In [1]:
```
import matplotlib.pyplot as plt
%matplotlib inline
```

In [2]:
```
import numpy as np
x = np.linspace(0,5,11)
y = x**2
```

In [3]:
```
x
```

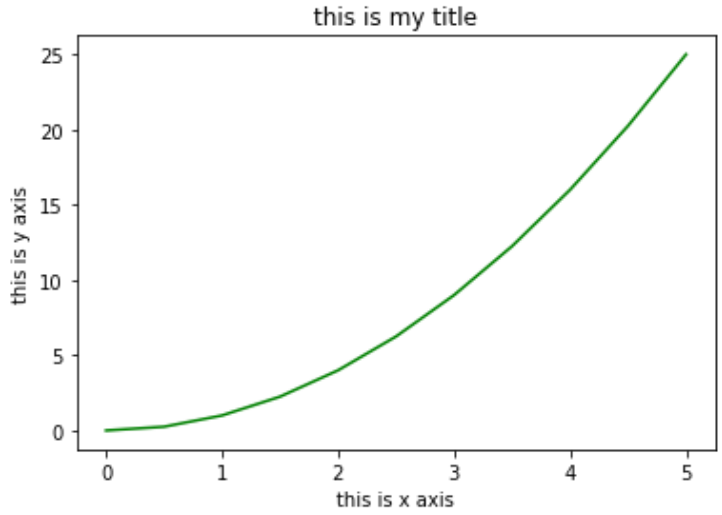
Out[3]:
```
array([0. , 0.5, 1. , 1.5, 2. , 2.5, 3. , 3.5, 4. , 4.5, 5. ])
```

In [4]:
```
y
```

Out[4]:
```
array([ 0.  ,  0.25,  1.  ,  2.25,  4.  ,  6.25,  9.  , 12.25, 16.  ,
       20.25, 25.  ])
```

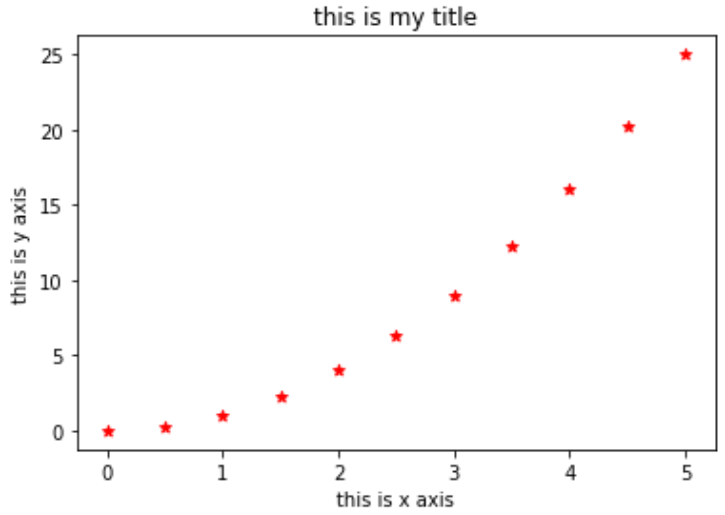
In [5]:
```
plt.plot(x,y,'g')
plt.xlabel("this is x axis")
plt.ylabel("this is y axis")
plt.title("this is my title")
```

Out[5]: Text(0.5, 1.0, 'this is my title')



In [6]:
```
plt.scatter(x,y,color = "red",marker = "*")
plt.xlabel("this is x axis")
plt.ylabel("this is y axis")
plt.title("this is my title")
```

Out[6]: Text(0.5, 1.0, 'this is my title')

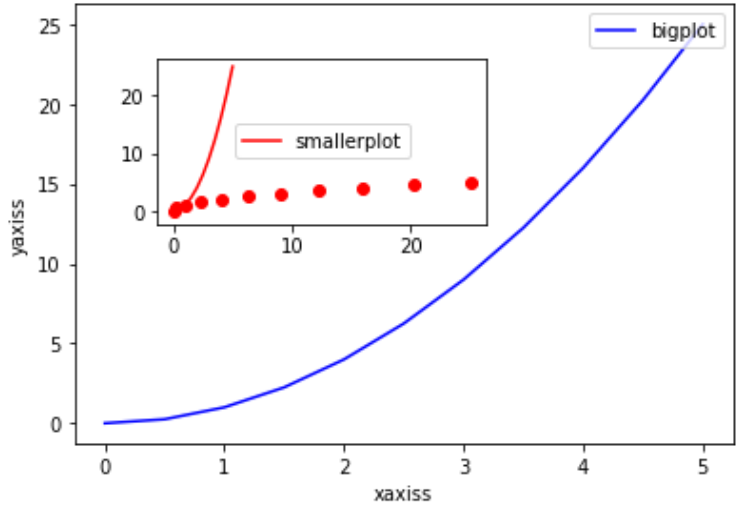


In [7]:
```
plt.subplot(3,3,1)
plt.plot(x,y,'g')
plt.xlabel("this is x axis")
plt.ylabel("this is y axis")
plt.title("this is my title")
plt.subplot(3,3,3)
plt.scatter(x,y,color = "red",marker = "*")
plt.xlabel("this is x axis")
plt.ylabel("this is y axis")
plt.title("this is my title")
```

Out[7]: Text(0.5, 1.0, 'this is my title')

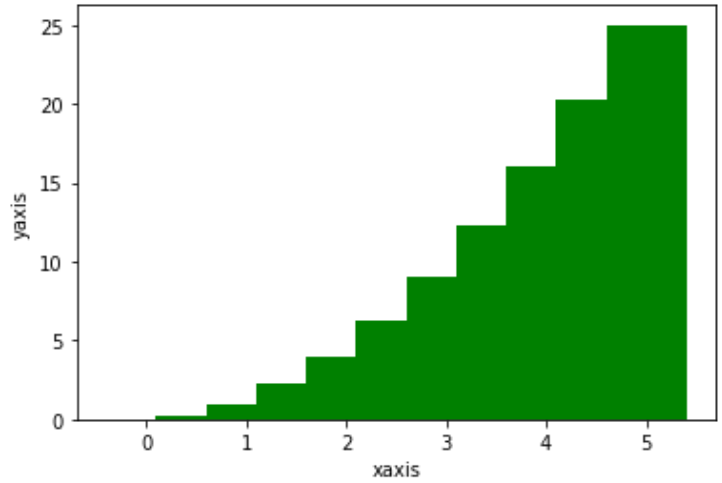
In [8]:
```
fig = plt.figure()
axes = fig.add_axes([0.1,0.1,0.8,0.8])
axes2 = fig.add_axes([0.2,0.5,0.4,0.3])

axes.plot(x,y,'b',label = "bigplot")
axes.legend(loc = "upper right")
axes.set_xlabel("xaxiss")
axes.set_ylabel("yaxiss")
axes2.plot(x,y,'red',label = "smallerplot")
axes2.scatter(y,x,color = 'red')
axes2.legend(loc  = "center")
```

Out[8]: <matplotlib.legend.Legend at 0x20683db4608>



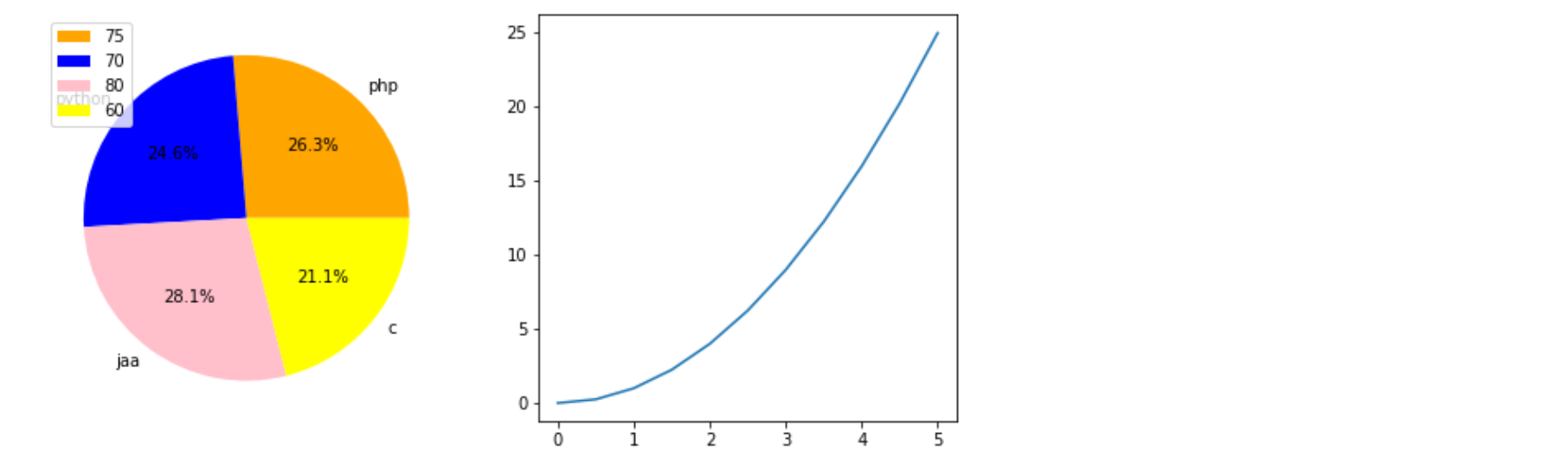
In [13]:
```
plt.bar(x,y,color = "green")
plt.xlabel("xaxis")
plt.ylabel("yaxis")
```

