

In [1]:

```
!pip install matplotlib
!pip install seaborn
```

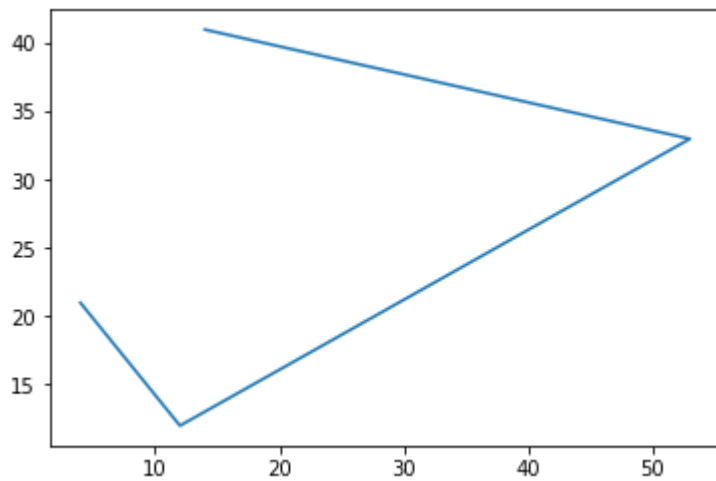
```
Requirement already satisfied: matplotlib in c:\programdata\anaconda3\lib\site-packages (3.0.3)
Requirement already satisfied: numpy>=1.10.0 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (1.16.2)
Requirement already satisfied: cycler>=0.10 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (0.10.0)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (1.0.1)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (2.3.1)
Requirement already satisfied: python-dateutil>=2.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (2.8.0)
Requirement already satisfied: six in c:\programdata\anaconda3\lib\site-packages (from cycler>=0.10->matplotlib) (1.12.0)
Requirement already satisfied: setuptools in c:\programdata\anaconda3\lib\site-packages (from kiwisolver>=1.0.1->matplotlib) (40.8.0)
Requirement already satisfied: seaborn in c:\programdata\anaconda3\lib\site-packages (0.9.0)
Requirement already satisfied: pandas>=0.15.2 in c:\programdata\anaconda3\lib\site-packages (from seaborn) (0.24.2)
Requirement already satisfied: scipy>=0.14.0 in c:\programdata\anaconda3\lib\site-packages (from seaborn) (1.2.1)
Requirement already satisfied: matplotlib>=1.4.3 in c:\programdata\anaconda3\lib\site-packages (from seaborn) (3.0.3)
Requirement already satisfied: numpy>=1.9.3 in c:\programdata\anaconda3\lib\site-packages (from seaborn) (1.16.2)
Requirement already satisfied: python-dateutil>=2.5.0 in c:\programdata\anaconda3\lib\site-packages (from pandas>=0.15.2->seaborn) (2.8.0)
Requirement already satisfied: pytz>=2011k in c:\programdata\anaconda3\lib\site-packages (from pandas>=0.15.2->seaborn) (2018.9)
Requirement already satisfied: cycler>=0.10 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=1.4.3->seaborn) (0.10.0)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=1.4.3->seaborn) (1.0.1)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=1.4.3->seaborn) (2.3.1)
Requirement already satisfied: six>=1.5 in c:\programdata\anaconda3\lib\site-packages (from python-dateutil>=2.5.0->pandas>=0.15.2->seaborn) (1.12.0)
Requirement already satisfied: setuptools in c:\programdata\anaconda3\lib\site-packages (from kiwisolver>=1.0.1->matplotlib>=1.4.3->seaborn) (40.8.0)
```

In [2]:

