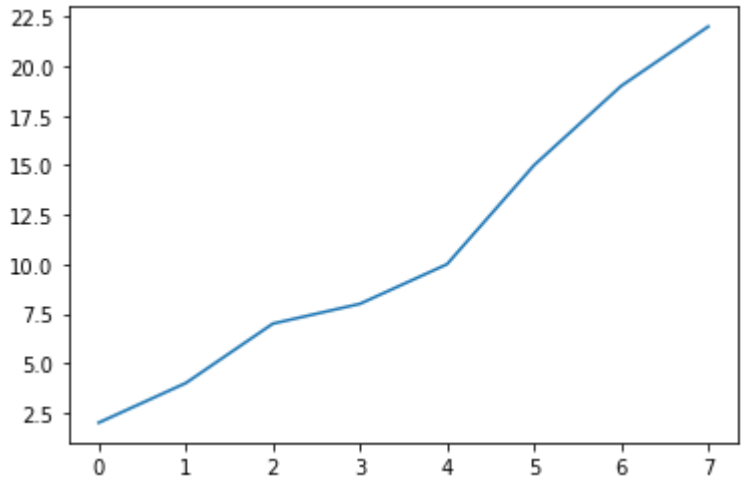
In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
```

Line styles

Let's plot a simple line graph using sample data. We can do so using plt.plot():

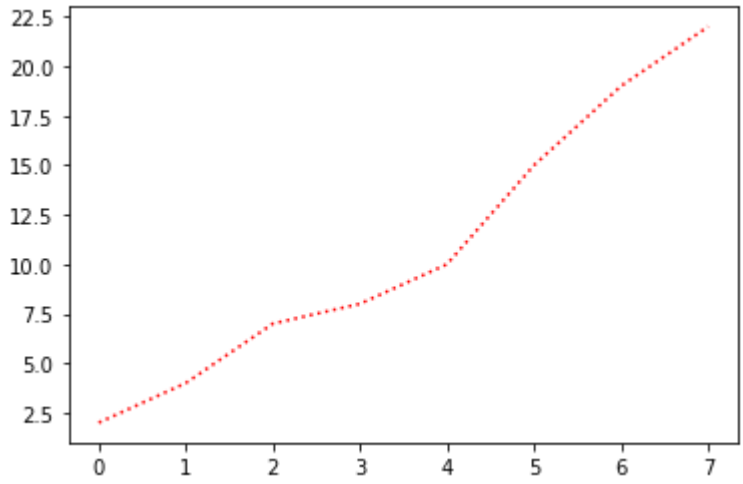
In [2]:
```
x = [2,4,7,8,10,15,19,22]
plt.plot(x);
```



In [4]:
```
import matplotlib
matplotlib.lines.lineStyles
matplotlib.lines.lineStyles
```

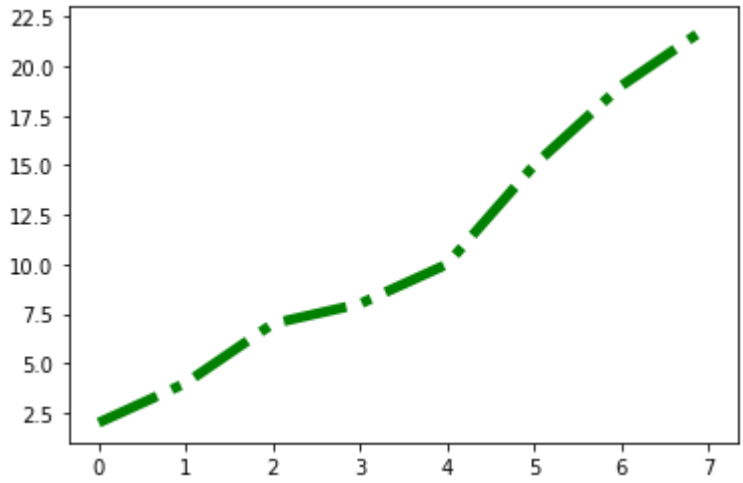
Out[4]:
```
{'-': '_draw_solid',
 '--': '_draw_dashed',
 '-.': '_draw_dash_dot',
 ':': '_draw_dotted',
 'None': '_draw_nothing',
 ' ': '_draw_nothing',
 '': '_draw_nothing'}
```

In [5]:
```
plt.plot(x,linestyle=':',color='red');
```



In [6]:
```
plt.plot(x,linestyle='dashdot',color='green',linewidth=5)
```

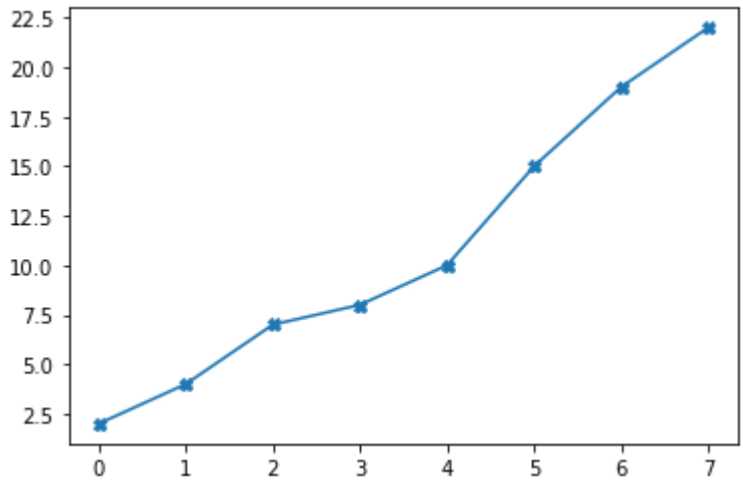
Out[6]:
```
[<matplotlib.lines.Line2D at 0x1eb7abd5790>]
```



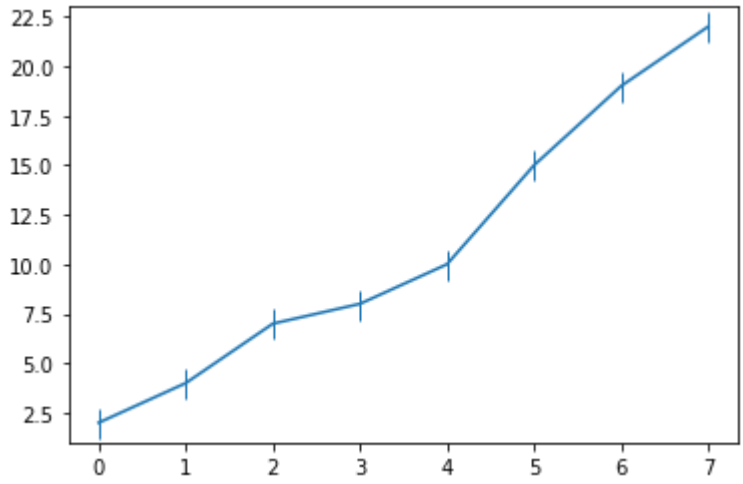
Markers

Markers are used to highlight points on the graph. Like linestyle, there's a long list of selections of linemarkers. Here's how they can be viewed, along with a few examples:

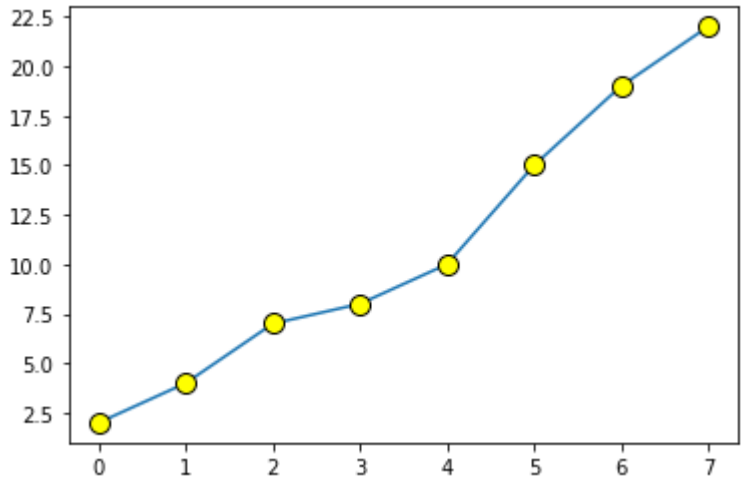
In [7]:
```
matplotlib.lines.lineMarkers
{'.': 'point',
 ',': 'pixel',
 'o': 'circle',
 'v': 'triangle_down',
 '^': 'triangle_up',
 '<': 'triangle_left',
 '>': 'triangle_right',
 '1': 'tri_down',
 '2': 'tri_up'}

plt.plot(x, marker='X');
```



In [8]:
```
plt.plot(x, marker='|',markersize=15);
```



In [9]:
```
plt.plot(x, marker='o', markersize=10, markeredgecolor='black',
markerfacecolor='yellow');
```

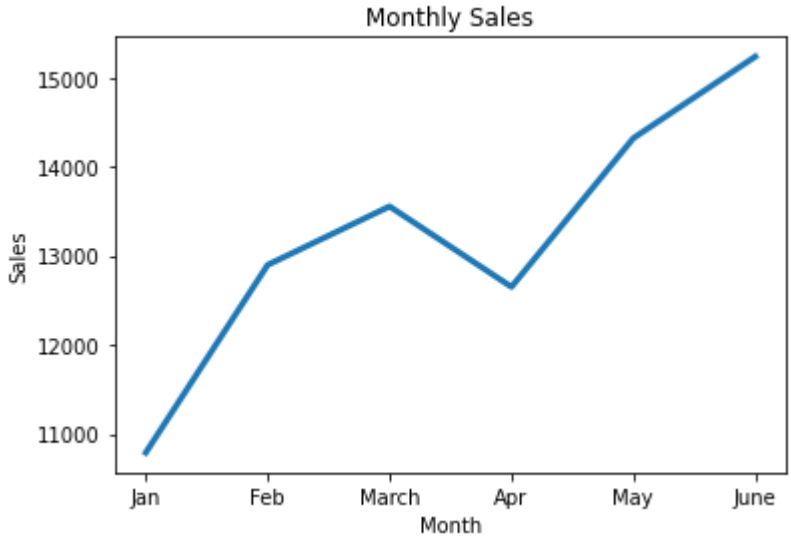


Title and axes labels

Most times, it's necessary to add texts or labels to the axes of the graphs to help viewers understand what the plot is actually about. In Matplotlib, we do this using xlabel() and ylabel().

Here's sample data to show the monthly sales of a company:

In [10]:
```
months = ['Jan', 'Feb', 'March', 'Apr', 'May', 'June']
sales = [10789, 12897, 13554, 12650, 14320, 15236]

plt.plot(months,sales,linewidth=3)
plt.xlabel('Month')
plt.ylabel('Sales')
plt.title('Monthly Sales');
```

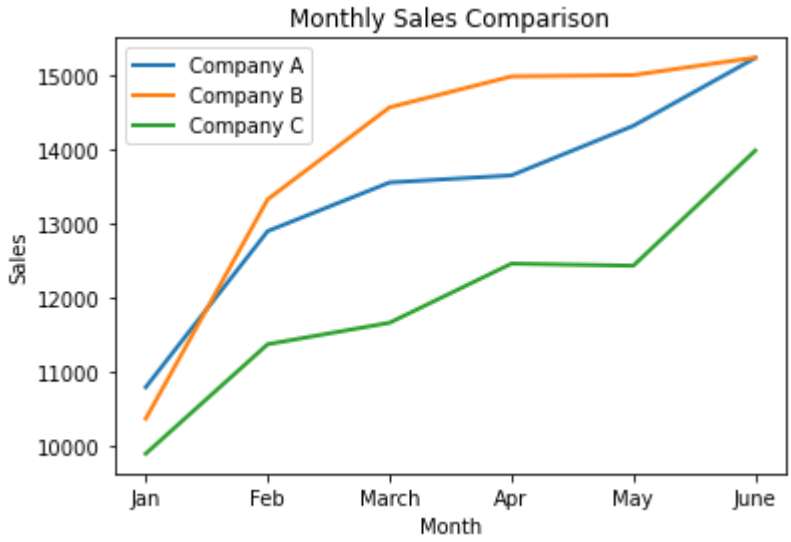


Legend

When plotting multiple lines in a graph, legends are used to describe the different elements using matplotlib.pyplot.legend().

Loc is used to specify the location of the legend index. The values can be ‘upper left’, ‘upper right’, ‘lower left’, and ‘lower right’ of the corresponding graph.

In [11]:
```
salesA = [10789, 12897, 13554, 13650, 14320, 15236]
salesB = [10364, 13326, 14569, 14987, 15005, 15241]
salesC = [9891, 11369, 11659, 12458, 12430, 13985]

plt.plot(months,salesA,linewidth=2)
plt.plot(months,salesB,linewidth=2)
plt.plot(months,salesC,linewidth=2)

plt.xlabel('Month')
plt.ylabel('Sales')
plt.title('Monthly Sales Comparison')
plt.legend(labels=['Company A', 'Company B', 'Company C'], loc='upper left'
```



Grid

The plt.grid() function is used to add a grid to the plots. Let’s add one to the Monthly Sales Comparison Plot:

In [12]:
```
plt.plot(months,salesA,linewidth=2)
plt.plot(months,salesB,linewidth=2)
plt.plot(months,salesC,linewidth=2)

plt.xlabel('Month')
plt.ylabel('Sales')
plt.title('Monthly Sales Comparison')
plt.legend(labels=['Company A', 'Company B', 'Company C'], loc='upper left'
plt.grid(True);
```