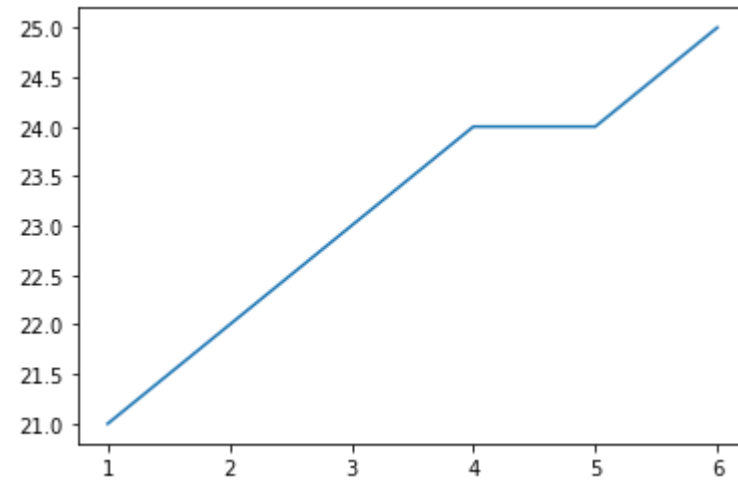


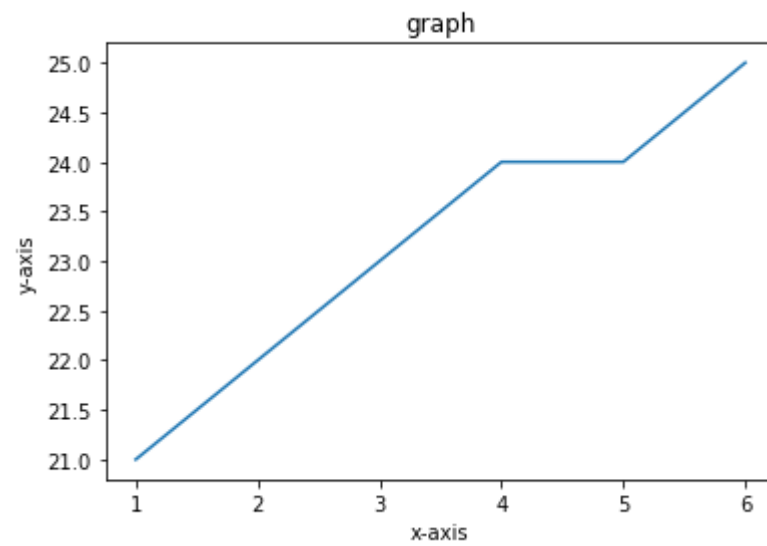
matplotlib

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

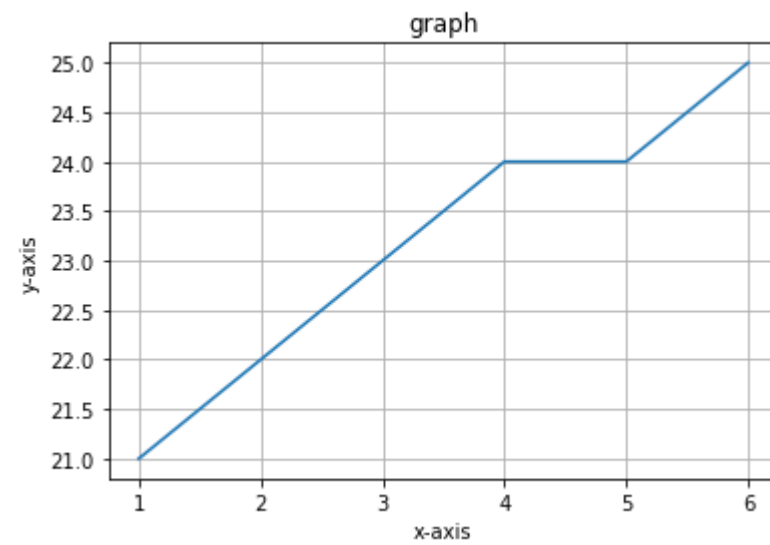
```
In [2]: # plot graph  
x=[1,2,3,4,5,6]  
y=[21,22,23,24,24,25]  
plt.plot(x,y)  
plt.show()
```



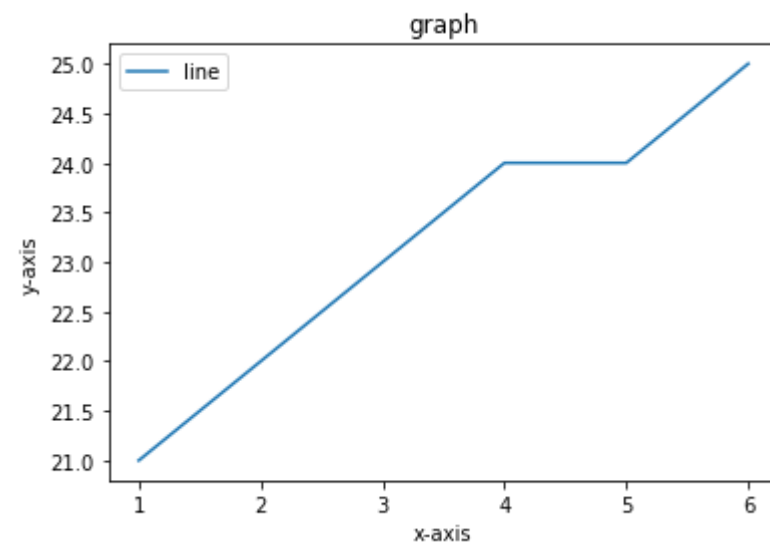
```
In [3]: plt.plot(x,y)  
plt.xlabel("x-axis")  
plt.ylabel("y-axis")  
plt.title("graph")  
plt.show()
```



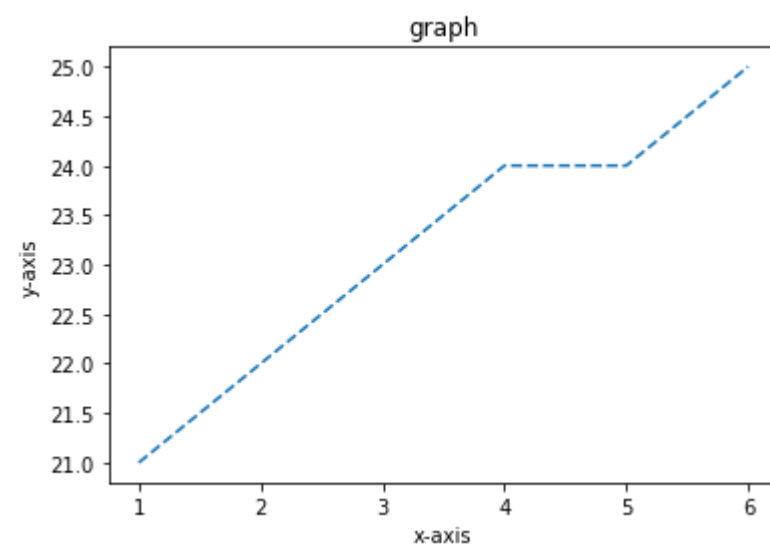
```
In [4]: # get a grid
plt.plot(x,y)
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.title("graph")
plt.grid()
plt.show()
```



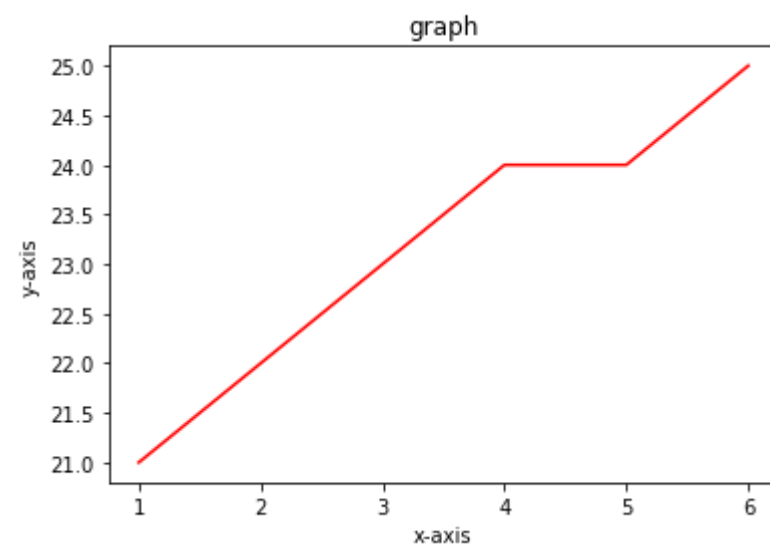
```
In [5]: # get a legend
plt.plot(x,y,label="line")
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.title("graph")
plt.legend()
plt.show()
```



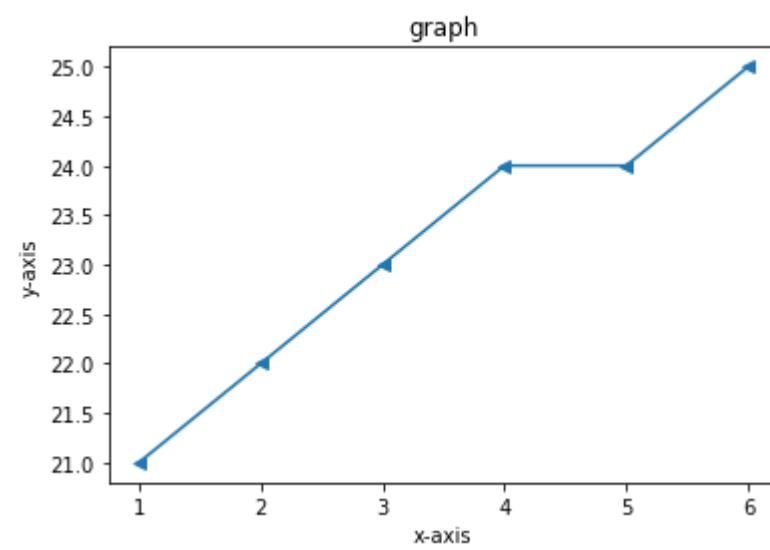
```
In [6]: # change linestyle
plt.plot(x,y,linestyle="--")
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.title("graph")
plt.show()
```



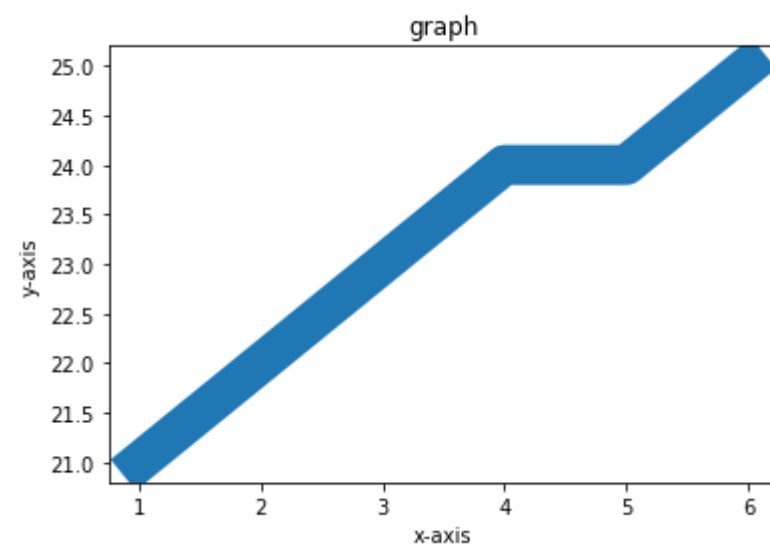
```
In [7]: # color change
plt.plot(x,y,color="red")
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.title("graph")
plt.show()
```



```
In [8]: # add a marker
plt.plot(x,y,marker="<")
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.title("graph")
plt.show()
```



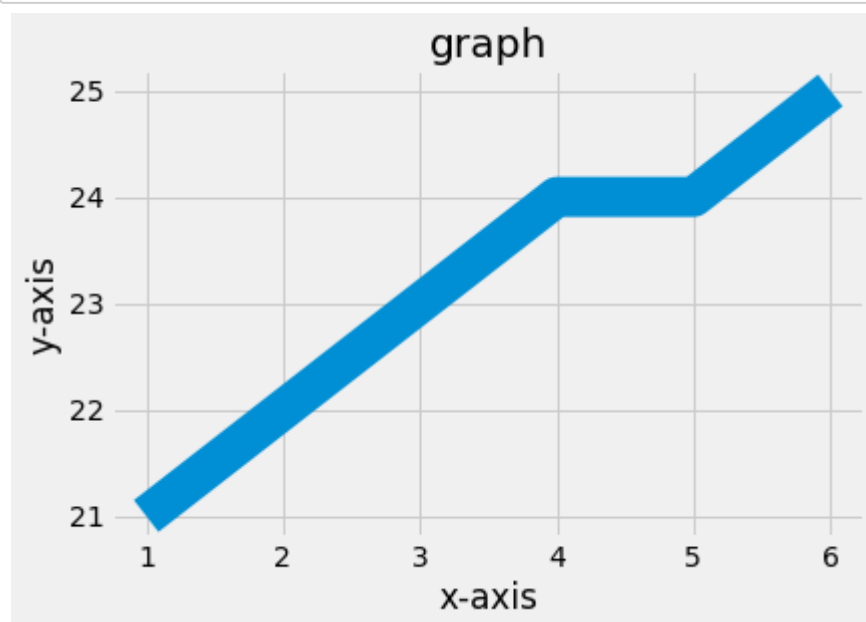
```
In [9]: # set linewidth
plt.plot(x,y,linewidth=20)
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.title("graph")
plt.show()
```



```
In [10]: # all style present in mat.  
plt.style.available
```

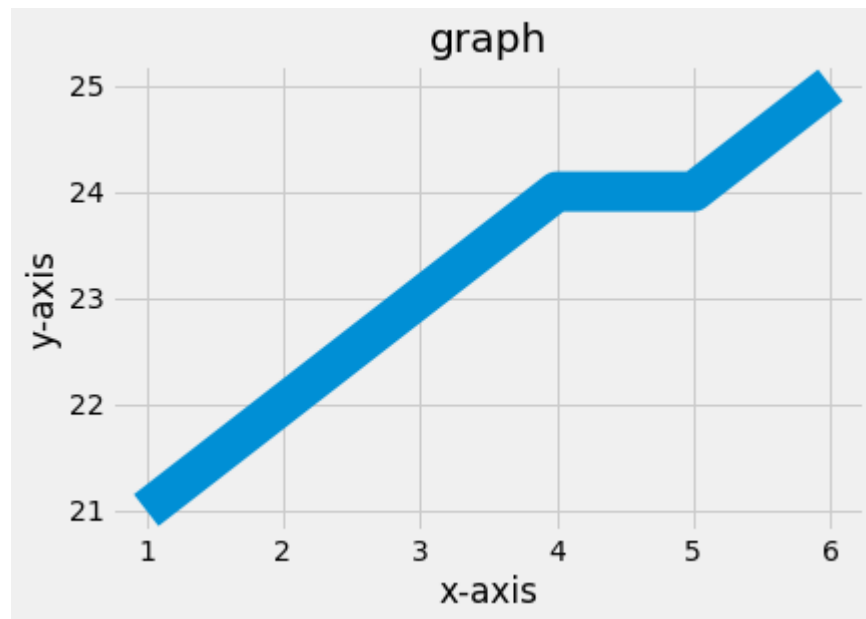
```
Out[10]: ['grayscale',  
          'seaborn-dark-palette',  
          'seaborn-poster',  
          'seaborn-dark',  
          'ggplot',  
          'seaborn-pastel',  
          'fast',  
          'bmh',  
          'fivethirtyeight',  
          'seaborn-ticks',  
          'seaborn',  
          'classic',  
          'seaborn-notebook',  
          'seaborn-muted',  
          'seaborn-whitegrid',  
          'seaborn-paper',  
          'seaborn-darkgrid',  
          'dark_background',  
          'seaborn-white',  
          'tableau-colorblind10',  
          '_classic_test',  
          'seaborn-deep',  
          'Solarize_Light2',  
          'seaborn-talk',  
          'seaborn-bright',  
          'seaborn-colorblind']
```

```
In [11]: # use style  
plt.style.use("fivethirtyeight")  
plt.plot(x,y,linewidth=20)  
plt.xlabel("x-axis")  
plt.ylabel("y-axis")  
plt.title("graph")  
plt.show()
```

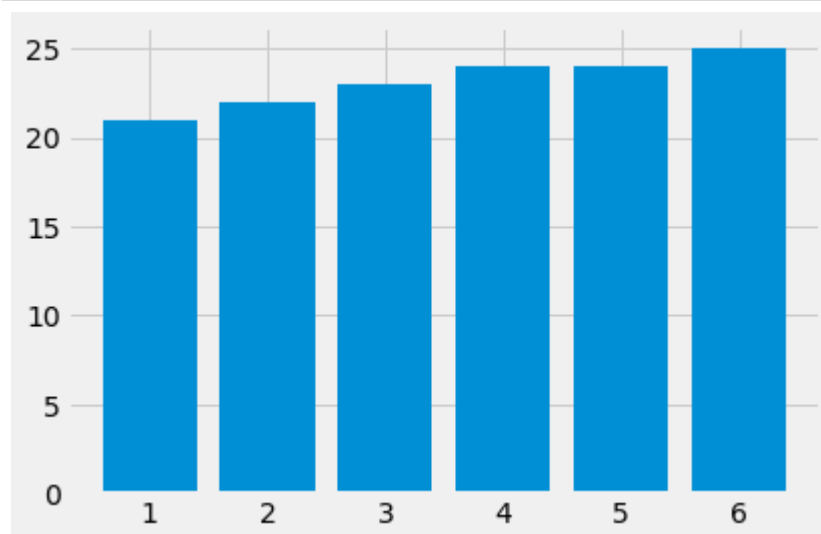


```
In [12]: # for comic style  
# plt.xkcd()
```

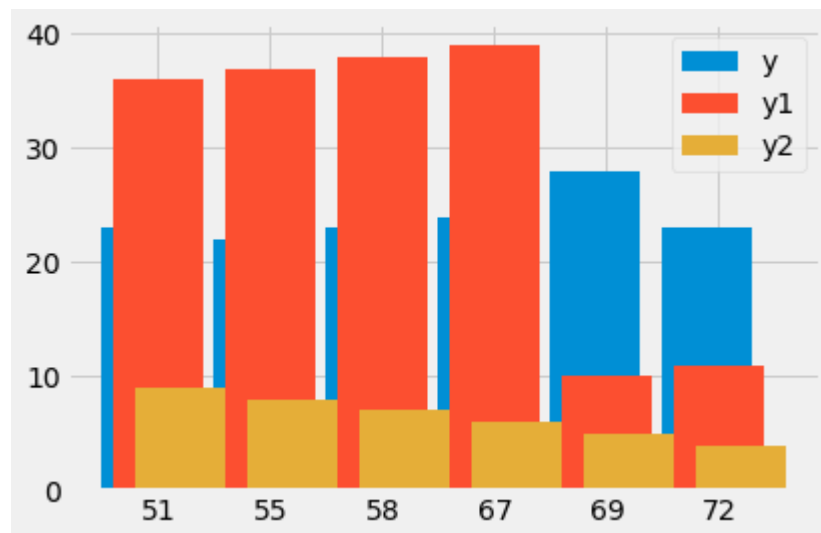
```
In [13]: # save fig.  
plt.plot(x,y,linewidth=20)  
plt.xlabel("x-axis")  
plt.ylabel("y-axis")  
plt.title("graph")  
plt.savefig("plot.png")  
plt.show()
```



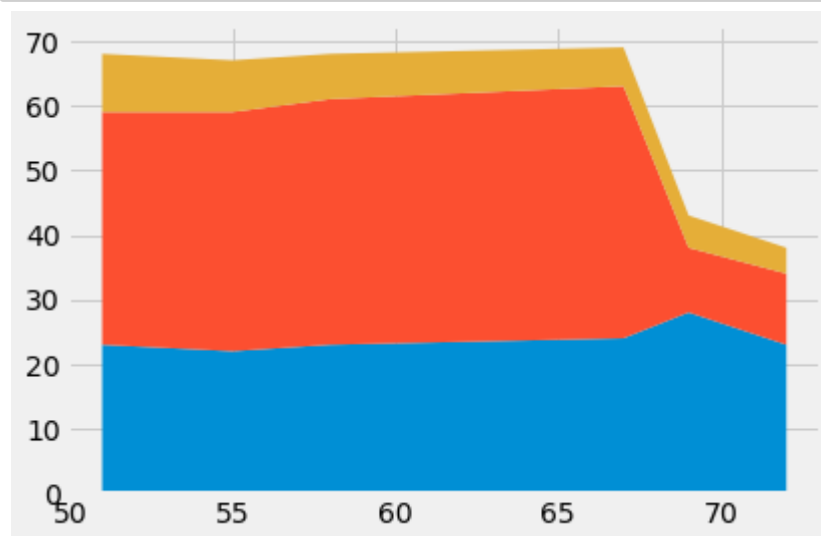
```
In [14]: # bar plot  
plt.bar(x,y)  
plt.show()
```



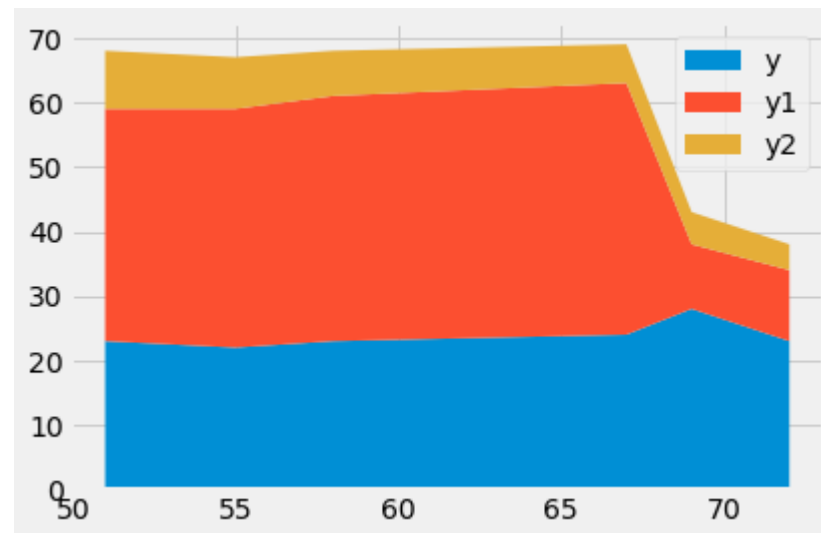
```
In [15]: import numpy as np
x=[51,55,58,67,69,72]
y=[23,22,23,24,28,23]
y1=[36,37,38,39,10,11]
y2=[9,8,7,6,5,4]
x_index=np.arange(len(x))
width=0.2
plt.bar(x_index-width/2,y,label="y")
plt.bar(x_index,y1,label="y1")
plt.bar(x_index+width,y2,label="y2")
# here put x's value on x-axis
plt.xticks(ticks=x_index,labels=x)
plt.legend()
plt.show()
```



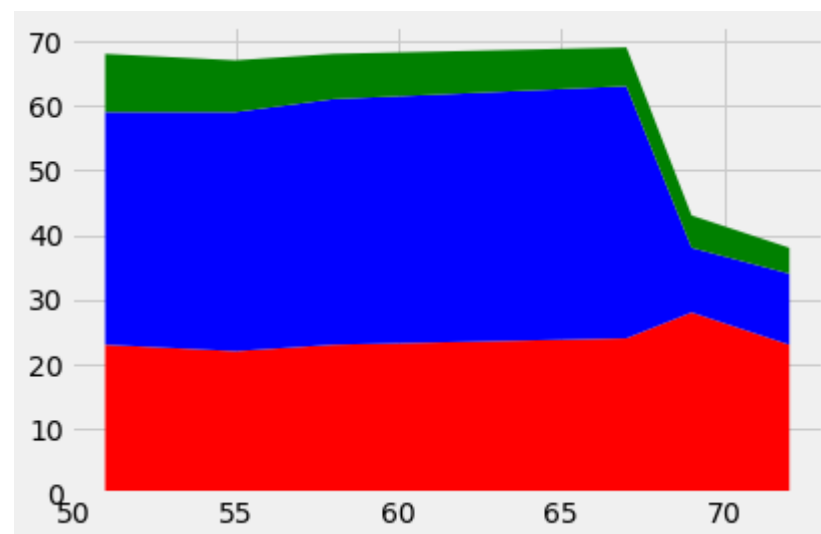
```
In [16]: # stack plots
x=[51,55,58,67,69,72]
y=[23,22,23,24,28,23]
y1=[36,37,38,39,10,11]
y2=[9,8,7,6,5,4]
plt.stackplot(x,y,y1,y2)
plt.show()
```



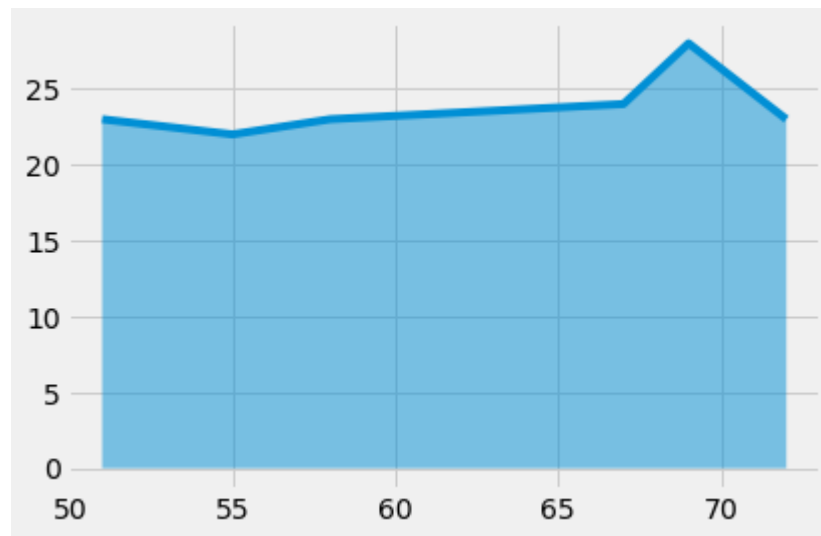
```
In [17]: # stack plots
x=[51,55,58,67,69,72]
y=[23,22,23,24,28,23]
y1=[36,37,38,39,10,11]
y2=[9,8,7,6,5,4]
l=["y","y1","y2"]
plt.stackplot(x,y,y1,y2,labels=l)
plt.legend()
plt.show()
```



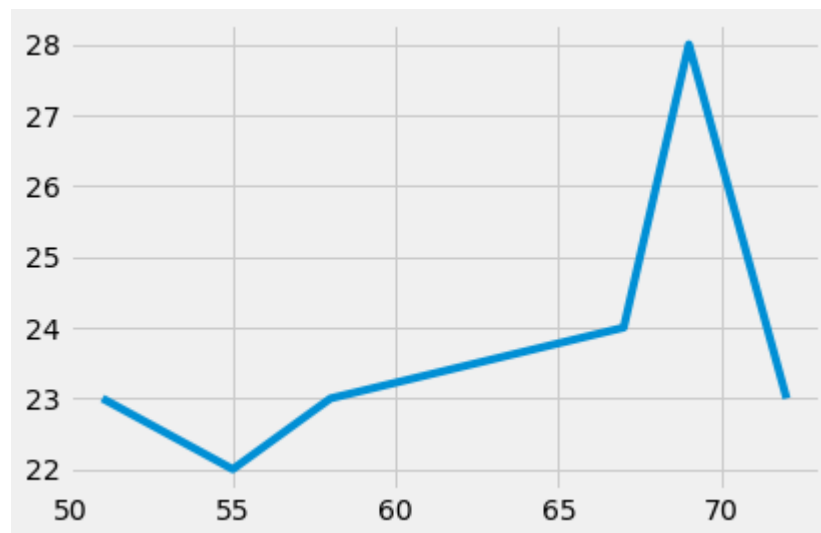
```
In [18]: # stack plots
x=[51,55,58,67,69,72]
y=[23,22,23,24,28,23]
y1=[36,37,38,39,10,11]
y2=[9,8,7,6,5,4]
plt.stackplot(x,y,y1,y2,colors=["red","blue","green"])
plt.show()
```



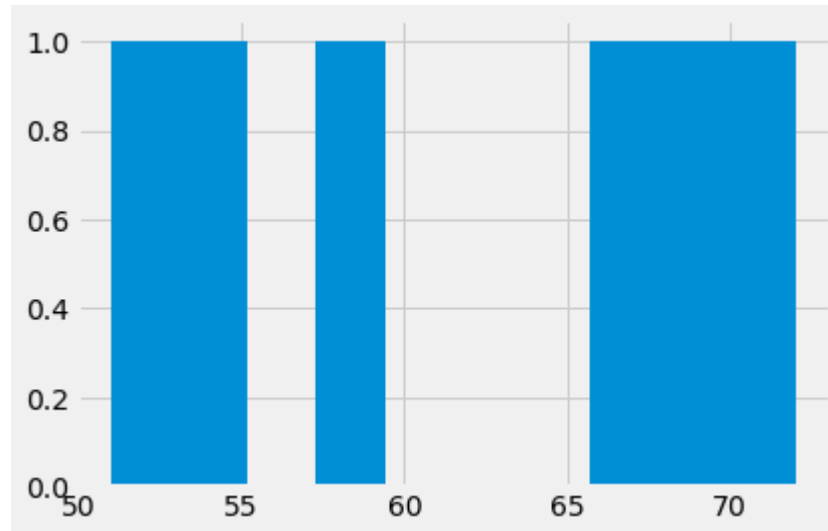

```
In [20]: # filling area on line plot
plt.plot(x,y)
plt.fill_between(x,y,alpha=0.5)
plt.show()
```



```
In [29]: plt.plot(x,y)
plt.fill_between(x,y,alpha=0.5,where=2>15,interpolate=True)
plt.show()
```

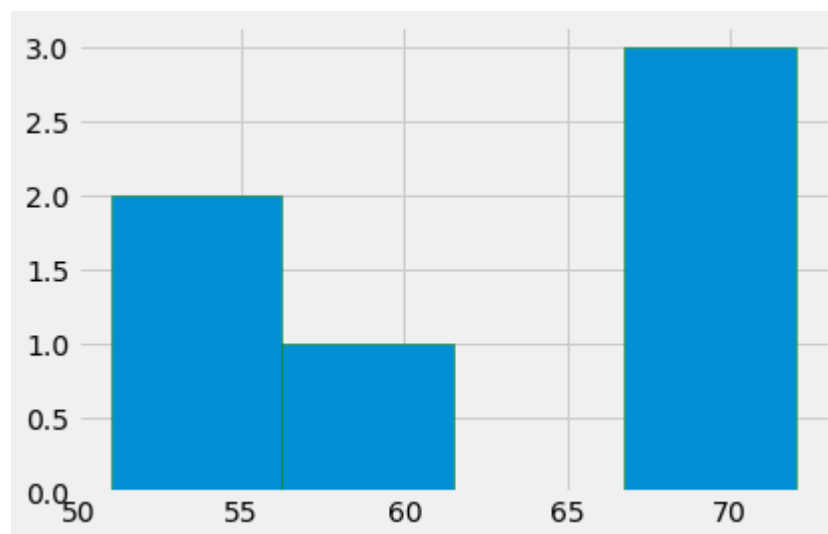


```
In [30]: # histogram  
plt.hist(x)  
plt.show()
```