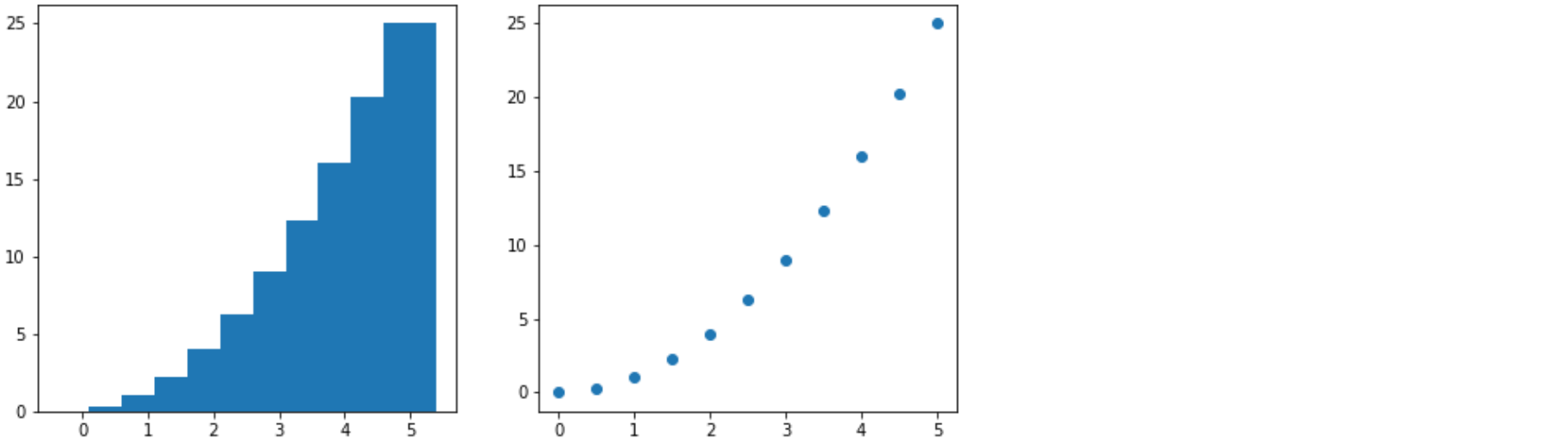
Out[13]: Text(0, 0.5, 'yaxis')



In [62]:
```
labels = ["php","python","jaa","c"]
number = [75,70,80,60]
fig = plt.figure(figsize = (10,10))
ax = fig.add_subplot(2,2,1)
ax1 = fig.add_subplot(2,2,2)
ax2 = fig.add_subplot(2,2,3)
ax3 = fig.add_subplot(2,2,4)
ax.pie(number,labels =labels, autopct = '%0.1f%%',colors = ["orange","blue","pink","yellow"])
ax1.plot(x,y)
ax2.bar(x,y)
ax3.scatter(x,y)

ax.legend(number,loc = "upper left")
```

Out[62]:
```
<matplotlib.legend.Legend at 0x20686f531c8>
```





Seaborn

In [65]:
```
import seaborn as sns
```

In [96]:
```
tips = sns.load_dataset('iris')
```

In [97]:
```
tips
```

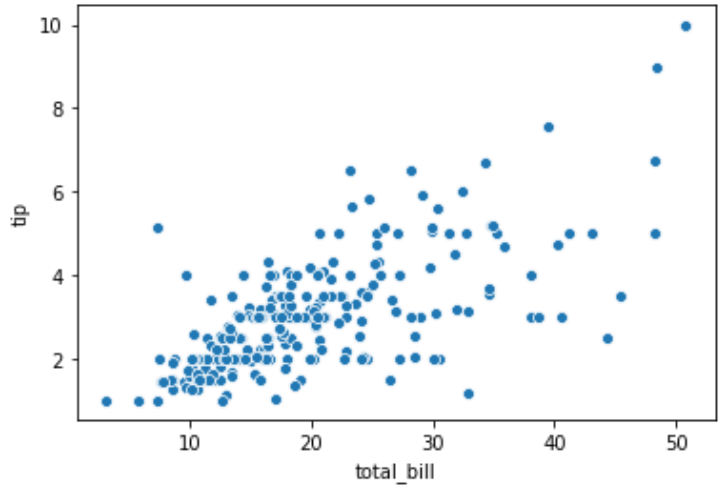
Out[97]:

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	virginica
146	6.3	2.5	5.0	1.9	virginica
147	6.5	3.0	5.2	2.0	virginica
148	6.2	3.4	5.4	2.3	virginica
149	5.9	3.0	5.1	1.8	virginica

150 rows × 5 columns

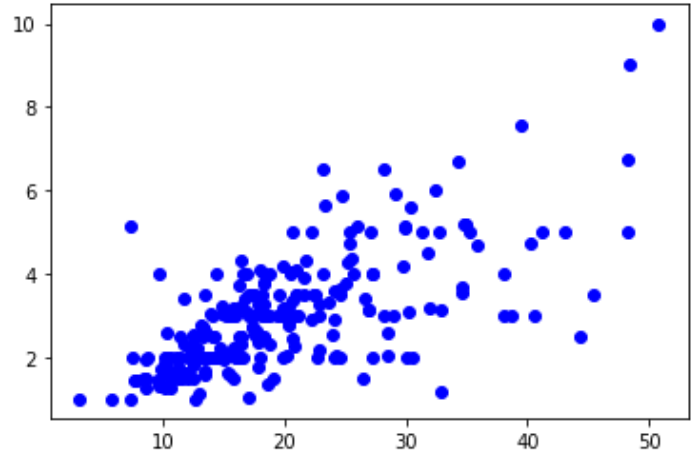
In [73]:
```
sns.scatterplot(x = "total_bill",y = "tip" ,data = tips )
```

Out[73]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2068a6e5e48>
```



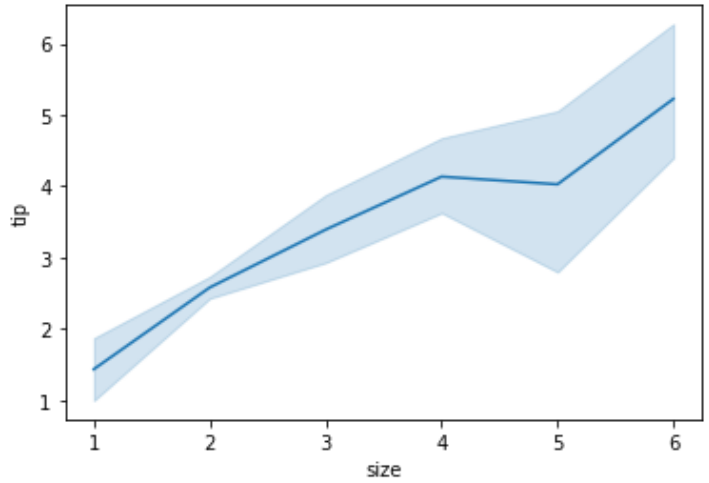
In [74]:
```
plt.scatter(tips["total_bill"],tips["tip"],color = 'blue')
```

Out[74]:
```
<matplotlib.collections.PathCollection at 0x2068a773608>
```



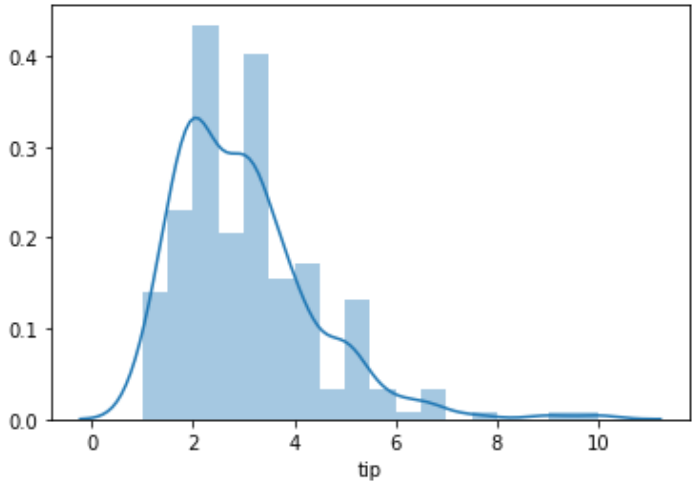
In [70]:
```
sns.lineplot(x="size",y="tip",data = tips)
```

Out[70]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2068a5b9a48>
```



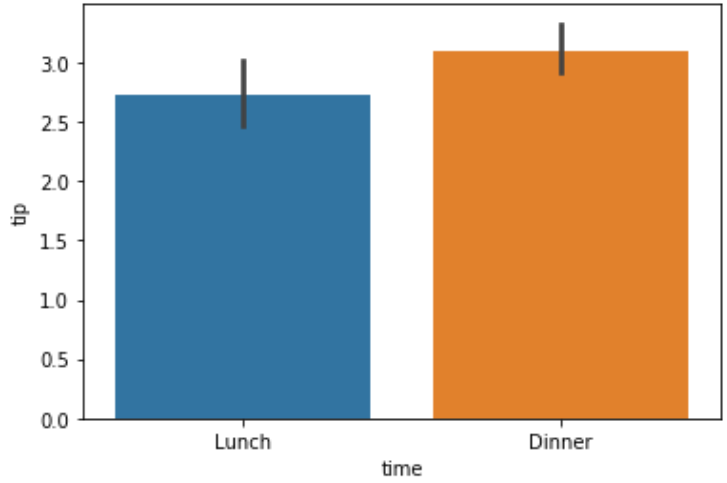
In [76]:
```
sns.distplot(tips['tip'])
```

Out[76]: <matplotlib.axes._subplots.AxesSubplot at 0x2068a7ac808>



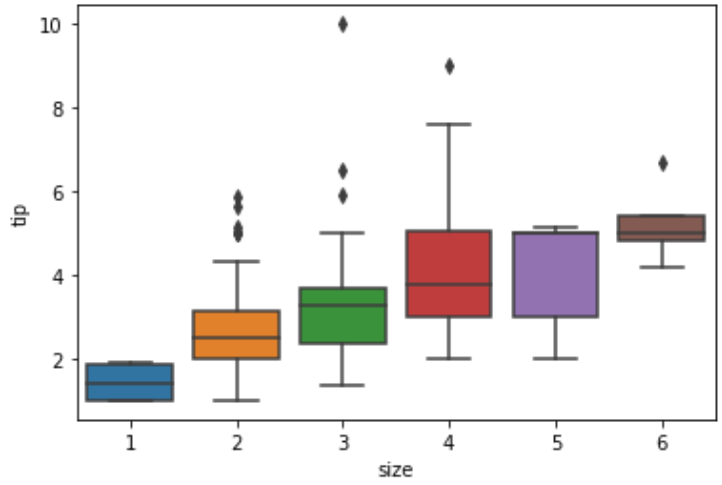
In [78]:
```
sns.barplot(x = "time",y="tip",data =  tips)
```

Out[78]: <matplotlib.axes._subplots.AxesSubplot at 0x2068721ad48>



In [80]:
```
sns.boxplot(x = "size",y="tip", data = tips)
```

Out[80]: <matplotlib.axes._subplots.AxesSubplot at 0x20686ce5e08>



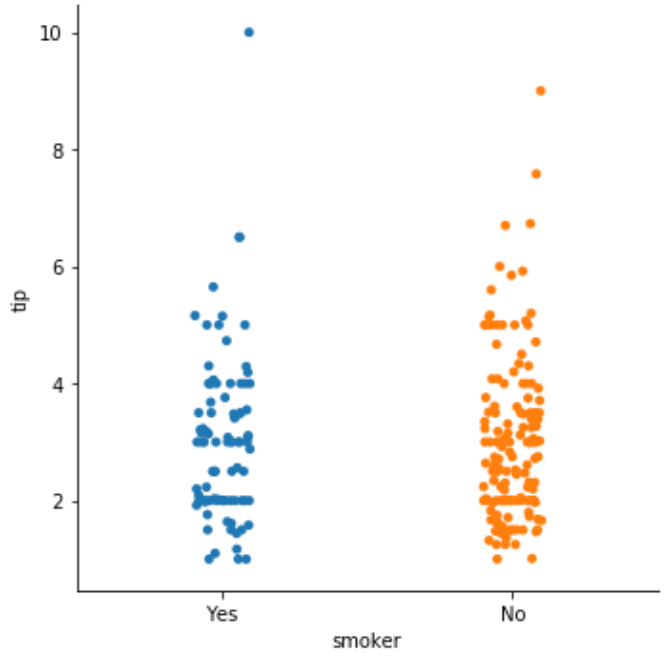

```
tips.describe()
```

In [82]:
```
1 - 1.0 ,2.0,3.0,2.0,6,2
2
3
4
5
6
```

Out[82]: 6

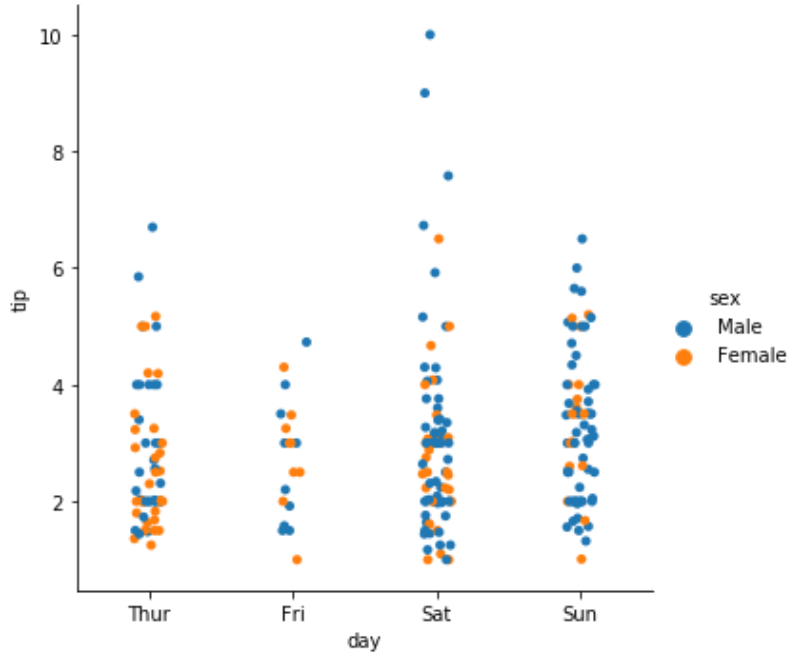
In [83]:
```
sns.catplot(x="smoker",y="tip",data = tips)
```

Out[83]:
```
<seaborn.axisgrid.FacetGrid at 0x206872bd188>
```



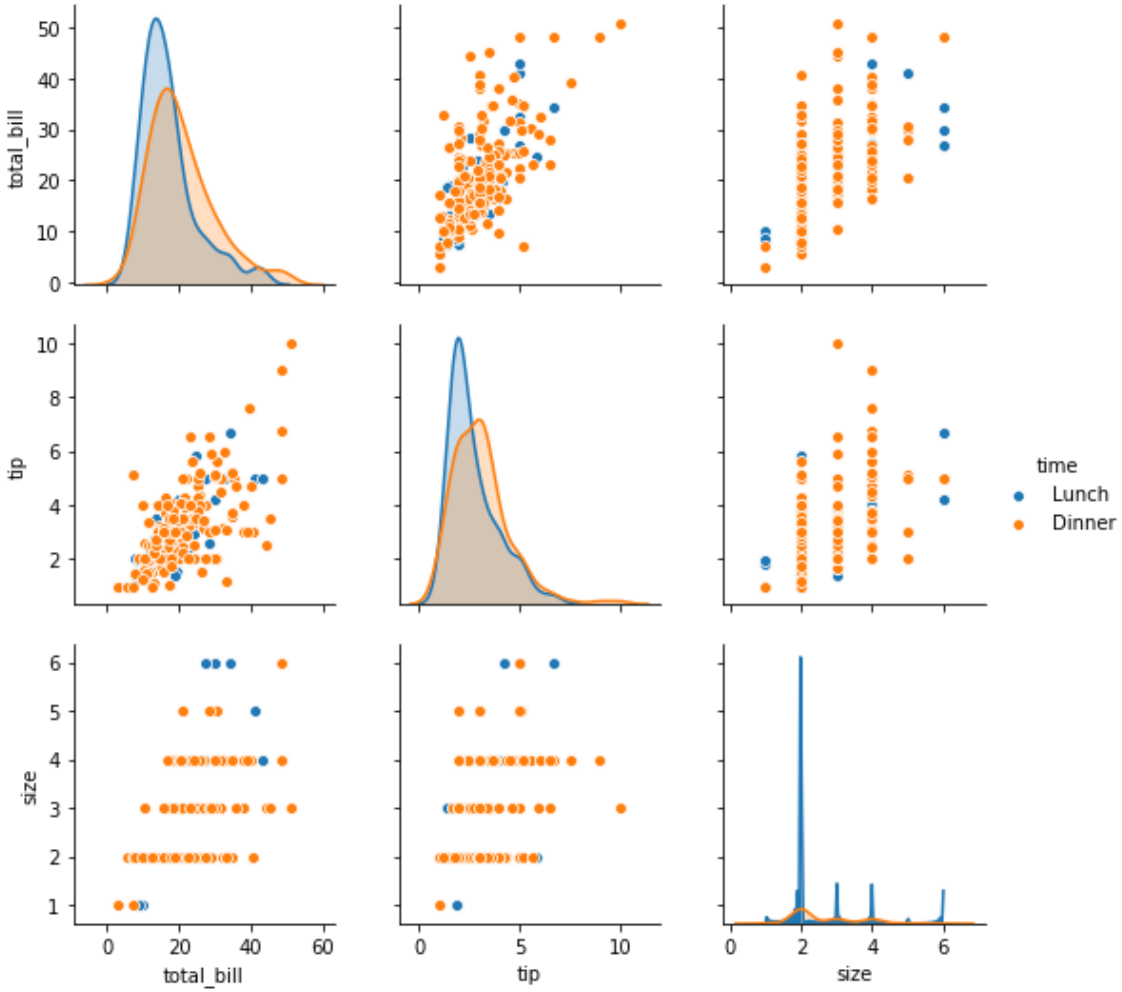
In [85]:
```
sns.catplot(x="day",y="tip",hue = 'sex',data = tips)
```

Out[85]:
```
<seaborn.axisgrid.FacetGrid at 0x206872dc4c8>
```



In [95]:
```
sns.pairplot(tips,hue = 'time')
```

Out[95]: <seaborn.axisgrid.PairGrid at 0x2068d496bc8>



In [88]:
```
tips.corr()
```

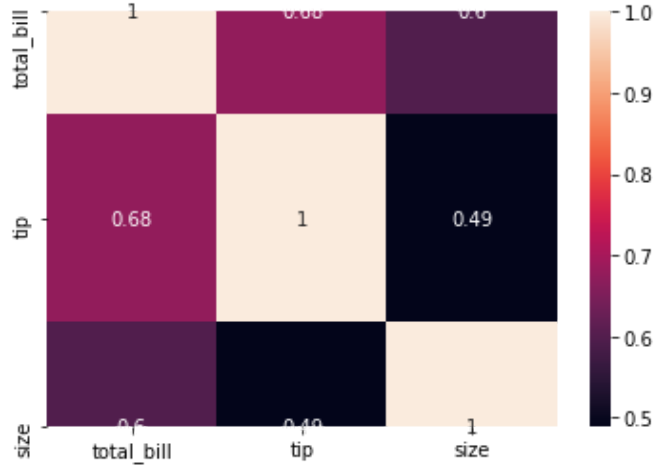
Out[88]:

	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

```
-1 to 1
threshold 0.5
value >0.5 - it is higly possitively corelated - directproportionality
valuues <0.5 - it is partially corelated
value >-0.5  - its  is partially negatively corelated
value <-0.5 - it is negatively highly corelated -   inverse proportionalyity
```

In [92]:
```
sns.heatmap(tips.corr(),annot = True)
```

Out[92]: <matplotlib.axes._subplots.AxesSubplot at 0x2068c5f6ac8>



In [ ]:
```

```