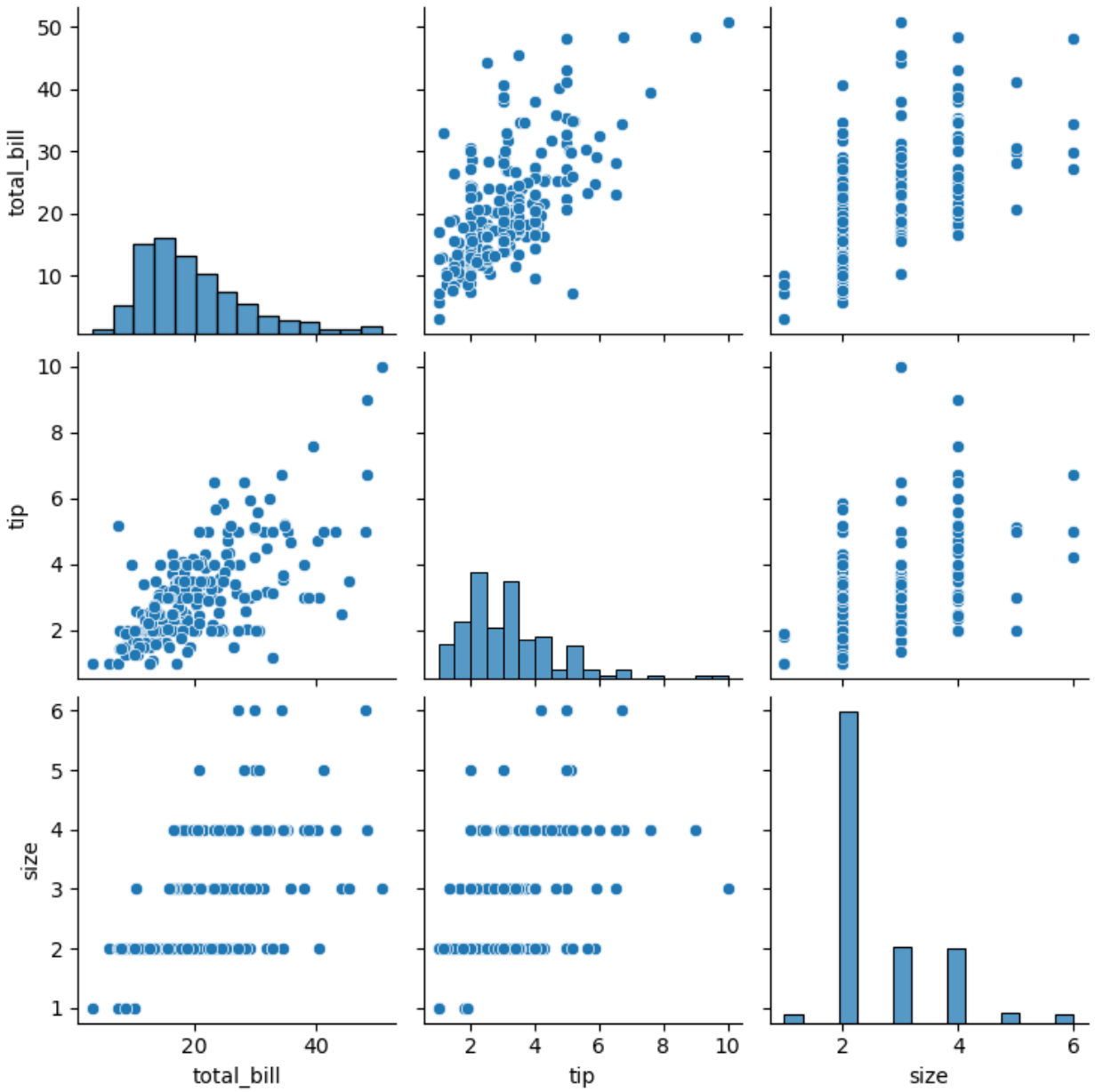
```
sns.pairplot(tips)
```

```
<seaborn.axisgrid.PairGrid at 0x1d0076e8f70>
```



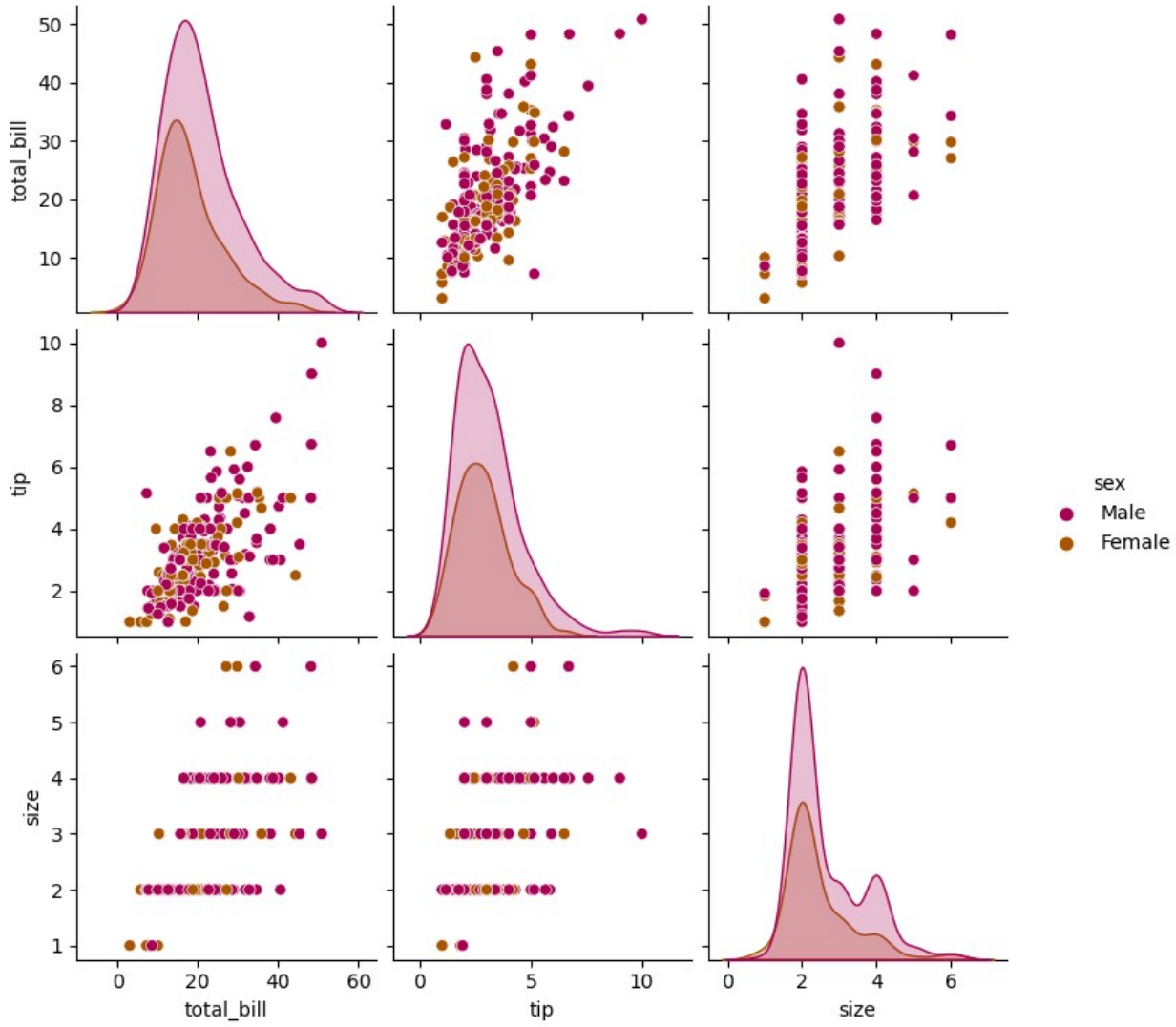

```
sns.pairplot(tips, palette='brg')
```

```
<seaborn.axisgrid.PairGrid at 0x1d007faec40>
```




```
sns.pairplot(tips,hue='sex',palette='brg')
```

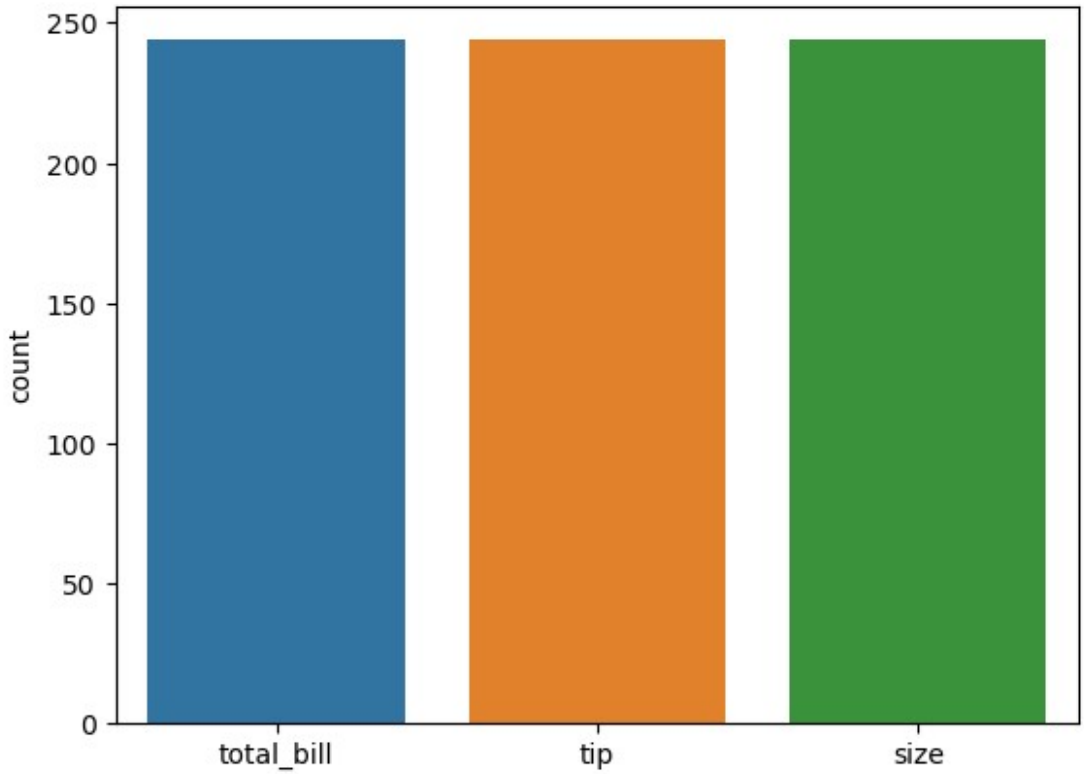
```
<seaborn.axisgrid.PairGrid at 0x1d0076e8e20>
```



Countplot

```
sns.countplot(data = tips)
```

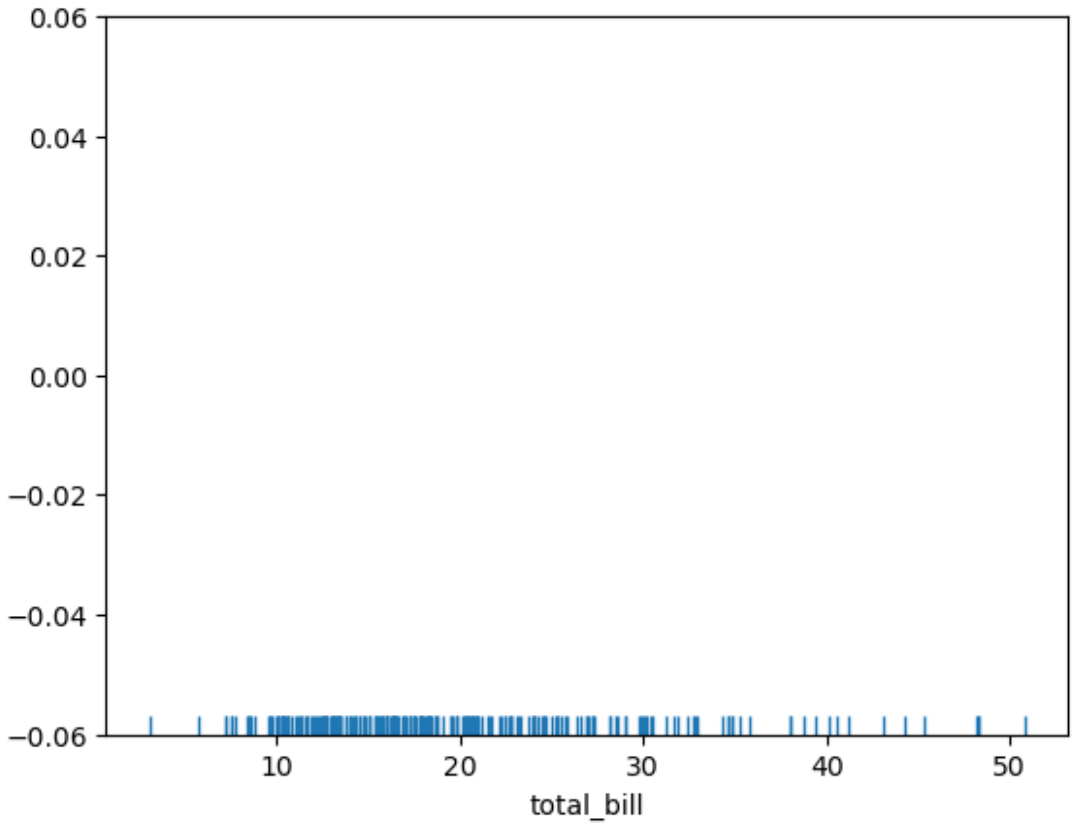
```
<AxesSubplot:ylabel='count'>
```



Rugplot

```
sns.rugplot(tips['total_bill'])
```

```
<AxesSubplot:xlabel='total_bill'>
```



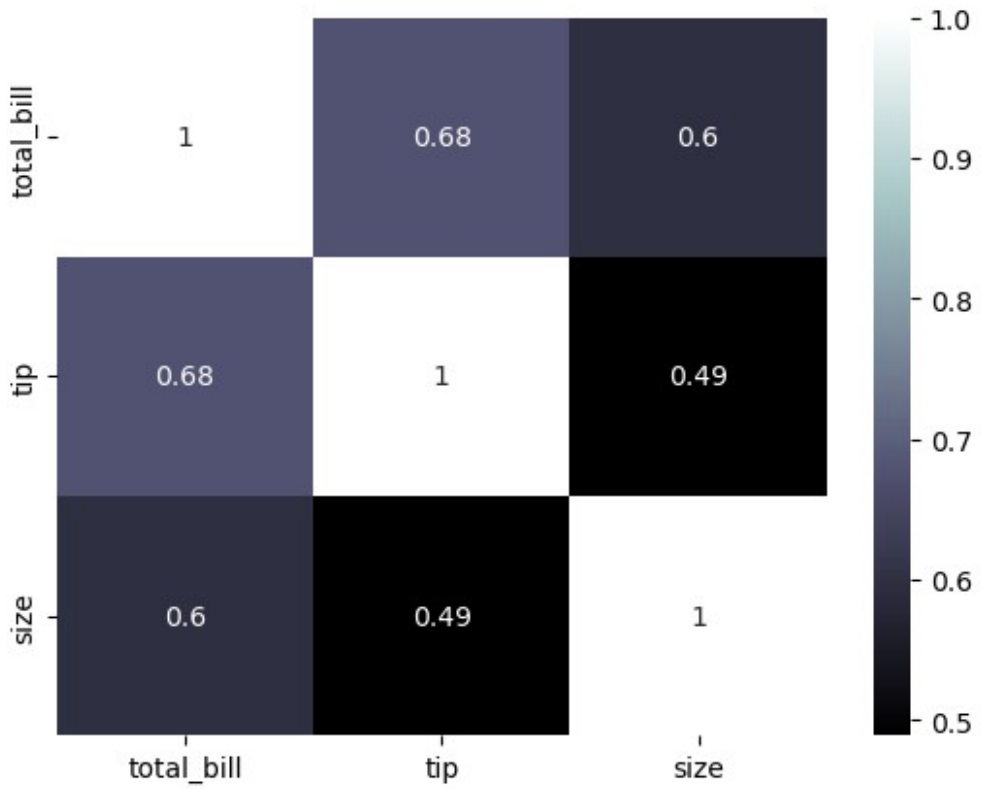

```
tips = sns.load_dataset('tips')
tips.head()
```

	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

Heatmap

```
heatmap_data = tips.corr()
sns.heatmap(heatmap_data, cmap='bone', annot=True)
```

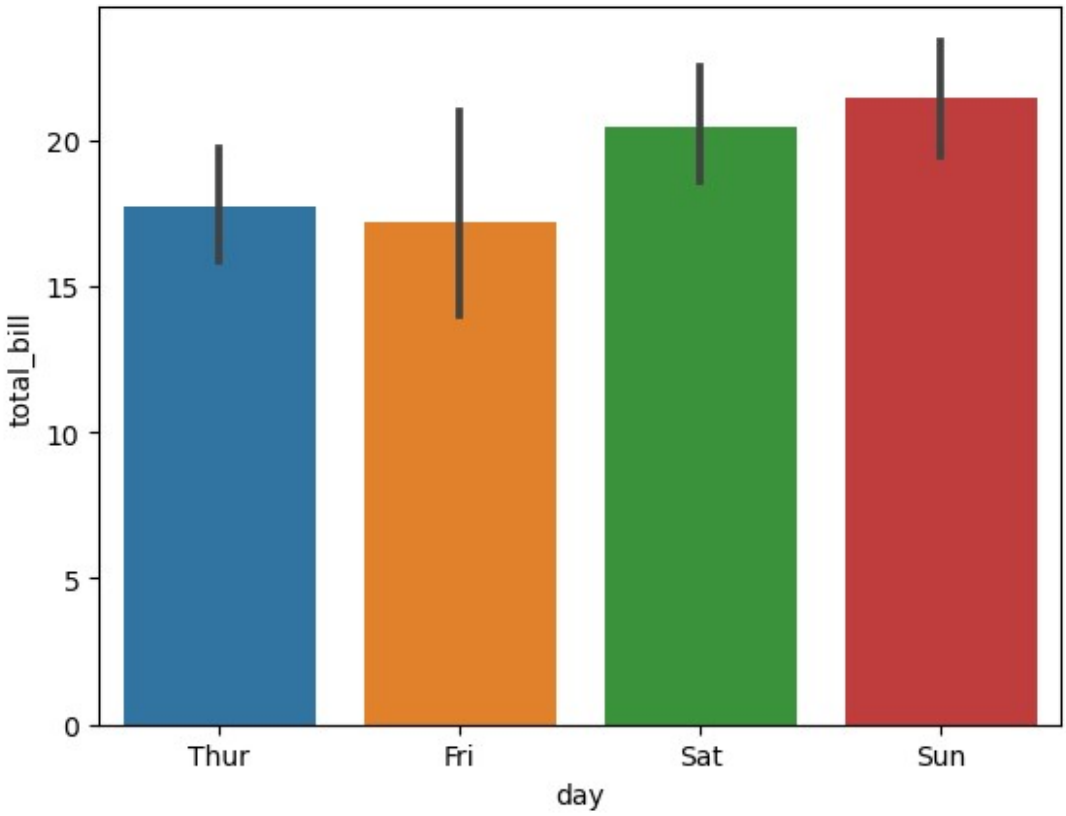
```
<AxesSubplot:>
```



Barplot

```
sns.barplot(x='day',y='total_bill',data=tips)
```

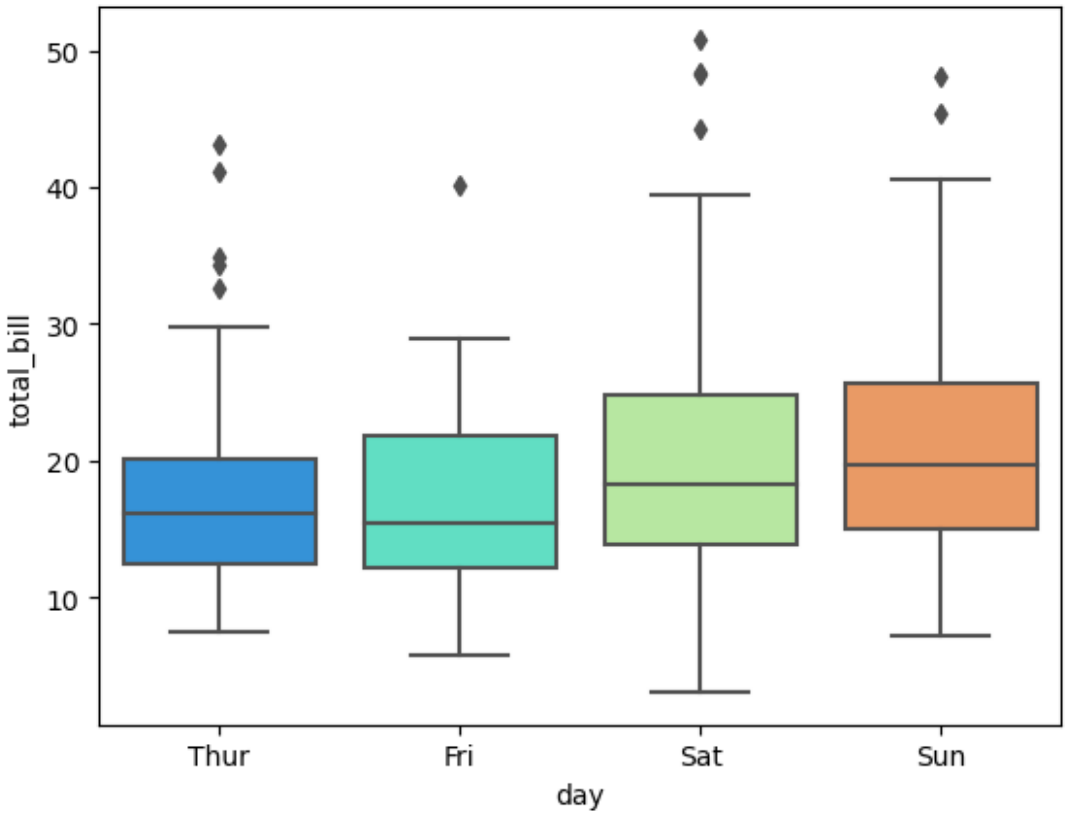
```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```



Boxplot

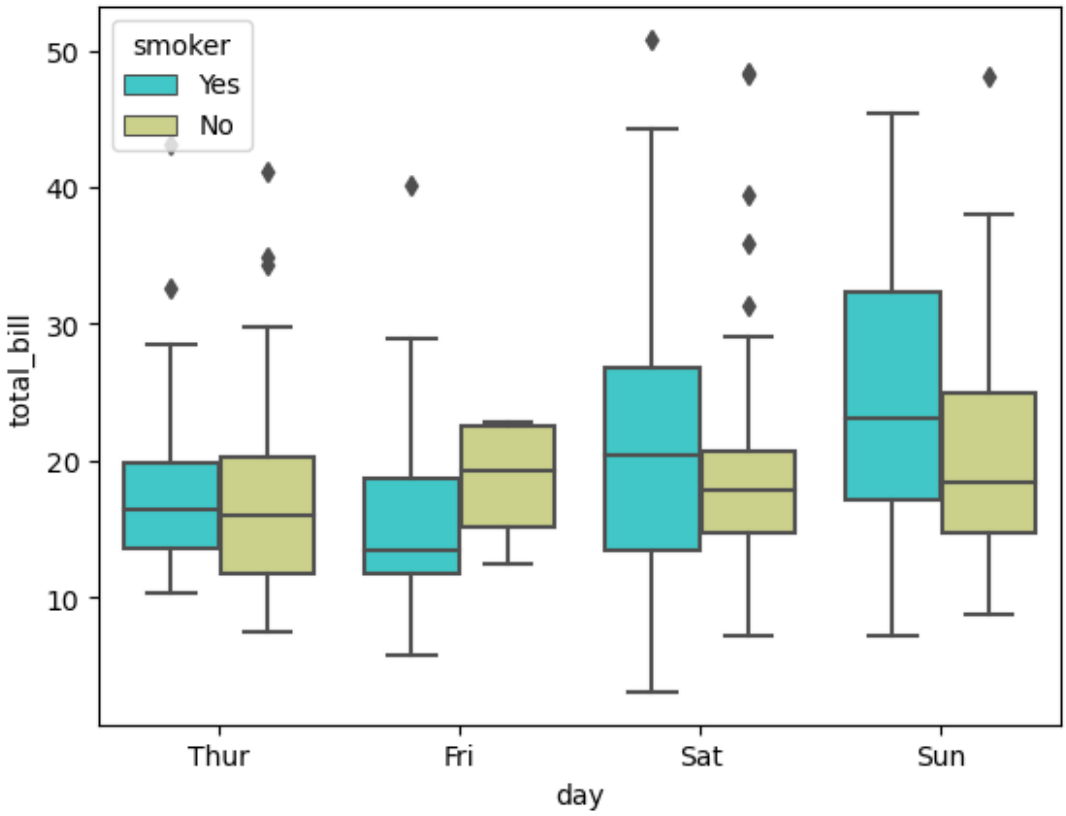
```
sns.boxplot(x='day', y='total_bill', data=tips, palette='rainbow')
```

```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```



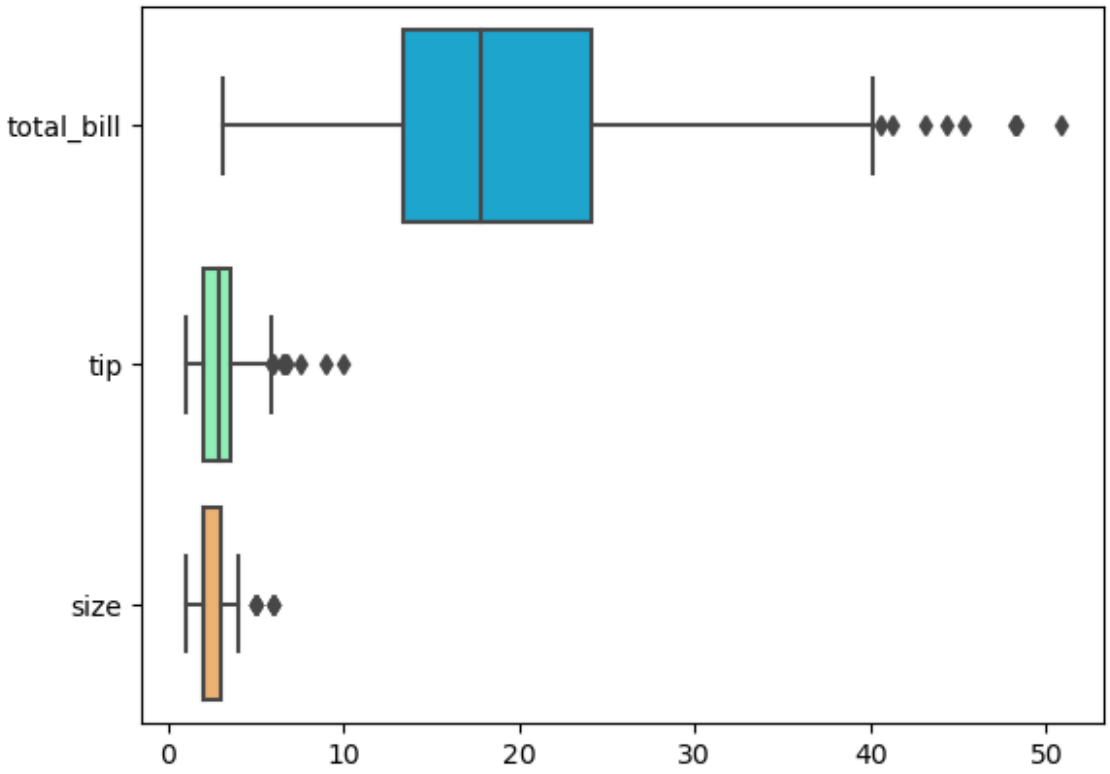

```
sns.boxplot(x='day', y='total_bill', data=tips, hue='smoker',
palette='rainbow')
```

```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```



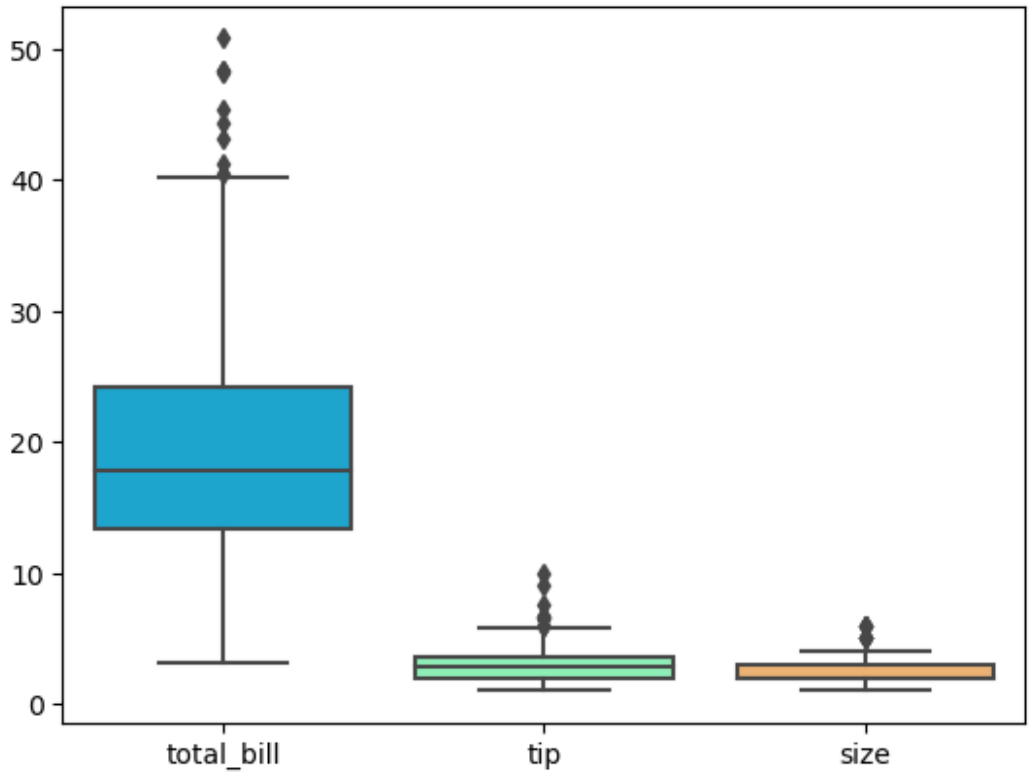

```
sns.boxplot(data=tips, palette='rainbow', orient='h')
```

```
<AxesSubplot:>
```



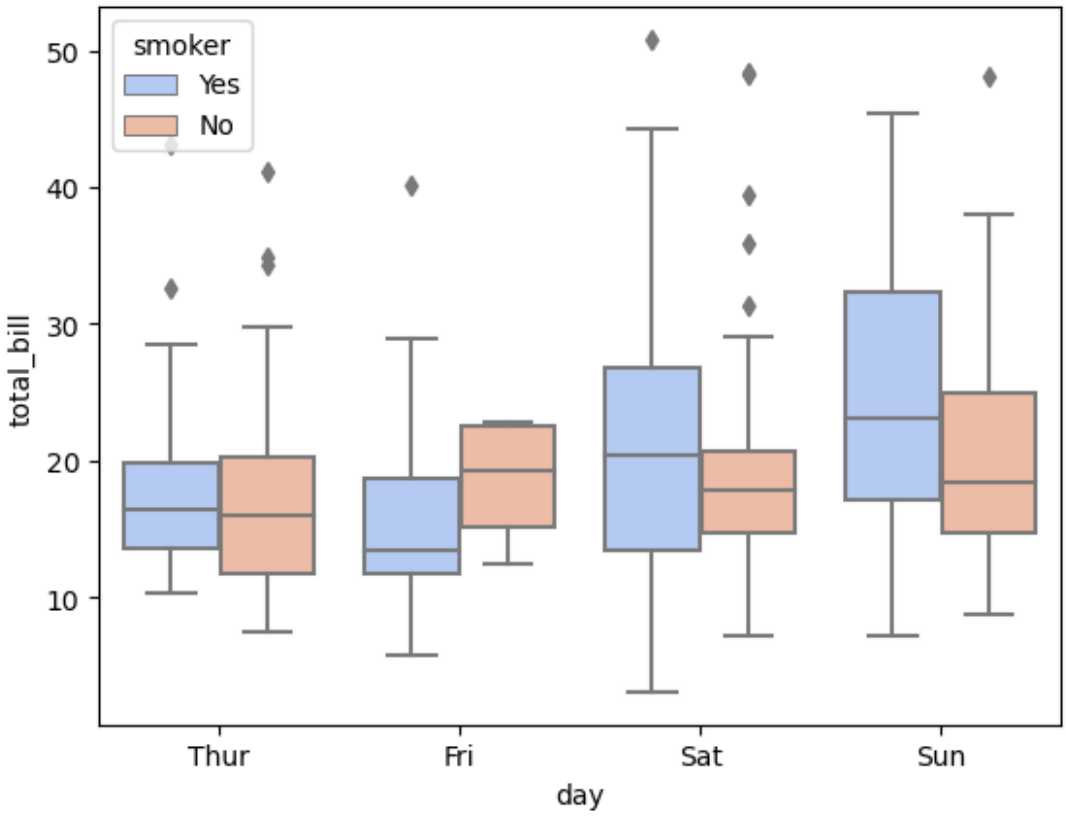

```
sns.boxplot(data=tips, palette='rainbow', orient='v')
```

```
<AxesSubplot:>
```




```
sns.boxplot(x='day', y='total_bill', data=tips, hue='smoker',
palette='coolwarm')
```

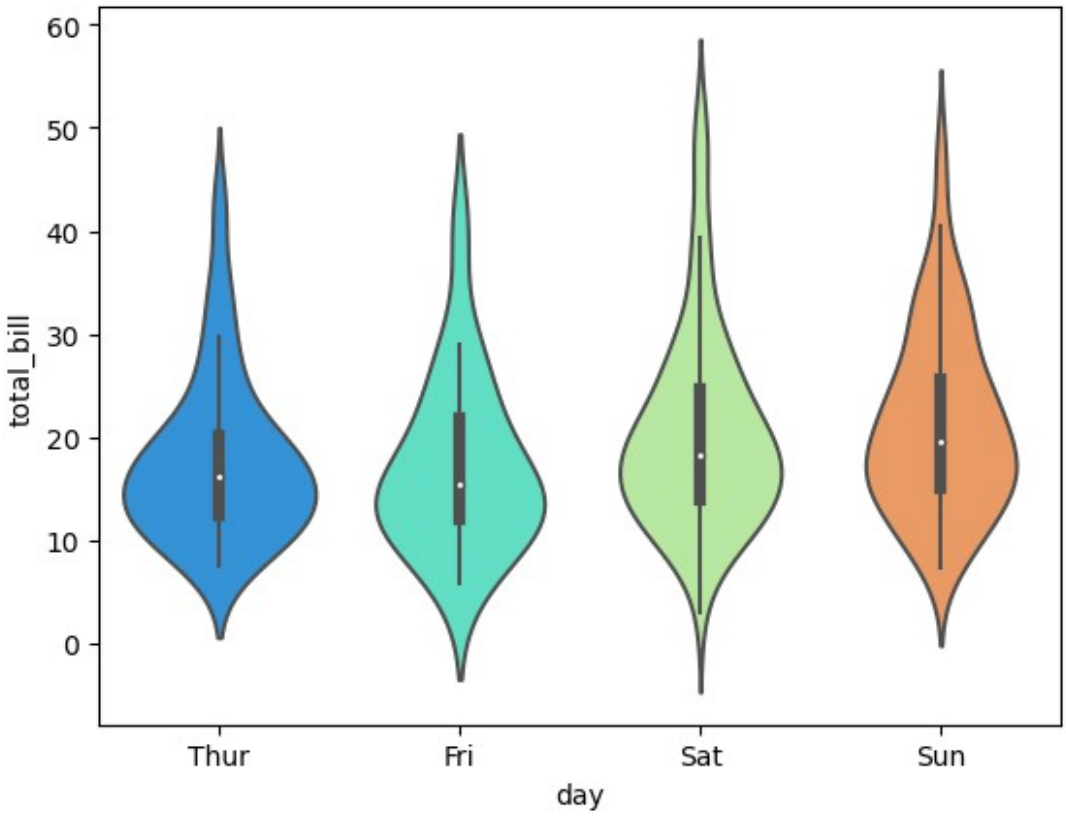
```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```



Violinplot

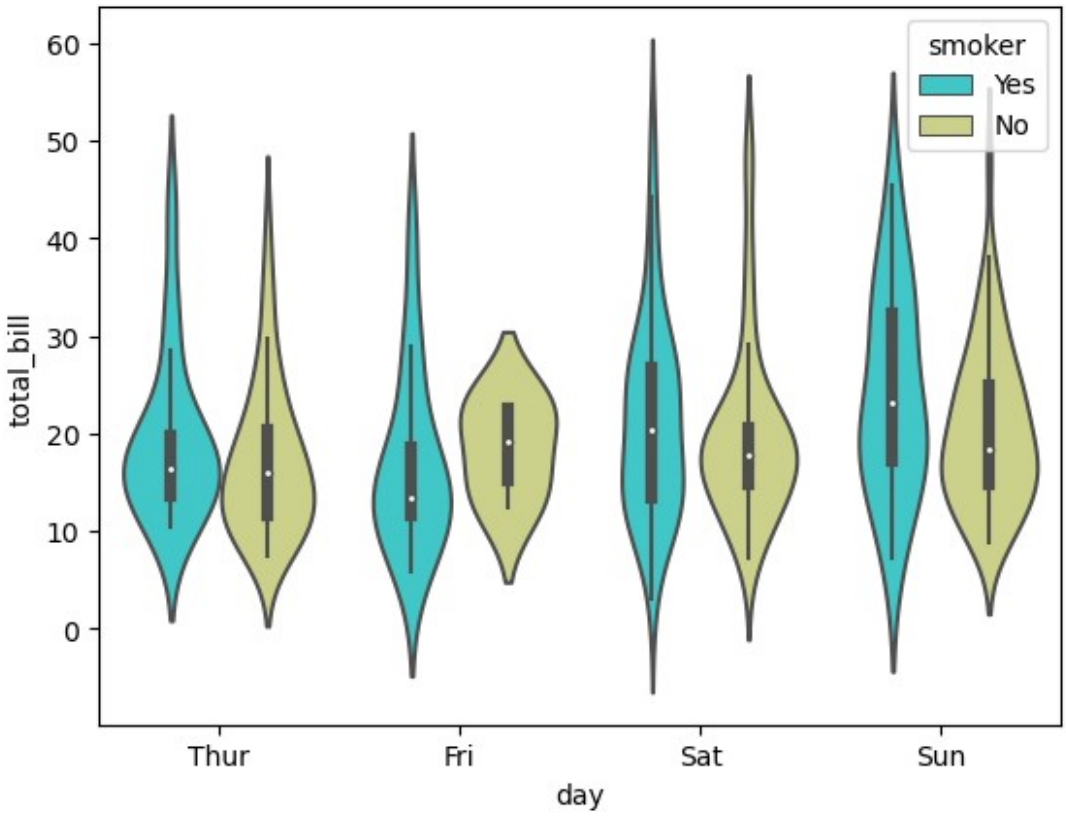
```
sns.violinplot(x="day", y="total_bill", data=tips, palette='rainbow')
```

```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```




```
sns.violinplot(x="day", y="total_bill", data=tips, hue='smoker',
palette='rainbow')
```

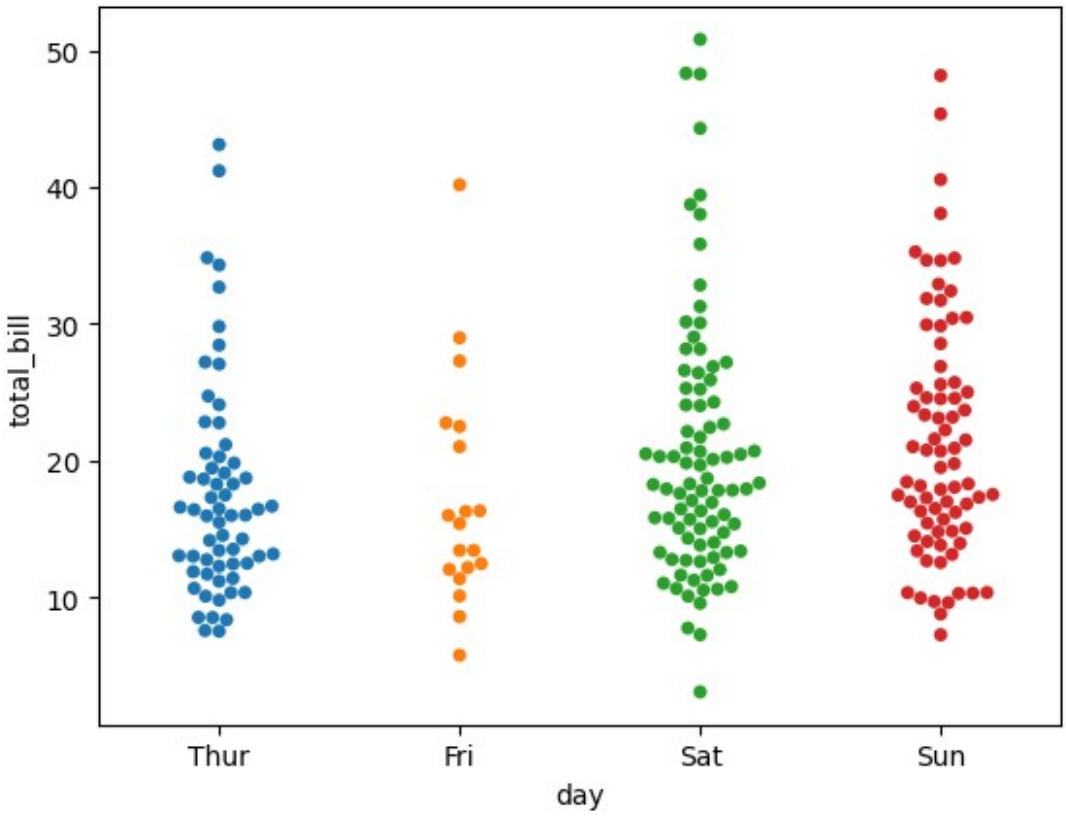
```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```



Swarmplot

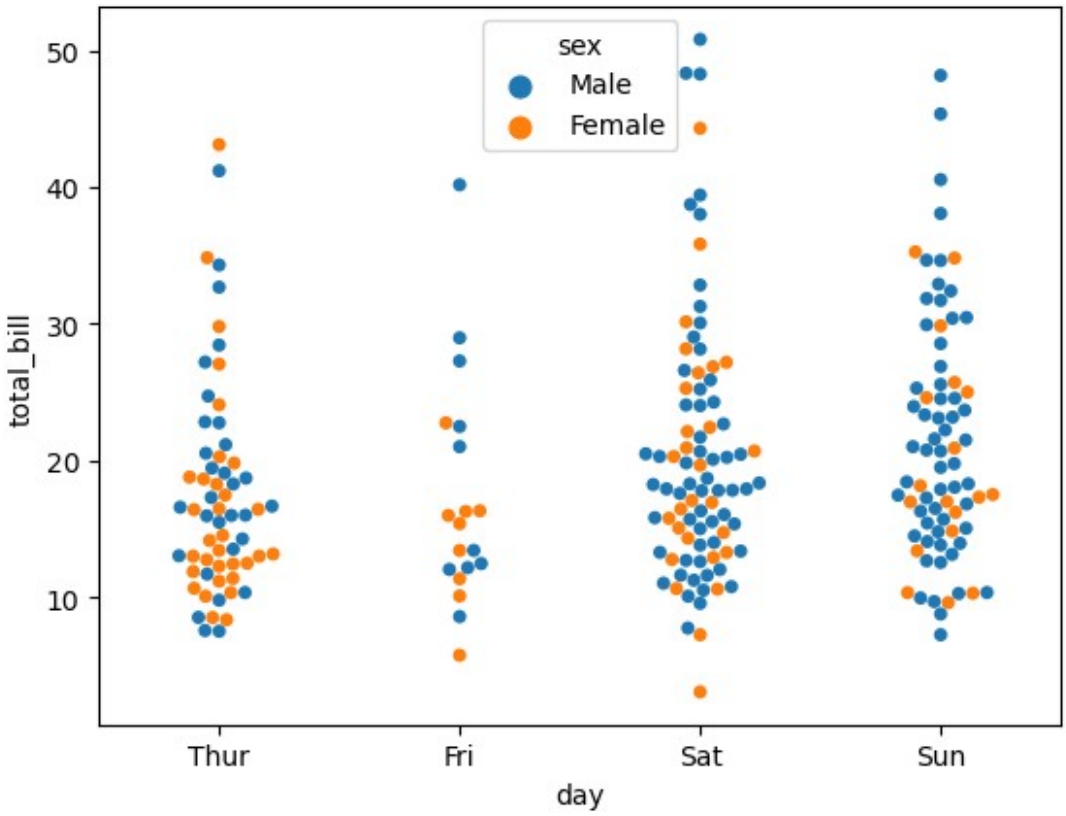
```
sns.swarmplot(x='day', y='total_bill', data=tips)
```

```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```




```
sns.swarmplot(x='day', y='total_bill', data=tips, hue='sex')
```

```
<AxesSubplot:xlabel='day', ylabel='total_bill'>
```



Combining violin and swarm plots.

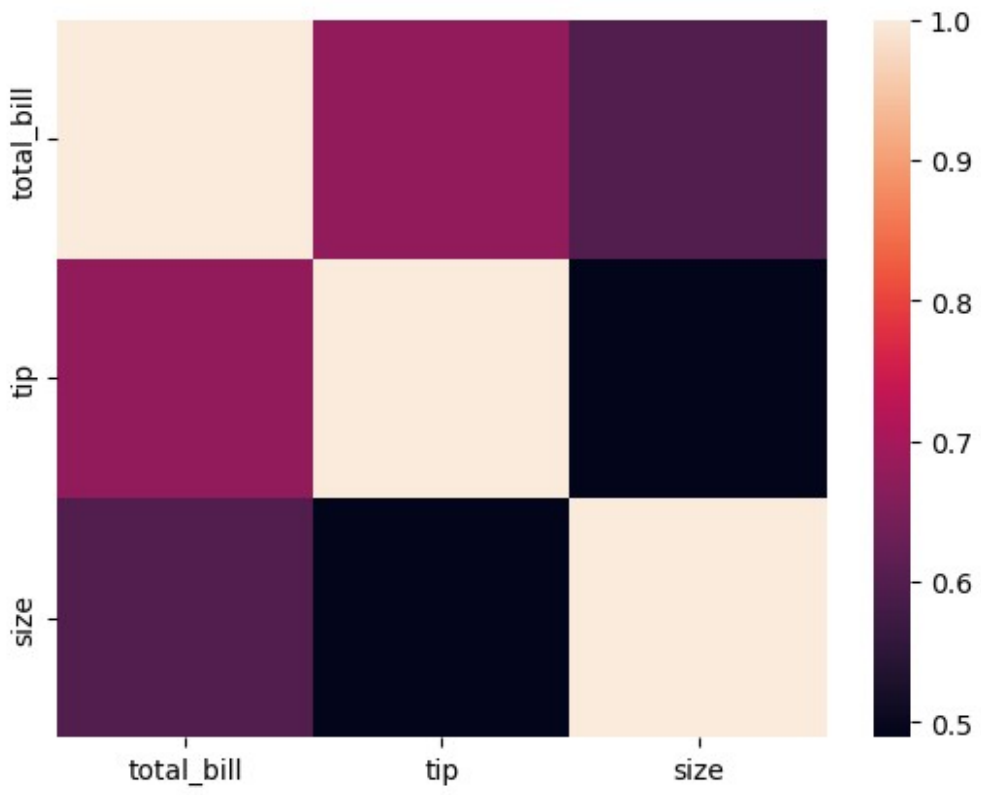
Heatplot

```
tips.corr()
```

	total_bill	tip	size
total_bill	1.000000	0.675734	0.598315
tip	0.675734	1.000000	0.489299
size	0.598315	0.489299	1.000000

```
sns.heatmap(tips.corr())
```

```
<AxesSubplot:>
```



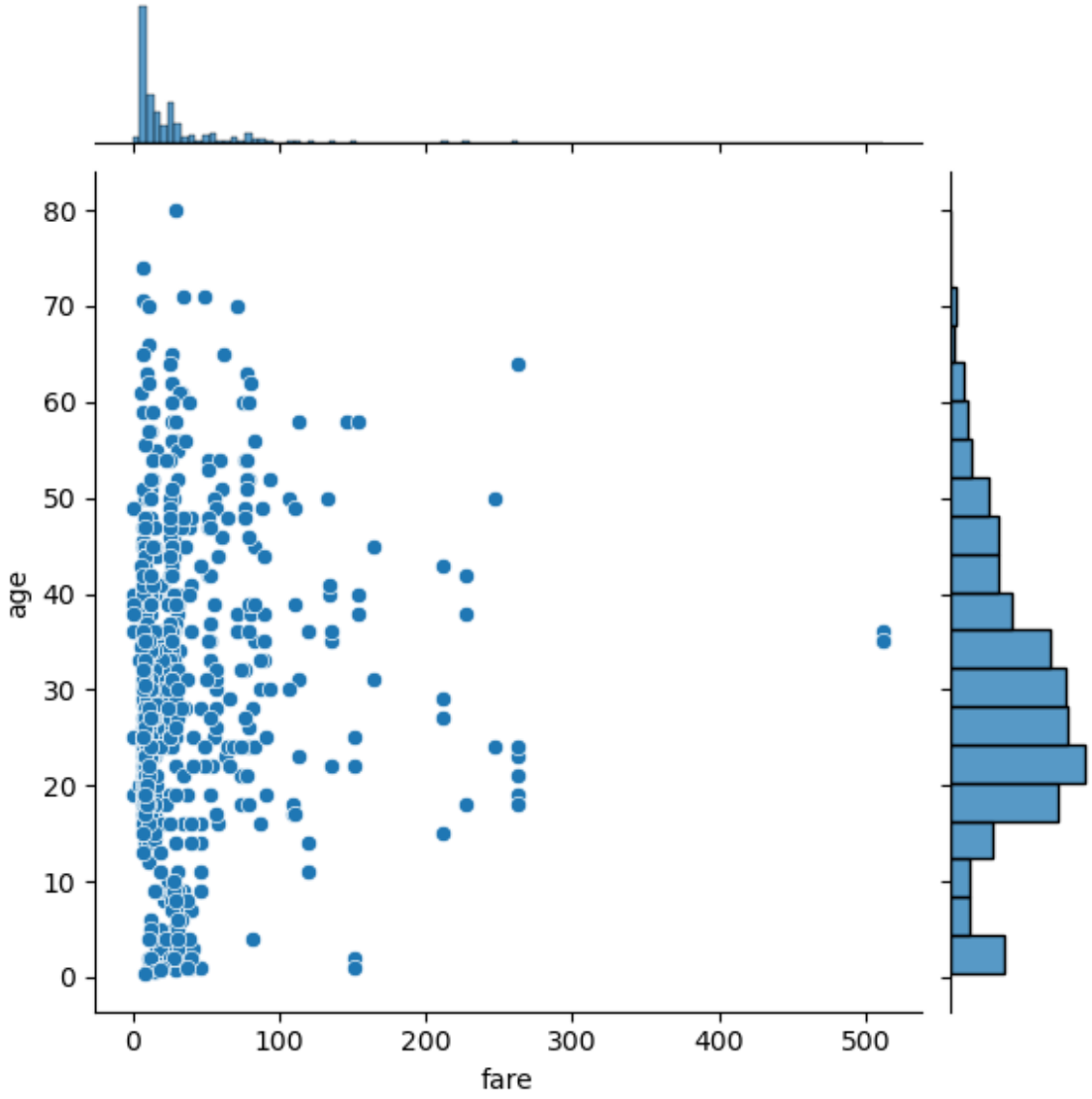

```
titanic = sns.load_dataset('titanic')
titanic.head()
```

```
   survived  pclass     sex   age  sibsp  parch     fare embarked
class  \
0         0       3    male  22.0      1      0   7.2500        S
Third
1         1       1  female  38.0      1      0  71.2833        C
First
2         1       3  female  26.0      0      0   7.9250        S
Third
3         1       1  female  35.0      1      0  53.1000        S
First
4         0       3    male  35.0      0      0   8.0500        S
Third

     who  adult_male deck  embark_town alive  alone
0    man        True  NaN  Southampton    no  False
1  woman       False    C    Cherbourg   yes  False
2  woman       False  NaN  Southampton   yes   True
3  woman       False    C  Southampton   yes  False
4    man        True  NaN  Southampton    no   True
```

Jointplot

```
sns.jointplot(x='fare', y='age', data=titanic, kind='scatter')
```

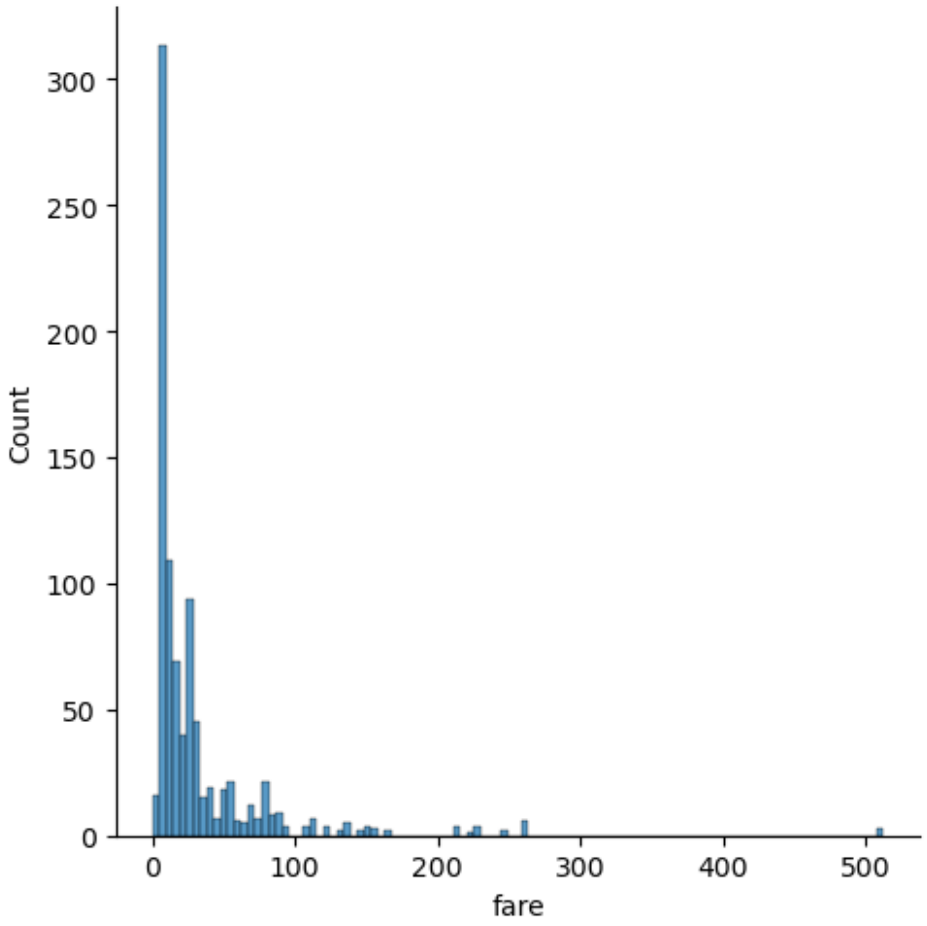
```
<seaborn.axisgrid.JointGrid at 0x1d00bb6e700>
```



Distplot

```
sns.displot(x='fare', data=titanic)
```

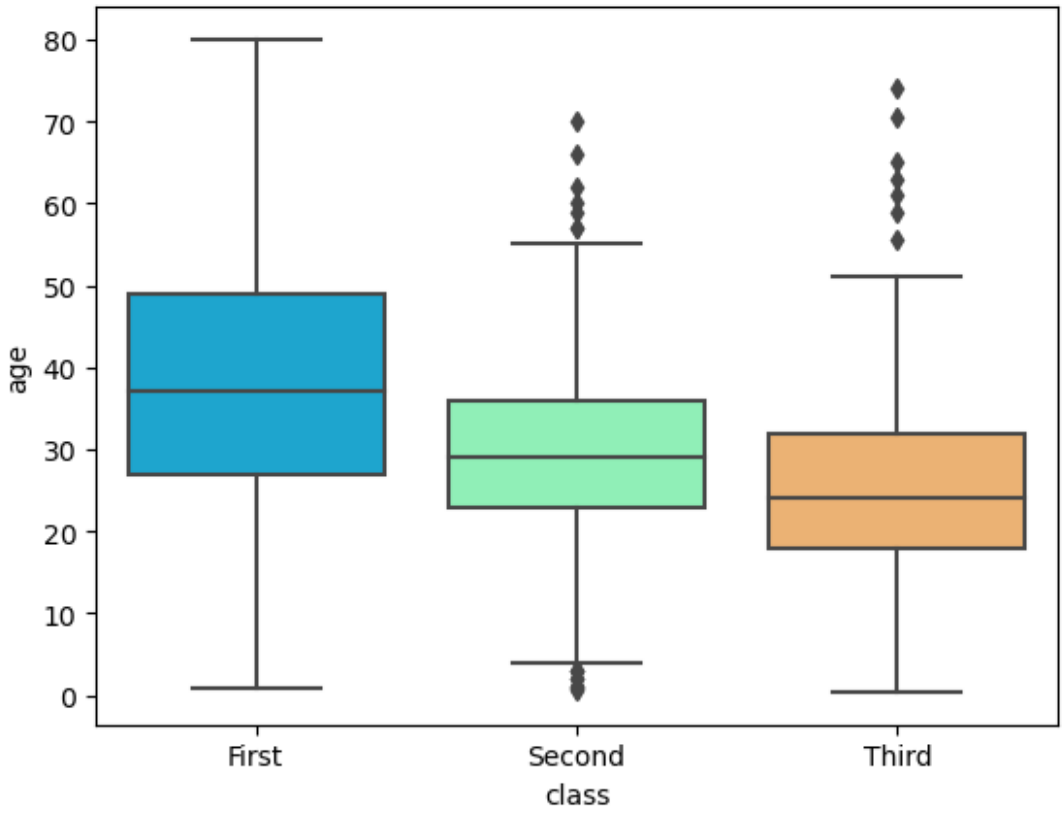
```
<seaborn.axisgrid.FacetGrid at 0x1d00bb33b80>
```



Boxplot

```
sns.boxplot(x='class', y='age', data=titanic, palette='rainbow')
```

```
<AxesSubplot:xlabel='class', ylabel='age'>
```

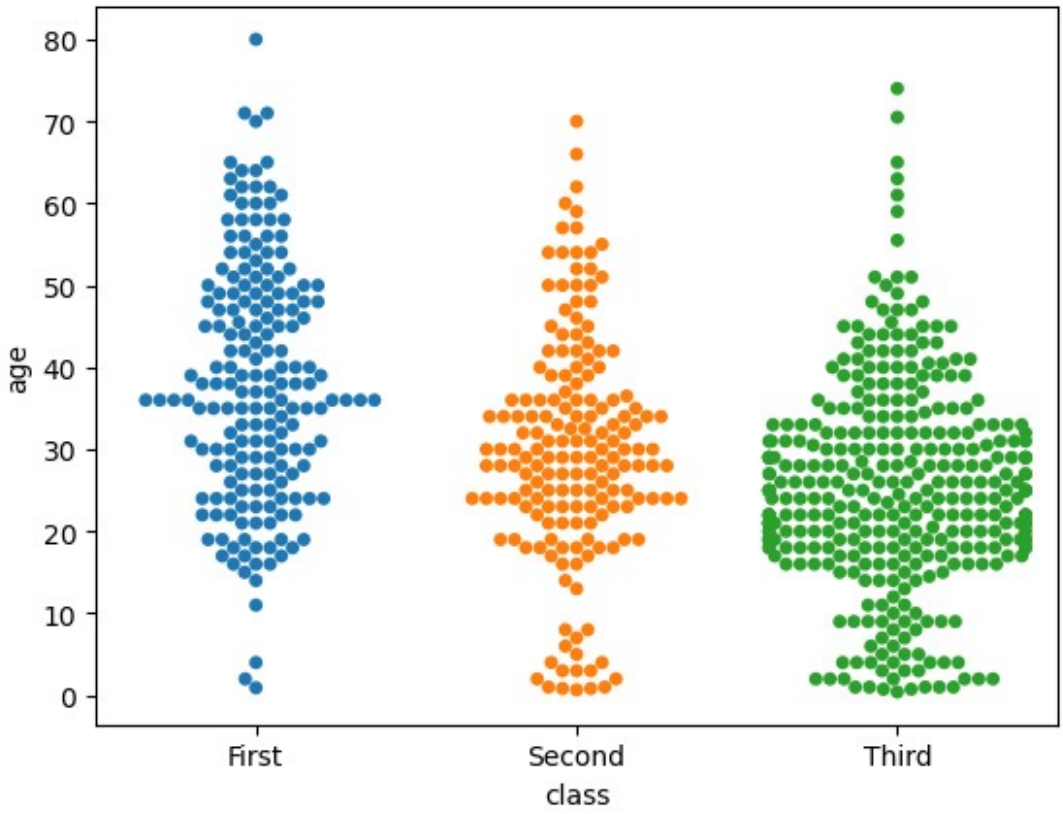


Swarmplot

```
sns.swarmplot(x='class', y='age', data=titanic)
```

```
C:\Users\DELL\anaconda3\lib\site-packages\seaborn\categorical.py:1296:
UserWarning: 11.0% of the points cannot be placed; you may want to
decrease the size of the markers or use stripplot.
  warnings.warn(msg, UserWarning)
```

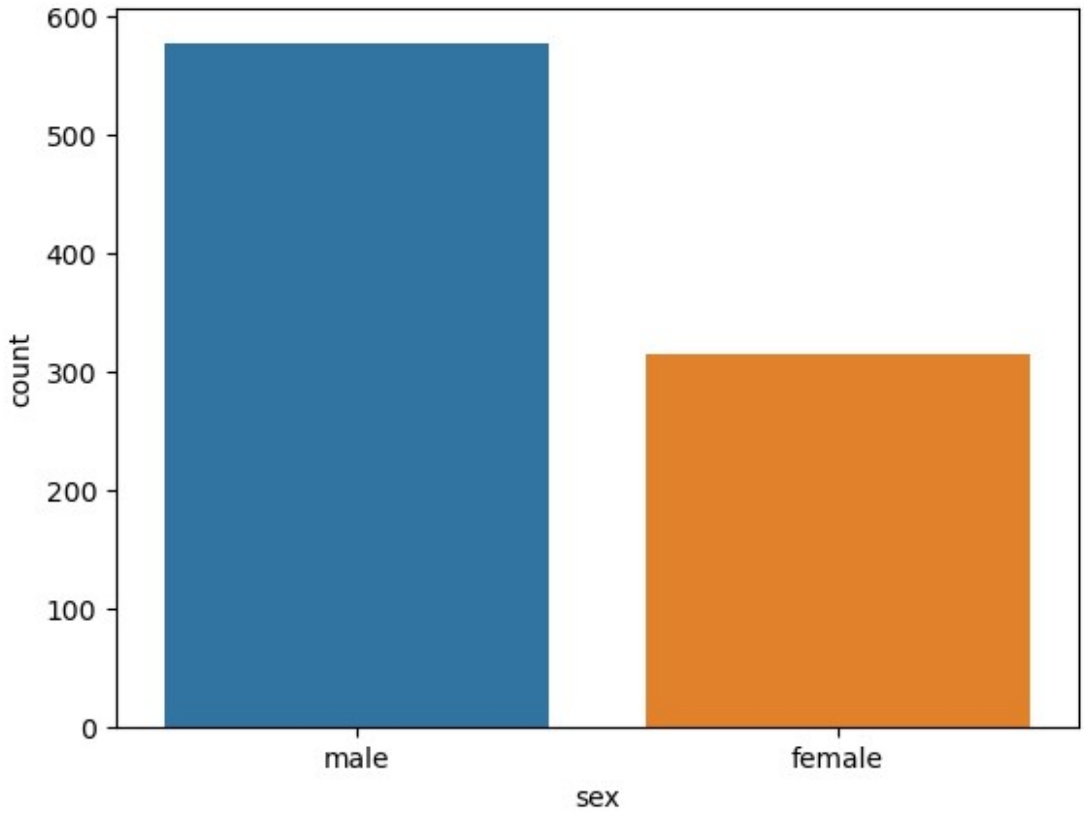
```
<AxesSubplot:xlabel='class', ylabel='age'>
```



Countplot

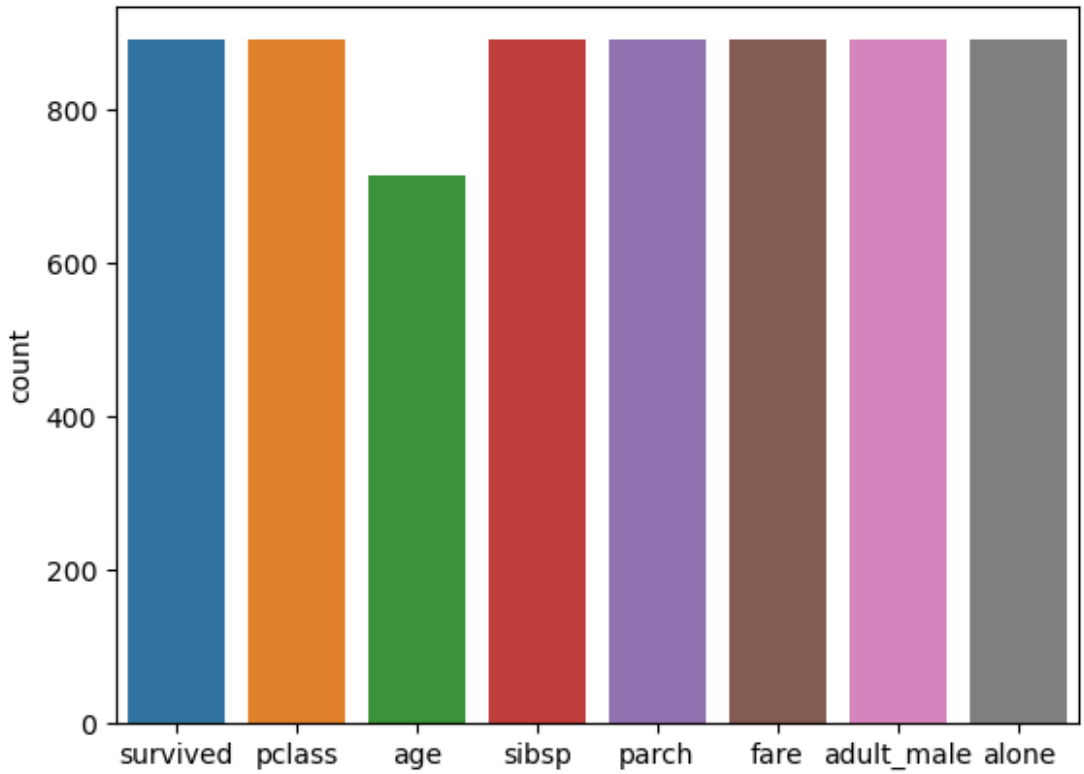
```
sns.countplot(x='sex', data = titanic)
```

```
<AxesSubplot:xlabel='sex', ylabel='count'>
```




```
sns.countplot(data = titanic)
```

```
<AxesSubplot:ylabel='count'>
```

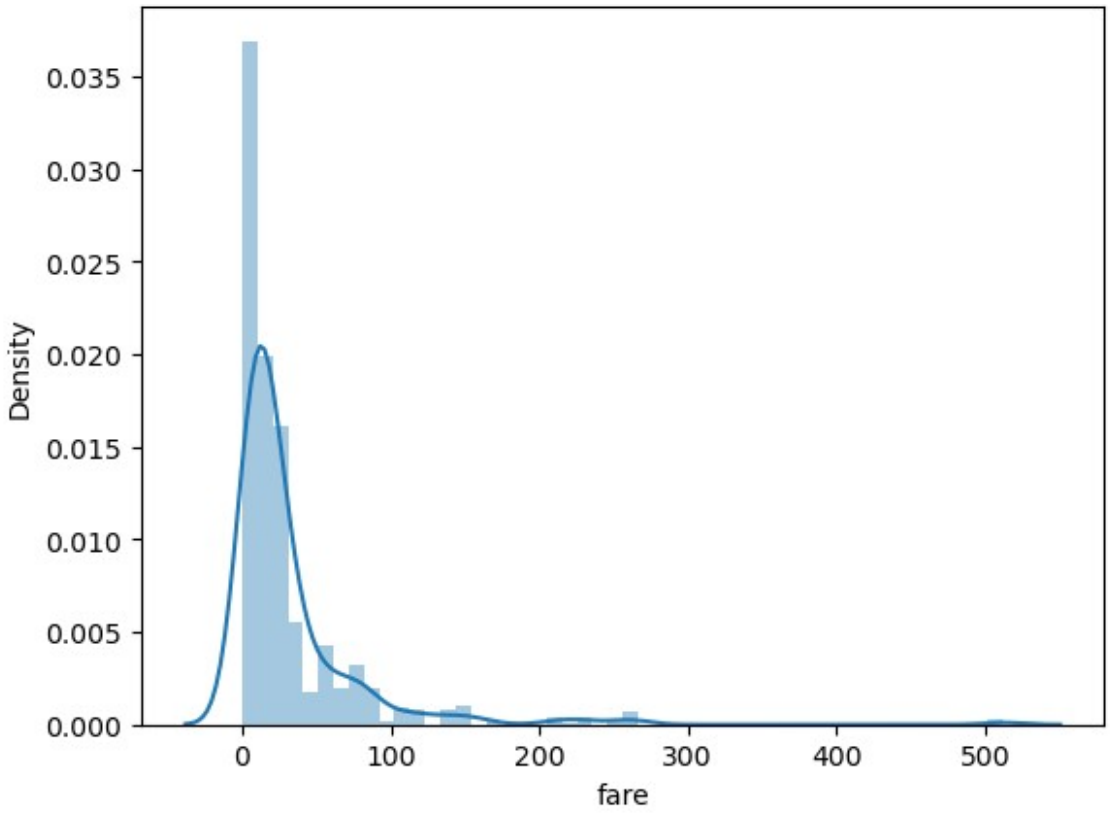


Distplot

```
sns.distplot(titanic['fare'])
```

```
C:\Users\DELL\anaconda3\lib\site-packages\seaborn\
distributions.py:2619: FutureWarning: `distplot` is a deprecated
function and will be removed in a future version. Please adapt your
code to use either `displot` (a figure-level function with similar
flexibility) or `histplot` (an axes-level function for histograms).
  warnings.warn(msg, FutureWarning)
```

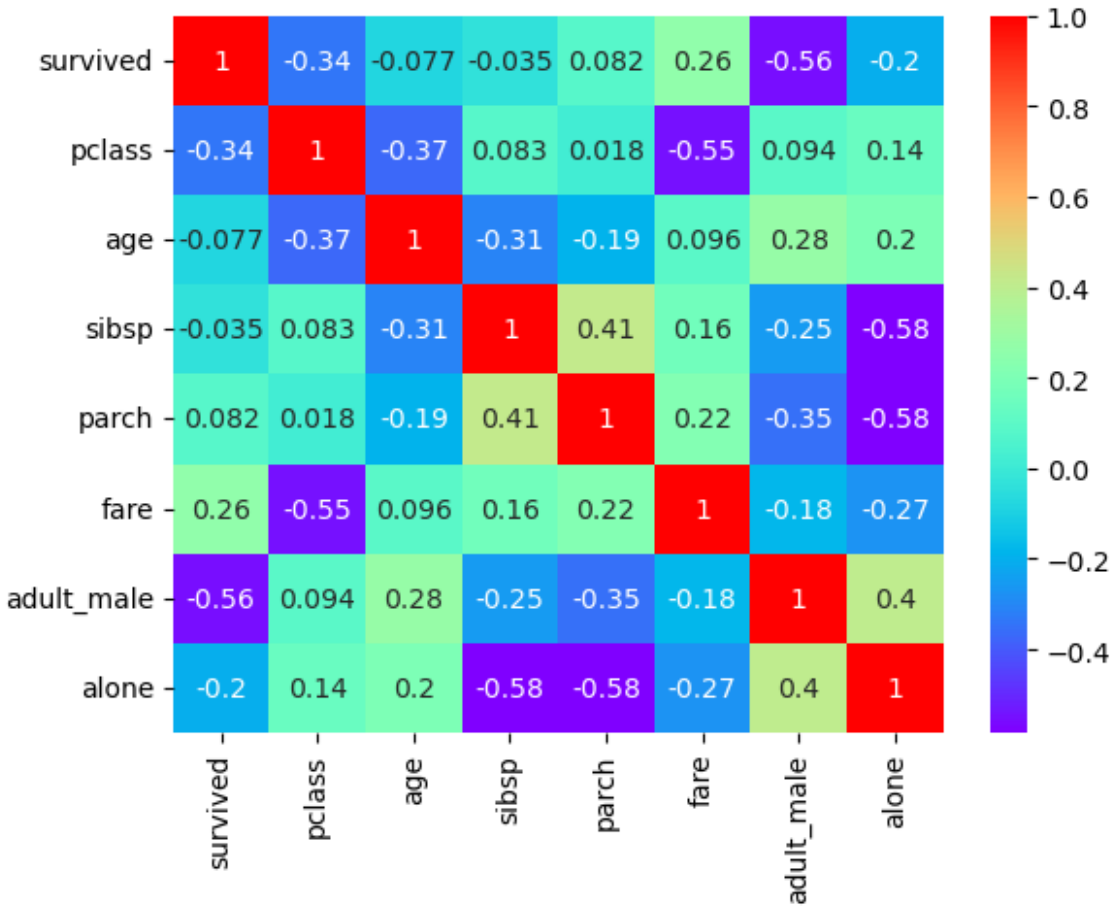
```
<AxesSubplot:xlabel='fare', ylabel='Density'>
```



Heatmap

```
heatmap_data = titanic.corr()
sns.heatmap(heatmap_data, cmap='rainbow', annot=True)
```

```
<AxesSubplot:>
```


survived
pclass
age
sibsp
parch
fare
adult_male
alone
1 -0.34 -0.077 -0.035 0.082 0.26 -0.56 -0.2
-0.34 1 -0.37 0.083 0.018 -0.55 0.094 0.14
-0.077 -0.37 1 -0.31 -0.19 0.096 0.28 0.2
-0.035 0.083 -0.31 1 0.41 0.16 -0.25 -0.58
0.082 0.018 -0.19 0.41 1 0.22 -0.35 -0.58
0.26 -0.55 0.096 0.16 0.22 1 -0.18 -0.27
-0.56 0.094 0.28 -0.25 -0.35 -0.18 1 0.4
-0.2 0.14 0.2 -0.58 -0.58 -0.27 0.4 1
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4