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

In [6]:

```
plt.plot([4,12,53,14],[21,12,33,41])  
plt.show()
```



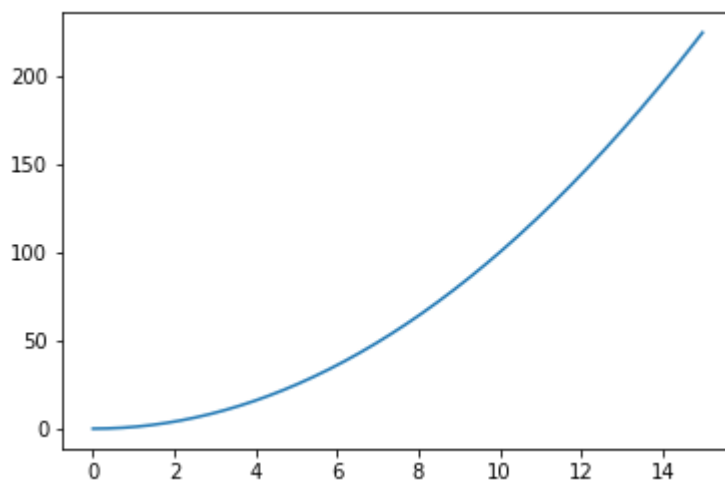
In [10]:

```
x = range(16)  
print([xi for xi in x])
```

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15]
```

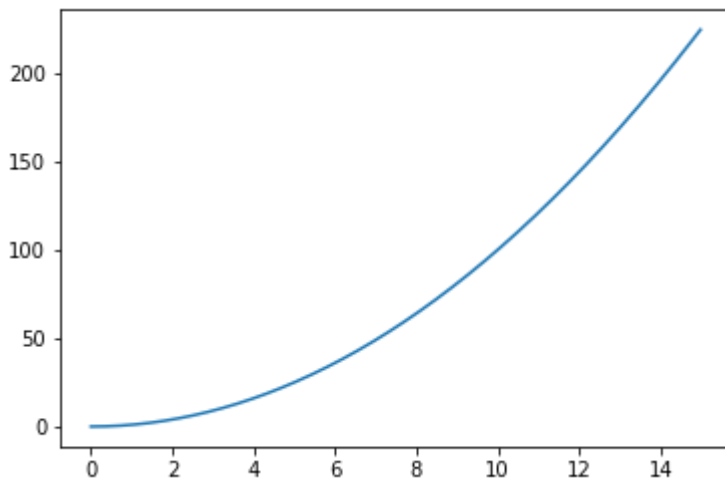
In [49]:

```
plt.plot(x,[xi**2 for xi in x])  
plt.show()
```



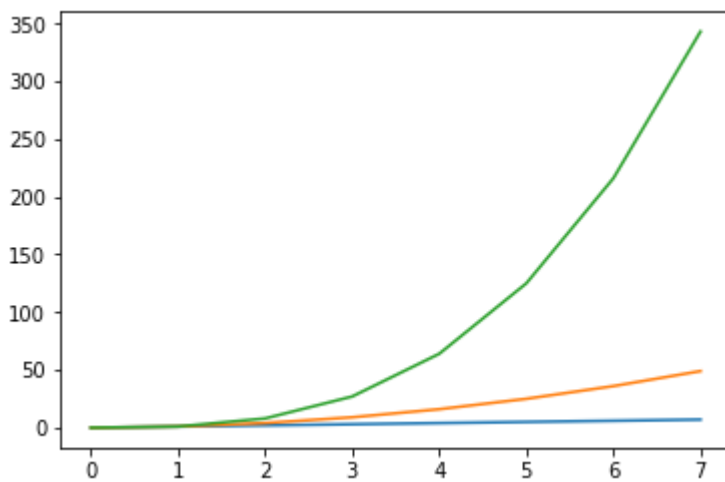
In [51]:

```
import numpy
x = numpy.arange(0,15,0.02)
plt.plot(x,[xi**2 for xi in x])
plt.show()
```



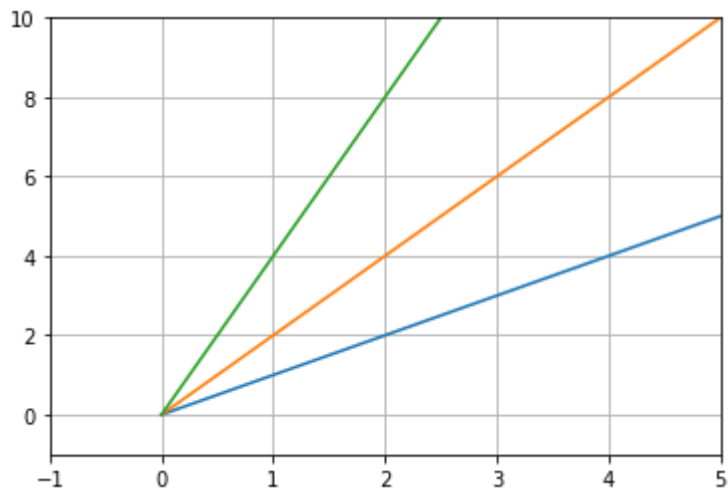
In [57]:

```
x = range(8)
plt.plot(x,[xi for xi in x])
plt.plot(x,[xi*xi for xi in x])
plt.plot(x,[xi*xi*xi for xi in x])
plt.show()
```



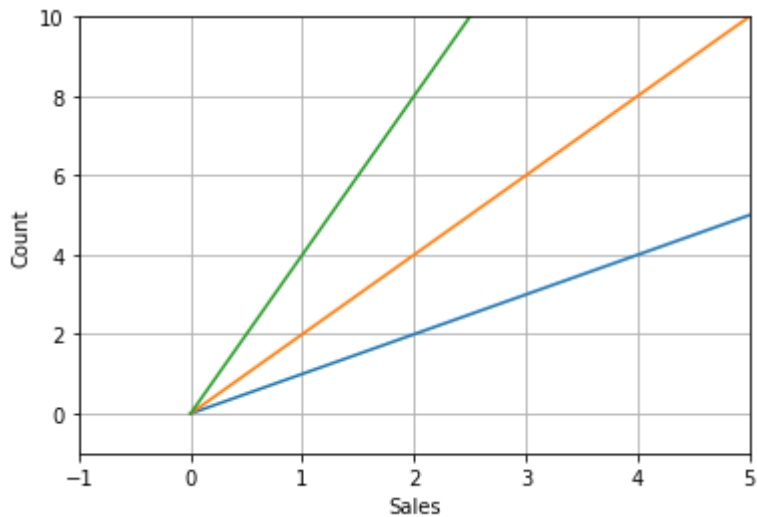
In [64]:

```
x = range(35)
plt.figure()
plt.plot(x,[xi for xi in x])
plt.plot(x,[xi*2 for xi in x])
plt.plot(x,[xi*4 for xi in x])
plt.grid(True)
plt.xlim(-1,5)
plt.ylim(-1,10)
plt.show()
```



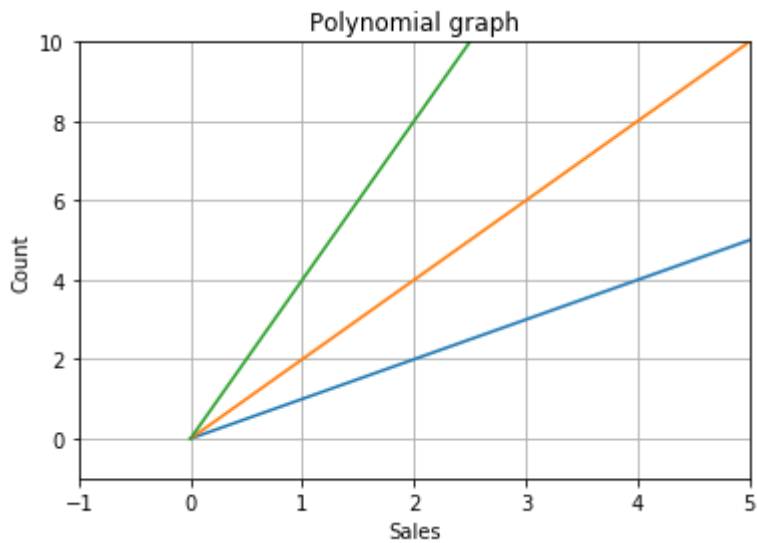
In [74]:

```
x = range(25)
plt.figure()
plt.plot(x,[xi for xi in x])
plt.plot(x,[xi*2 for xi in x])
plt.plot(x,[xi*4 for xi in x])
plt.grid(True)
plt.xlim(-1,5)
plt.ylim(-1,10)
plt.xlabel("Sales")
plt.ylabel("Count")
plt.show()
```



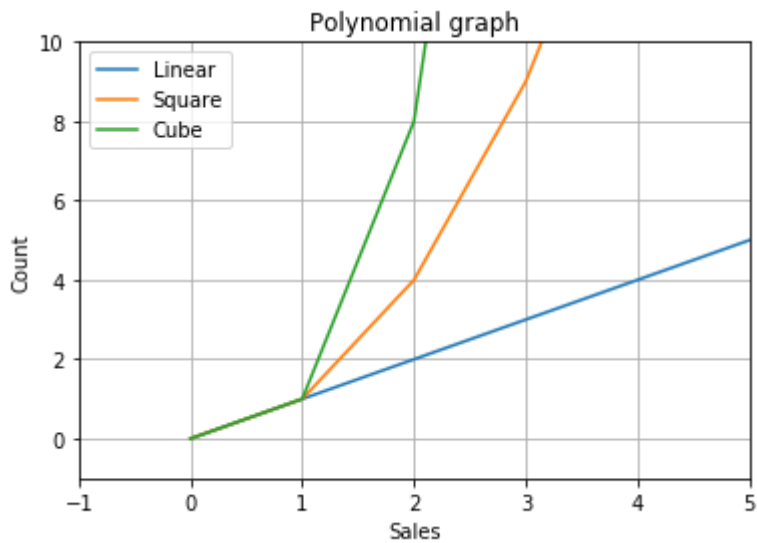
In [82]:

```
x = range(42)
plt.figure()
plt.plot(x,[xi for xi in x])
plt.plot(x,[xi*2 for xi in x])
plt.plot(x,[xi*4 for xi in x])
plt.grid(True)
plt.xlim(-1,5)
plt.ylim(-1,10)
plt.xlabel("Sales")
plt.ylabel("Count")
plt.title("Polynomial graph")
plt.show()
```



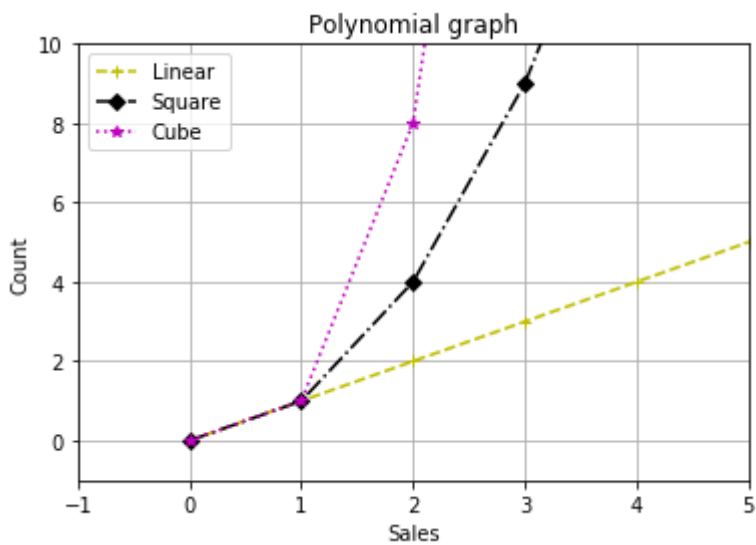
In [91]:

```
x = numpy.arange(15)
plt.figure()
plt.plot(x,x, label = 'Linear')
plt.plot(x,x*x, label = 'Square')
plt.plot(x,x*x*x, label = 'Cube')
plt.grid(True)
plt.xlim(-1,5)
plt.ylim(-1,10)
plt.xlabel("Sales")
plt.ylabel("Count")
plt.title("Polynomial graph")
plt.legend(loc = "upper left")
plt.show()
```



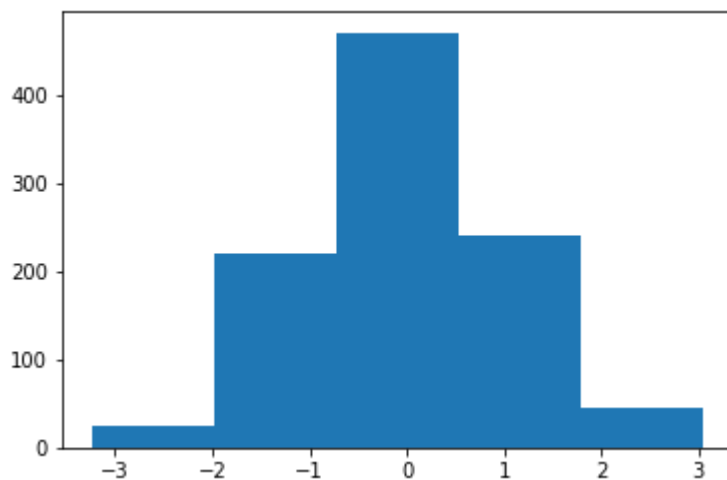
In [100]:

```
x = numpy.arange(12)
plt.figure()
plt.plot(x,x, label = 'Linear', ls = '--',c = 'y',marker = '+')
plt.plot(x,x*x, label = 'Square', ls = '-.',c = 'k', marker = 'D')
plt.plot(x,x*x*x, label = 'Cube', ls = ':',c = 'm', marker = '*')
plt.grid(True)
plt.xlim(-1,5)
plt.ylim(-1,10)
plt.xlabel("Sales")
plt.ylabel("Count")
plt.title("Polynomial graph")
plt.legend(loc = "upper left")
plt.show()
```



In [104]:

```
x = numpy.random.randn(1000)
plt.hist(x, bins = 5)
plt.show()
```



In [106]:

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

Out[106]:

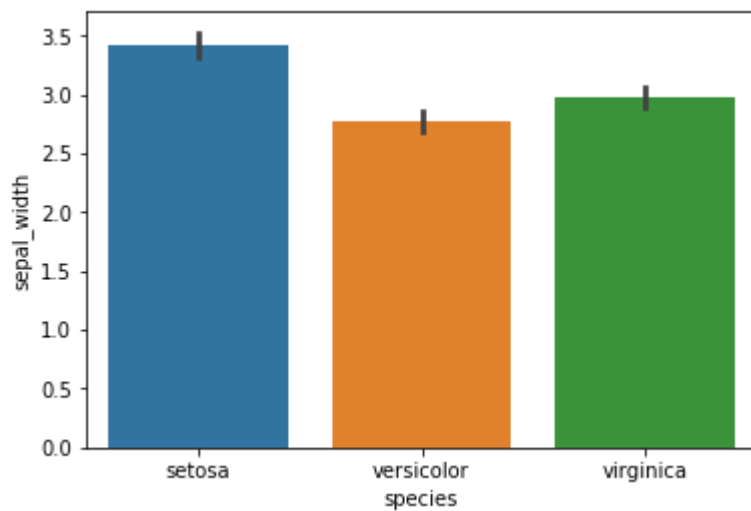
	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

In [109]:

```
sns.barplot(x = 'species', y = 'sepal_width', data = iris)
```

Out[109]:

<matplotlib.axes._subplots.AxesSubplot at 0x2261e5bb550>

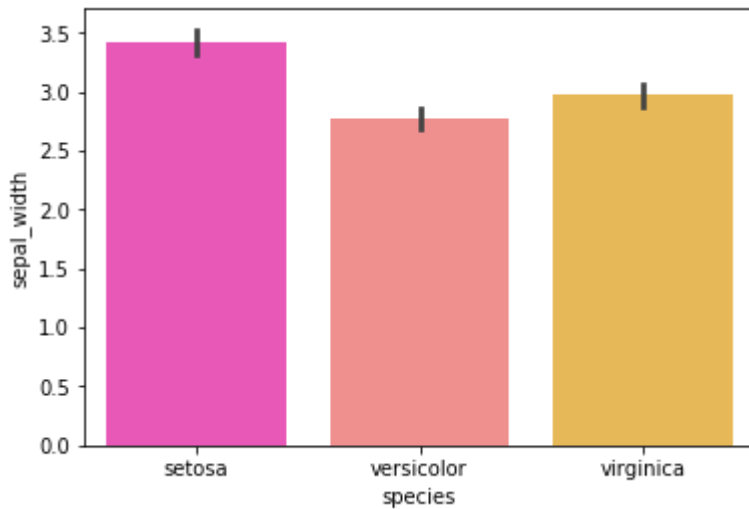


In [111]:

```
sns.barplot(x = 'species', y = 'sepal_width', data = iris,palette = 'spring')
```

Out[111]:

<matplotlib.axes._subplots.AxesSubplot at 0x2261cde52e8>

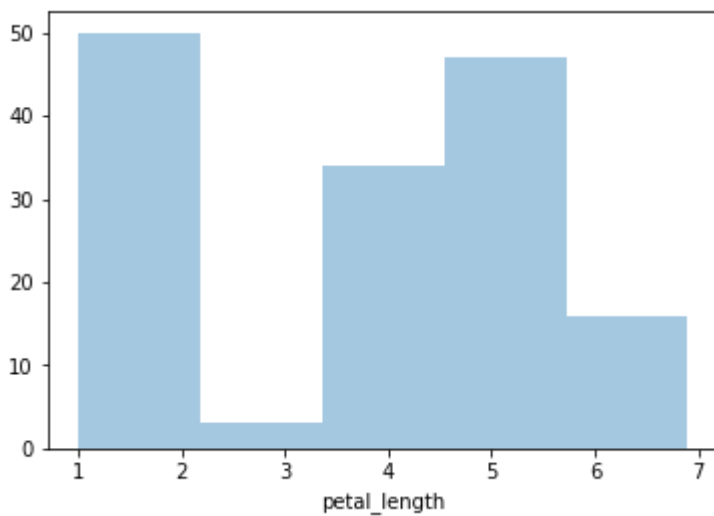


In [112]:

```
sns.distplot(iris["petal_length"],label = 'petal_length',kde = False)
```

Out[112]:

<matplotlib.axes._subplots.AxesSubplot at 0x2261d2dac18>

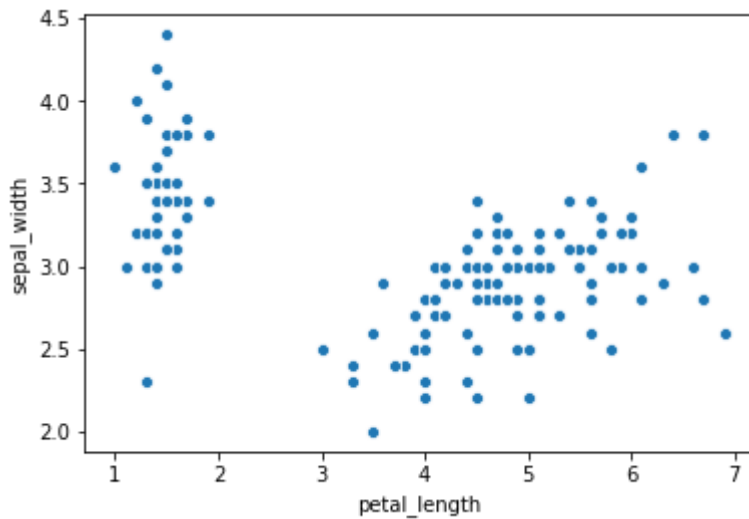


In [114]:

```
sns.scatterplot(x = 'petal_length', y = 'sepal_width', data = iris)
```

Out[114]:

<matplotlib.axes._subplots.AxesSubplot at 0x2261e63a438>



In [115]:

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

Out[115]:

	year	month	passengers
0	1949	January	112
1	1949	February	118
2	1949	March	132
3	1949	April	129
4	1949	May	121

In [117]:

```
flights1 = flights.pivot('month','year','passengers')
flights1
```

Out[117]:

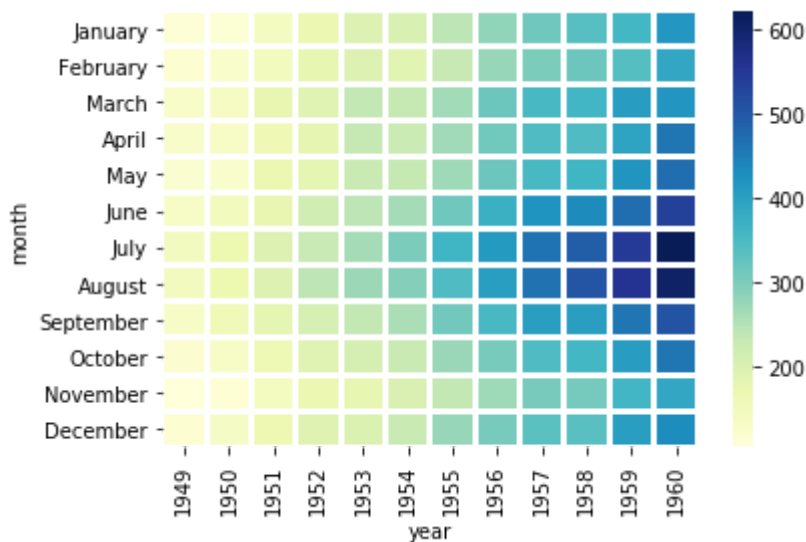
year	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
month												
January	112	115	145	171	196	204	242	284	315	340	360	417
February	118	126	150	180	196	188	233	277	301	318	342	391
March	132	141	178	193	236	235	267	317	356	362	406	419
April	129	135	163	181	235	227	269	313	348	348	396	461
May	121	125	172	183	229	234	270	318	355	363	420	472
June	135	149	178	218	243	264	315	374	422	435	472	535
July	148	170	199	230	264	302	364	413	465	491	548	622
August	148	170	199	242	272	293	347	405	467	505	559	606
September	136	158	184	209	237	259	312	355	404	404	463	508
October	119	133	162	191	211	229	274	306	347	359	407	461
November	104	114	146	172	180	203	237	271	305	310	362	390
December	118	140	166	194	201	229	278	306	336	337	405	432

In [121]:

```
sns.heatmap(flights1,cmap = 'YlGnBu',linewidth = 2,xticklabels = True,yticklabels = True)
```

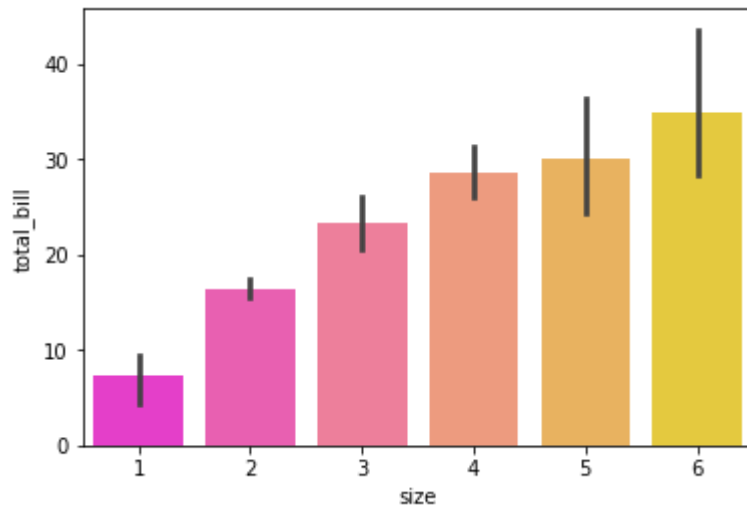
Out[121]:

<matplotlib.axes._subplots.AxesSubplot at 0x2261e55bc18>



In [125]:

```
tips = sns.load_dataset('tips')
ax = sns.barplot("size", y="total_bill", data=tips,
                 palette="spring")
#next line also works
```



In []: