


categorical plots

```
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
```

```
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

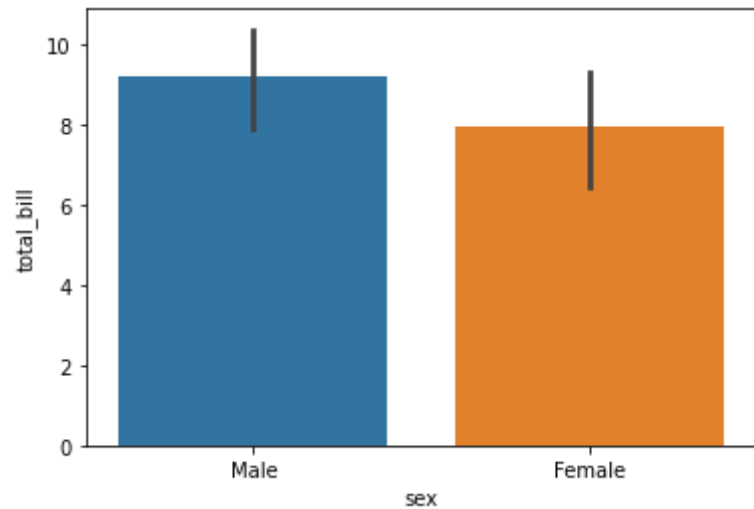
```
#bar plot n count plot
sns.barplot(x='sex',y='total_bill',data=tips)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f1fa0735850>
```



```
sns.barplot(x='sex',y='total_bill',data=tips,estimator=np.std)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f1f9fa2bc90>
```



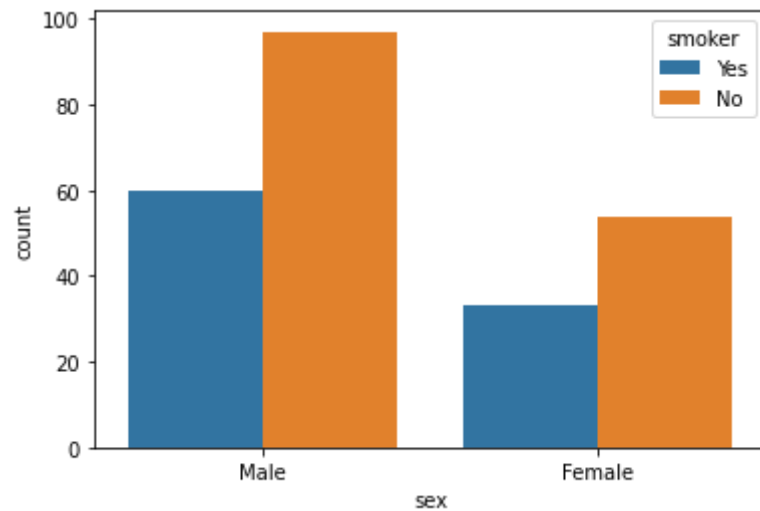
```
sns.countplot(x='sex',data=tips)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f1f9f5c8a50>
```



```
sns.countplot(x='sex', hue="smoker", data=tips)
```

```
# Show the plot  
plt.show()
```



```
#boxplot
```

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

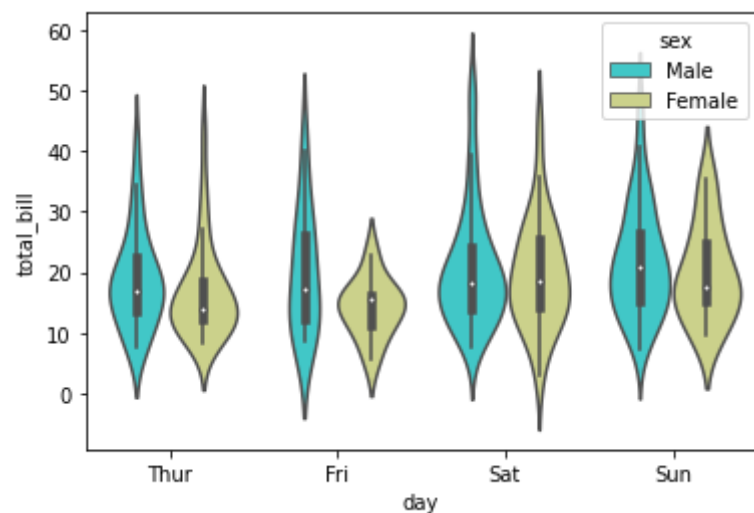
```
<matplotlib.axes._subplots.AxesSubplot at 0x7fe86bf54110>
```



```
#violinplot
```

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

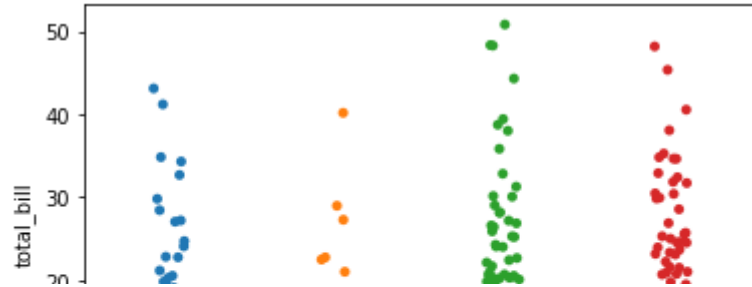
```
<matplotlib.axes._subplots.AxesSubplot at 0x7fe86bfc8e90>
```



```
#strip plot
```

```
sns.stripplot(x="day", y="total_bill", data=tips)
```

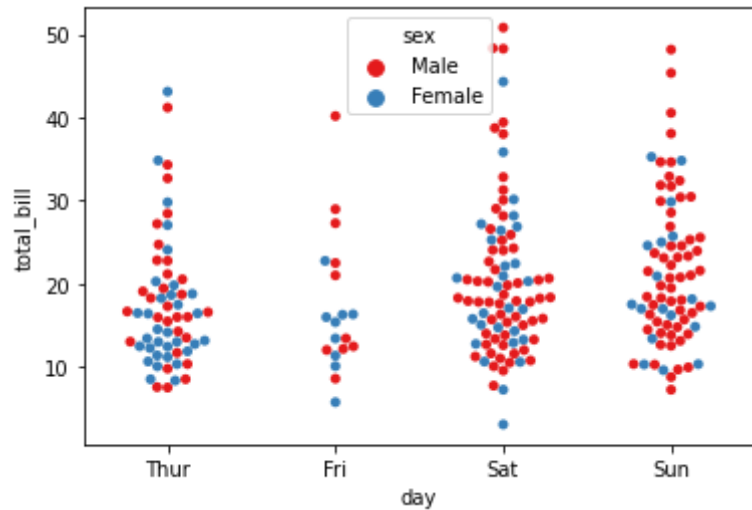
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f1f9f439110>
```



```
#swarmplot
```

```
sns.swarmplot(x="day", y="total_bill", hue='sex', data=tips, palette="Set1")
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fe86950bb50>
```

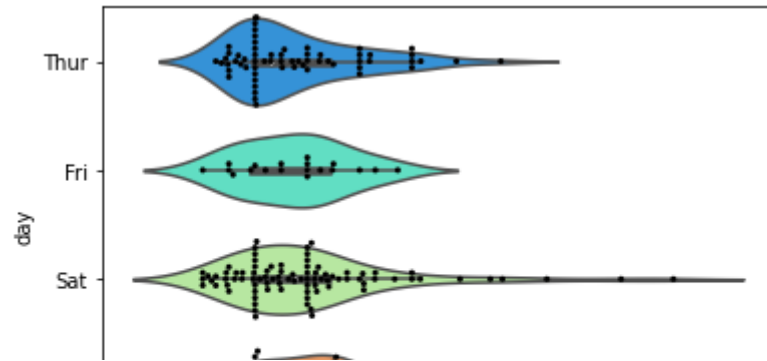


```
# Combining Categorical Plots
```

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

```
sns.swarmplot(x="tip", y="day", data=tips, color='black', size=3)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f1f9caec790>
```

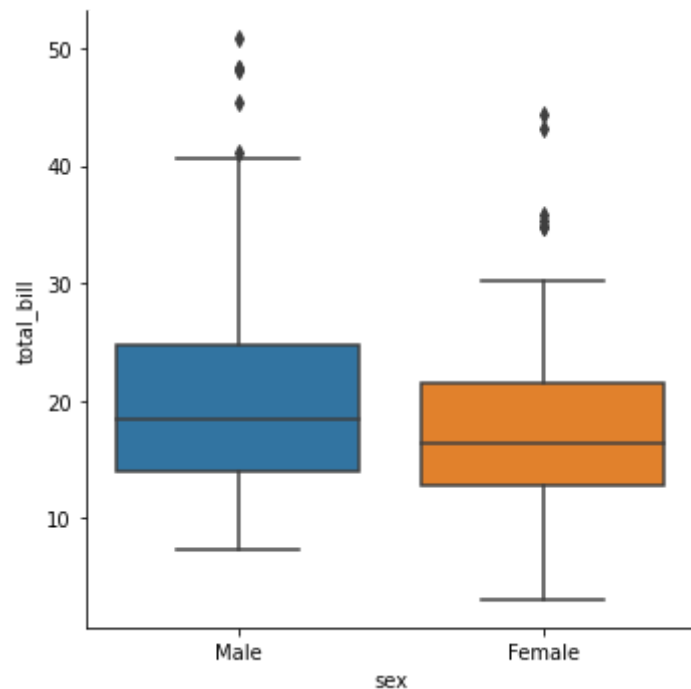


```
#factorplot
```

```
sns.factorplot(x='sex',y='total_bill',data=tips,kind='box')
```

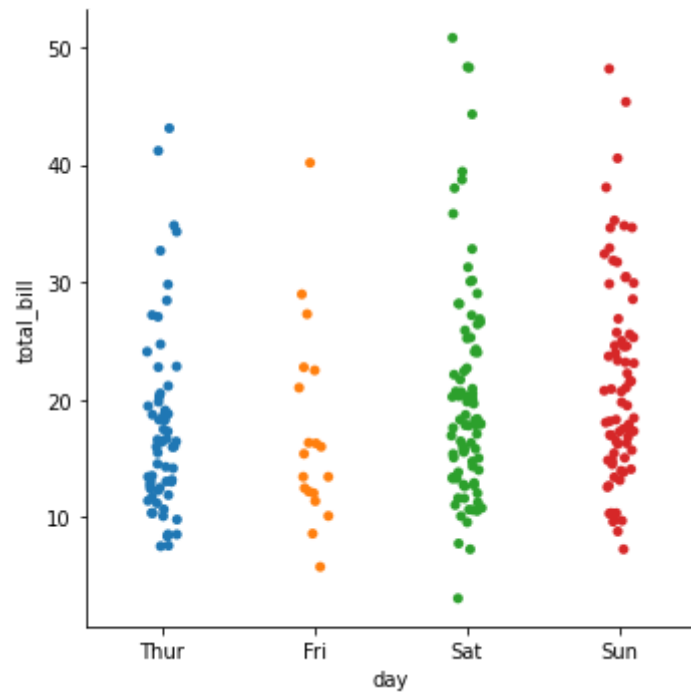
```
/usr/local/lib/python3.7/dist-packages/seaborn/categorical.py:3717: UserWarning: The `factor`  
warnings.warn(msg)
```

```
<seaborn.axisgrid.FacetGrid at 0x7f1f9416cf90>
```



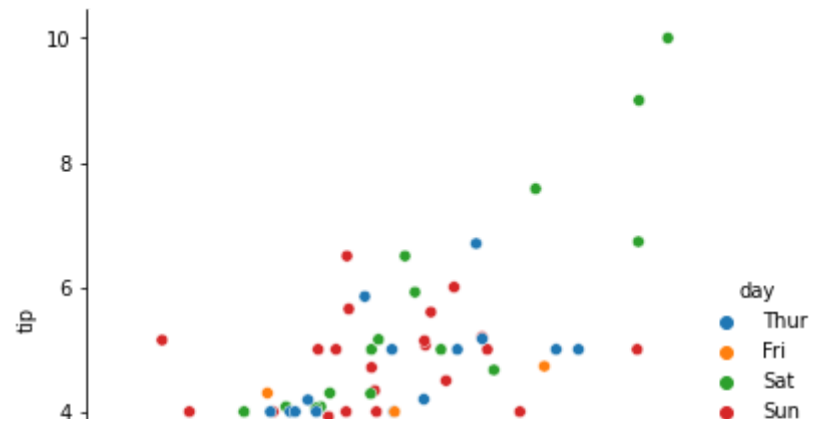
```
#catplot  
sns.catplot(x="day", y="total_bill", kind="strip", data=tips)
```

<seaborn.axisgrid.FacetGrid at 0x7f1fa06c2dd0>



```
#relplot  
sns.relplot(data=tips, x="total_bill", y="tip", hue="day", kind="scatter") # scatter n lineplot
```

```
<seaborn.axisgrid.FacetGrid at 0x7f1f93e7c750>
```

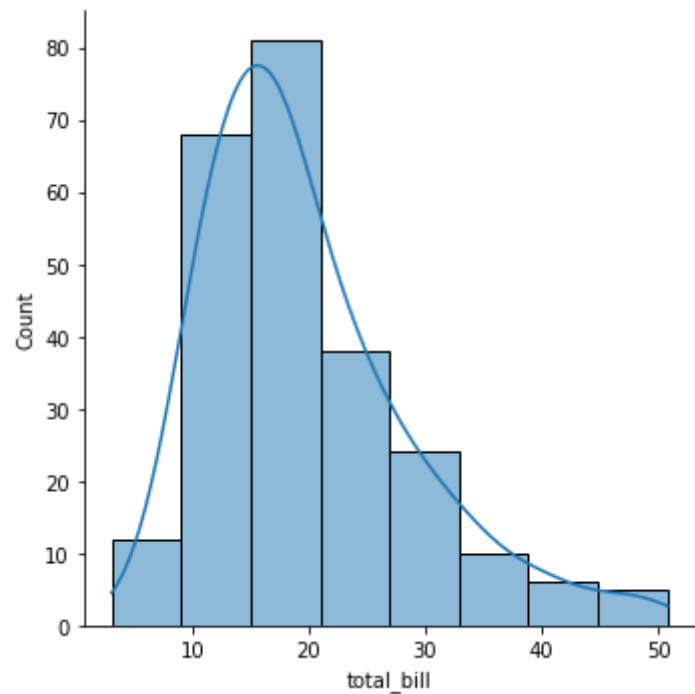


```
#Distribution plots
```

```
#displot
```

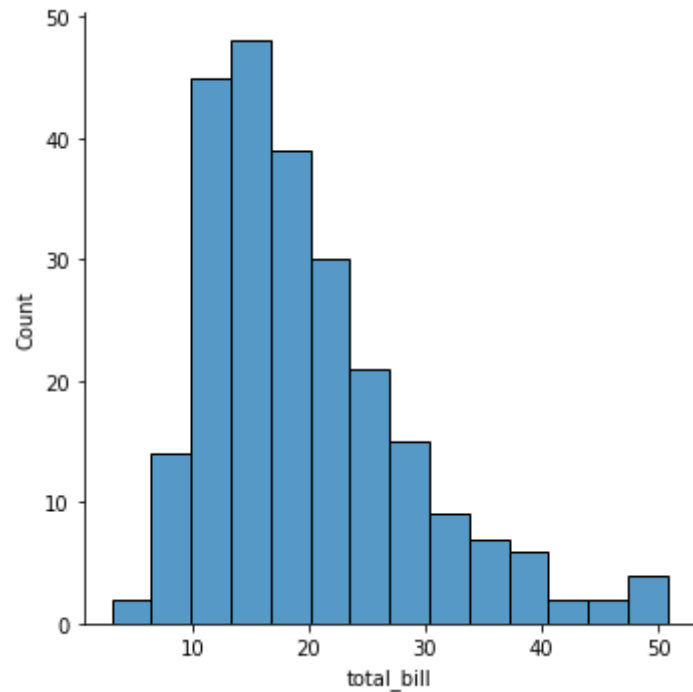
```
sns.displot(tips['total_bill'],kde=True,bins=8)
```

```
<seaborn.axisgrid.FacetGrid at 0x7fe860b2d490>
```




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

<seaborn.axisgrid.FacetGrid at 0x7fe860a0b050>



```
sns.kdeplot(data=tips, x="total_bill", hue="time", multiple="stack")
```

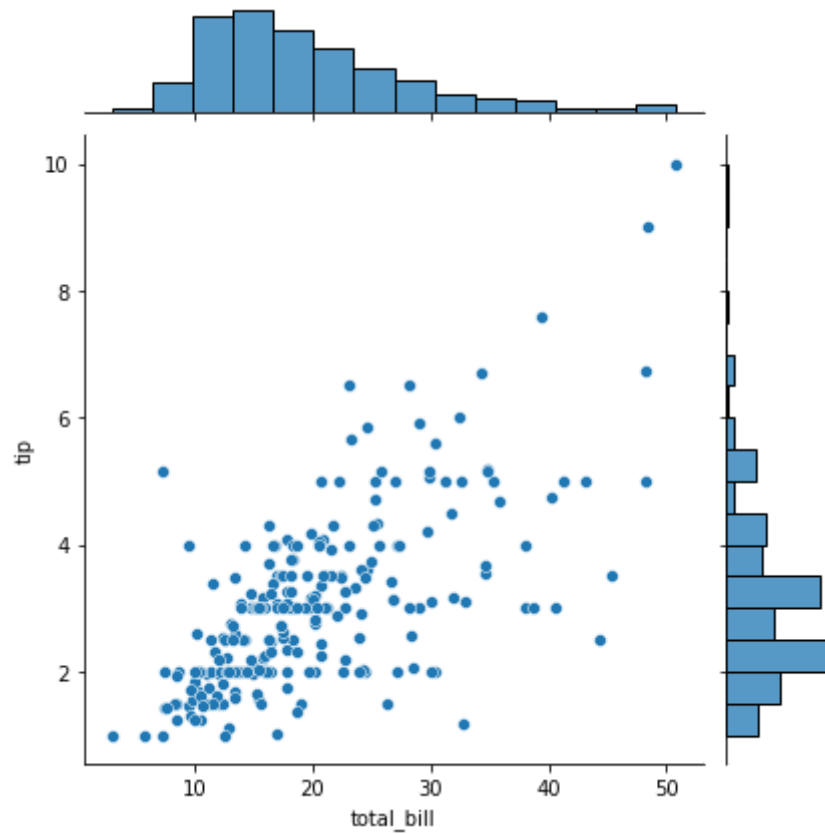
```
<matplotlib.axes._subplots.AxesSubplot at 0x7fe860c0f710>
```



```
#jointplot
```

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

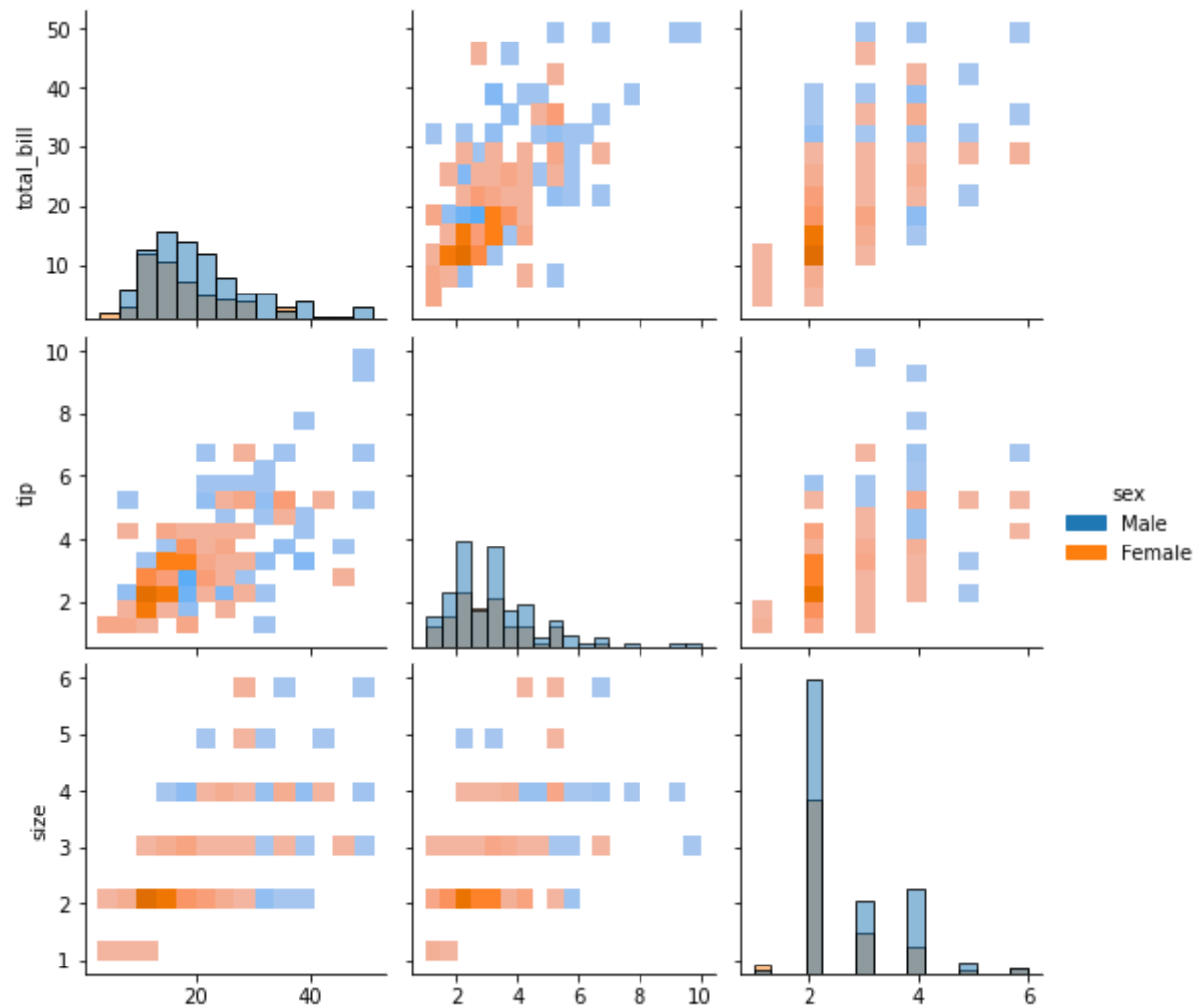
```
<seaborn.axisgrid.JointGrid at 0x7fe869537ad0>
```



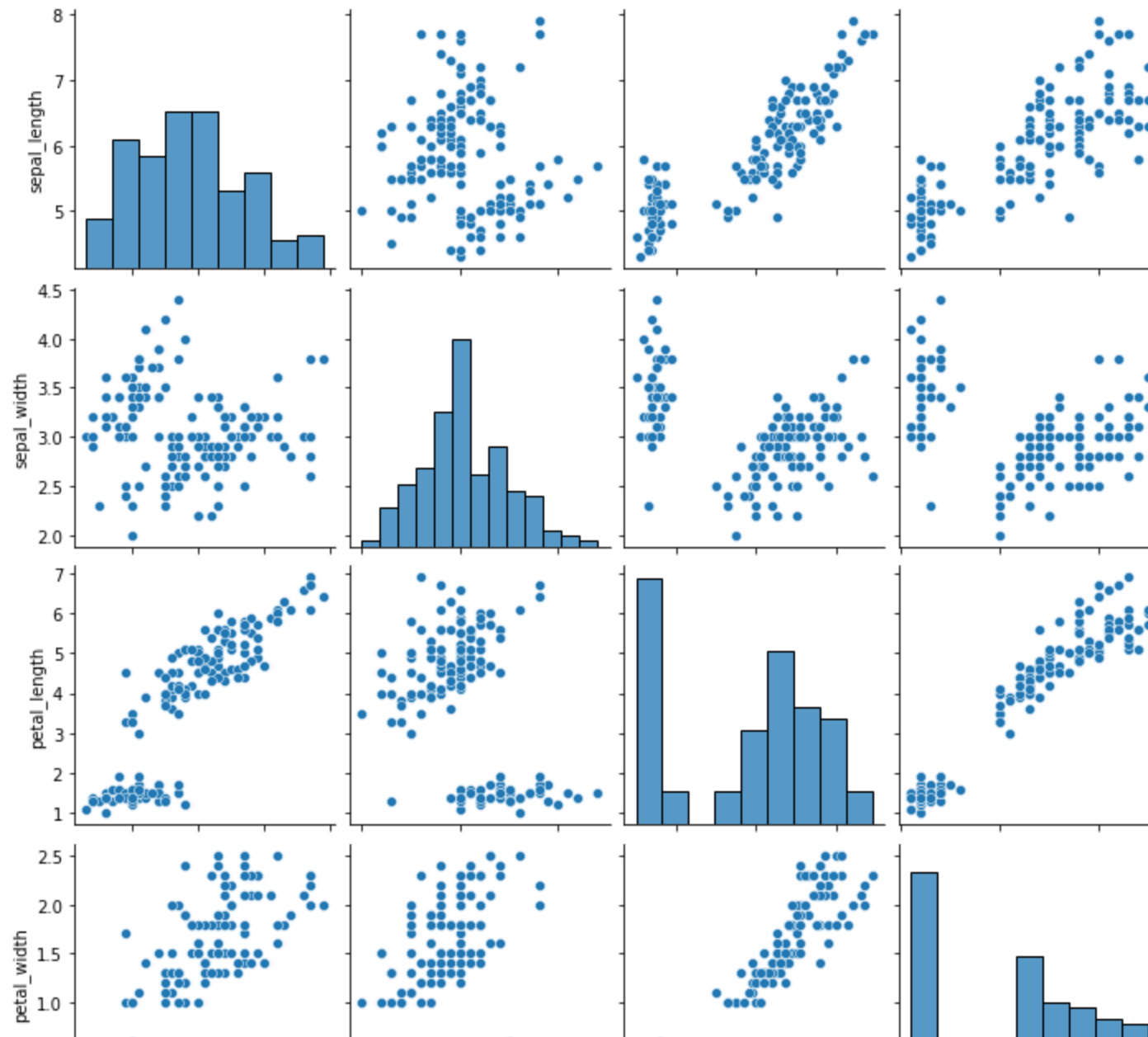
```
#pairplot
```

```
sns.pairplot(tips,kind="hist",hue='sex')
```

<seaborn.axisgrid.PairGrid at 0x7fe8607cecd0>

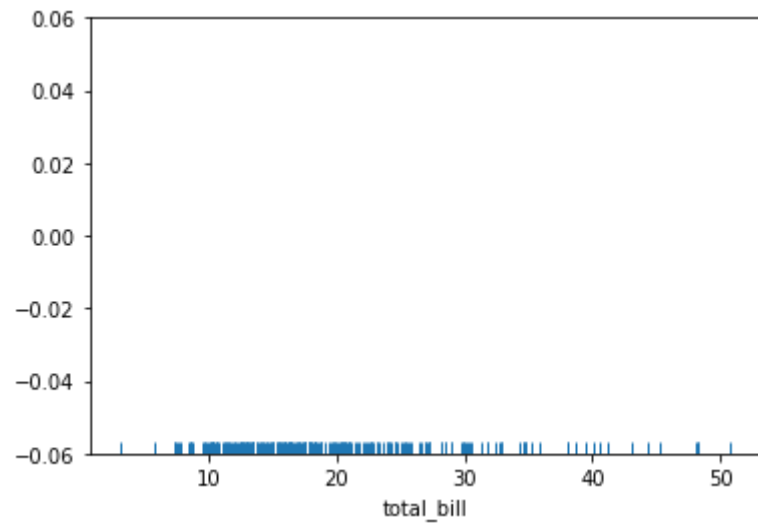


```
iris = sns.load_dataset("iris")
g = sns.pairplot(iris)
plt.show()
```



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

<matplotlib.axes._subplots.AxesSubplot at 0x7fe860118b10>



```
# marix,grid n regression plot
```

```
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

```
#matrix plot
```

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

<matplotlib.axes._subplots.AxesSubplot at 0x7fe85fb99850>



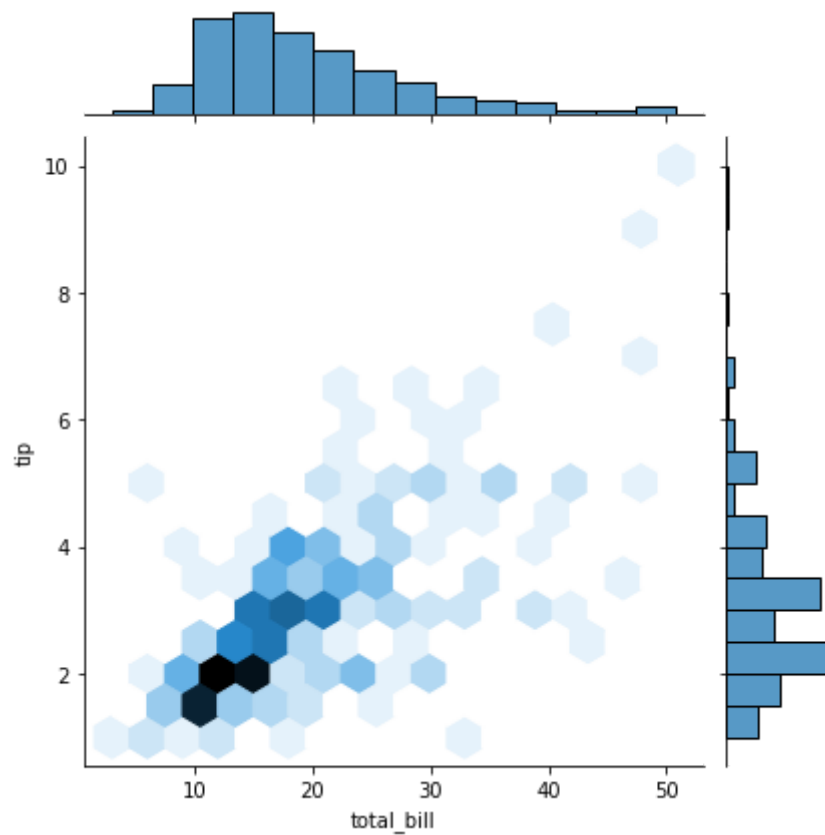
```
#Grid plot
```

```
#facetgrid
```

```
g = sns.FacetGrid(tips, col="time", row="smoker")
```

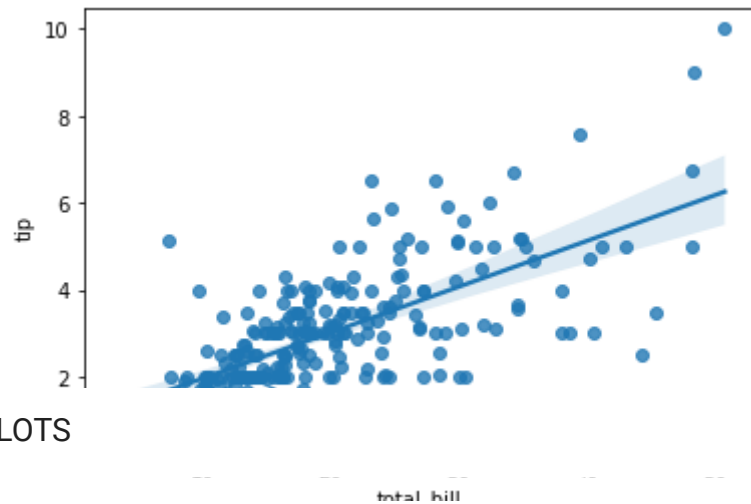
```
g = g.map(plt.scatter, "total_bill", "tip").add_legend()
```

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



```
#regression plots  
sns.regplot(x="total_bill", y="tip", data=tips)
```

<matplotlib.axes._subplots.AxesSubplot at 0x7fe85df14350>

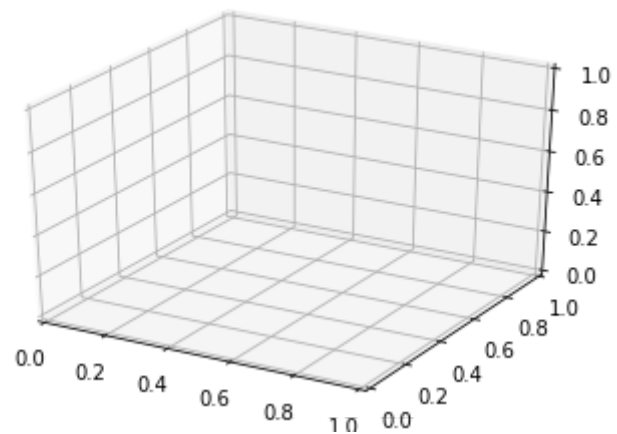


3D PLOTS

```
import numpy as np
import matplotlib.pyplot as plt

fig = plt.figure()
ax = plt.axes(projection='3d') # obtain a 3D figure

#ax.plot3D(x,y,z)
```

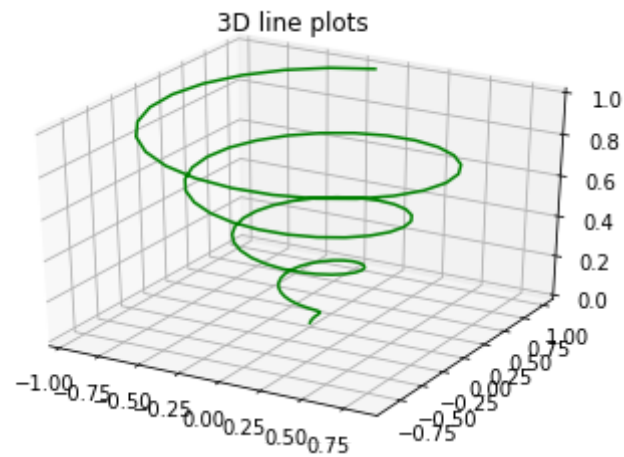



```
import numpy as np
import matplotlib.pyplot as plt

fig = plt.figure()
ax = plt.axes(projection='3d')

# defining axes
z = np.linspace(0, 1, 100)
x = z * np.sin(25 * z)
y = z * np.cos(25 * z)

ax.plot3D(x, y, z, 'green') #lineplot
ax.set_title('3D line plots ')
plt.show()
```



```
import numpy as np
import matplotlib.pyplot as plt

fig = plt.figure()
```

```

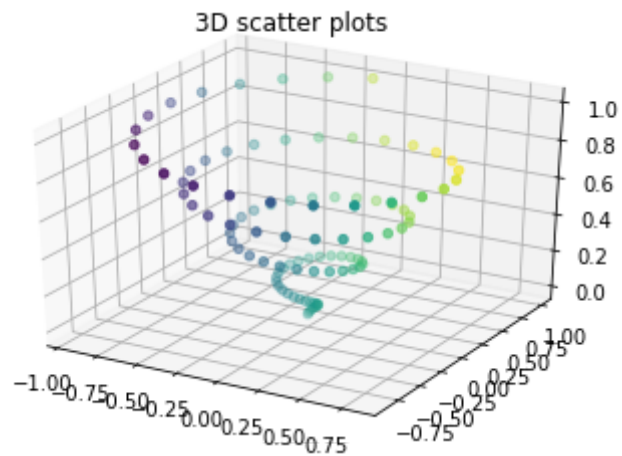
ax = plt.axes(projection = '3d')

# defining axes
z = np.linspace(0, 1, 100)
x = z * np.sin(25 * z)
y = z * np.cos(25 * z)

c=x+y
ax.scatter(x,y,z,c=c)

ax.set_title('3D scatter plots ')
plt.show()

```



```

#geospatial
import folium
my_map1 = folium.Map(location = [28.5011226, 77.4099794], zoom_start = 12 ) # mapleaflet

#folium.CircleMarker(location = [28.5011226, 77.4099794], radius = 50).add_to(my_map1) #circlemarker
folium.Marker([28.5011226, 77.4099794], popup = 'Delhi').add_to(my_map1) #

my_map1
#my_map1.save("map1.html")

```

```
import folium

my_map4 = folium.Map(location = [28.5011226, 77.4099794], zoom_start = 12)

folium.Marker([28.704059, 77.102490], popup = 'Delhi').add_to(my_map4)

folium.Marker([28.5011226, 77.4099794], popup = 'myloc').add_to(my_map4)

folium.PolyLine(locations = [(28.704059, 77.102490), (28.5011226, 77.4099794)], line_opacity = 0.5).add_to(my_map4)

my_map4
```

Make this Notebook Trusted to load map: File -> Trust Notebook



Leaflet (<http://leafletjs.com>)