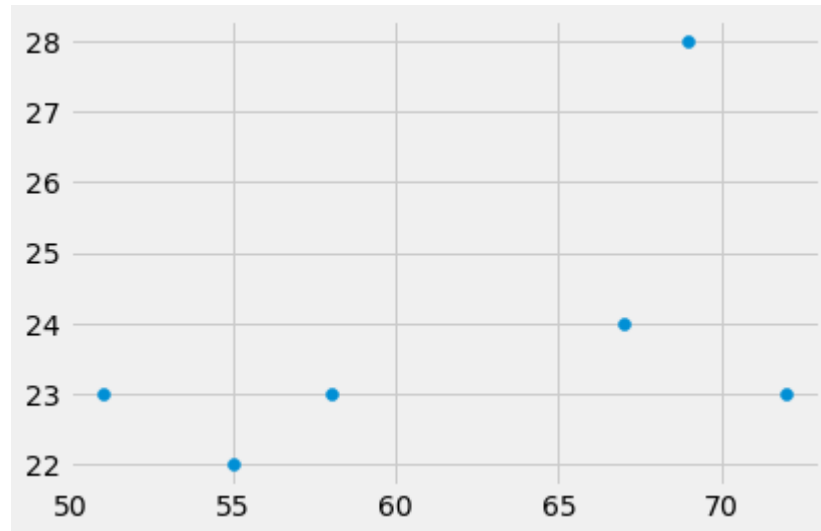


```
In [31]: plt.hist(x,bins=4,edgecolor="green")
```

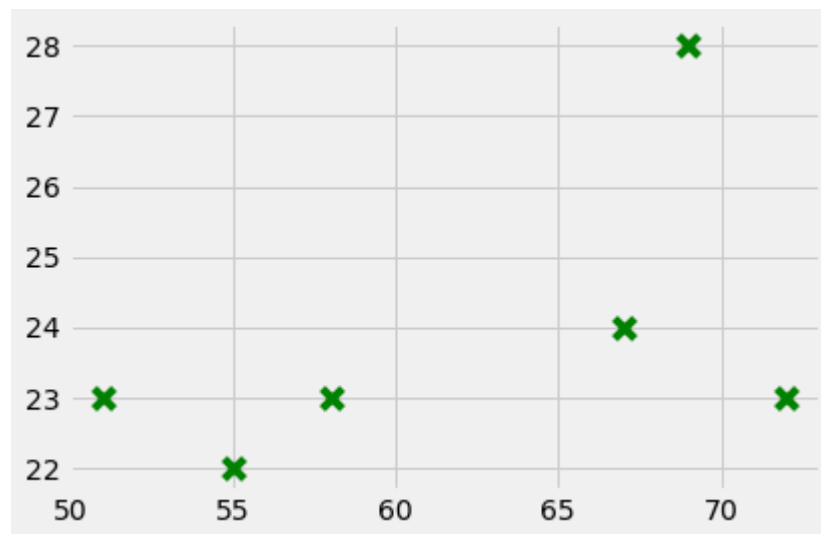
```
Out[31]: (array([2., 1., 0., 3.]),  
array([51. , 56.25, 61.5 , 66.75, 72.  ]),  
<a list of 4 Patch objects>)
```



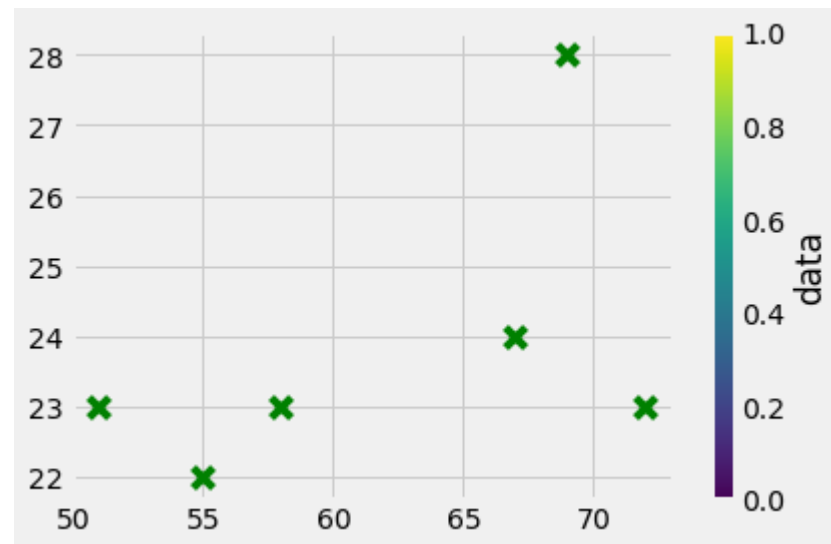
```
In [33]: # scatter plot  
plt.scatter(x,y)  
plt.show()
```



```
In [36]: plt.scatter(x,y,s=100,c="green",marker="x",cmap="Greens")  
plt.show()
```



```
In [37]: plt.scatter(x,y,s=100,c="green",marker="x",cmap="Greens")  
cbar=plt.colorbar()  
cbar.set_label("data")  
plt.show()
```



In []: