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

In [2]:
```
%matplotlib inline
```

In [3]:
```
ageList = [10,20,30,30,30,40,50,60,70,75]
weightList = [20,60,80,85,86,87,70,90,95,90]
```

In [4]:
```
numpyAgeList = np.array(ageList)
numpyWeightList = np.array(weightList)
```

In [5]:
```
numpyAgeList
```

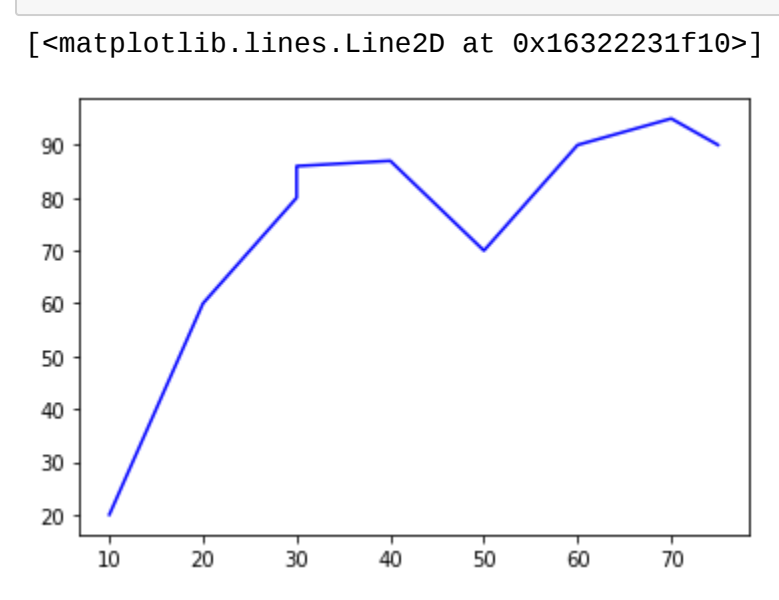
Out[5]:
```
array([10, 20, 30, 30, 30, 40, 50, 60, 70, 75])
```

In [6]:
```
numpyWeightList
```

Out[6]:
```
array([20, 60, 80, 85, 86, 87, 70, 90, 95, 90])
```

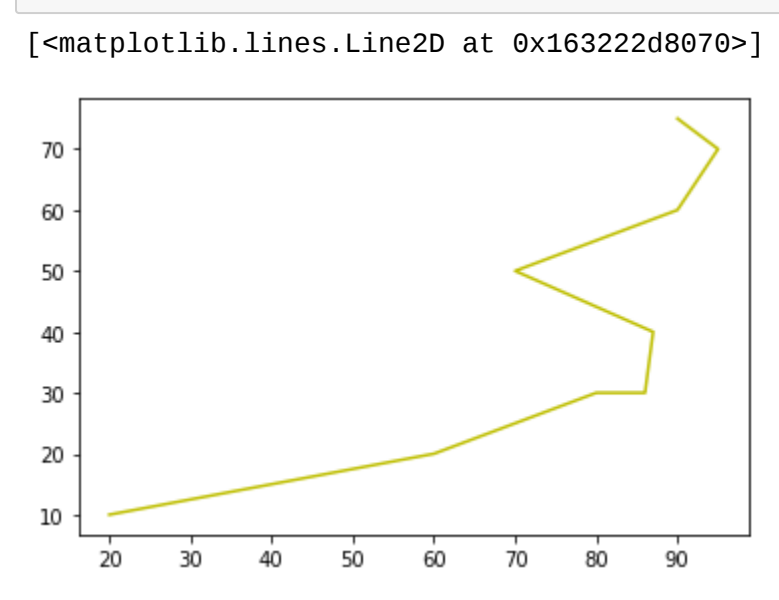
In [7]:
```
plt.plot(numpyAgeList,numpyWeightList,"-b")  # plt.plot(x ekseni ,y ekseni , renk)
```

Out[7]:
```
[<matplotlib.lines.Line2D at 0x16322231f10>]
```

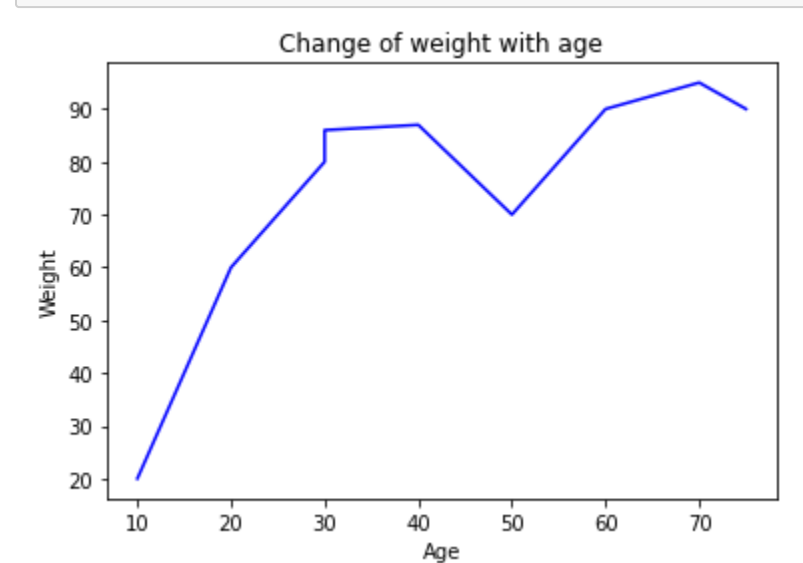


In [8]:
```
plt.plot(numpyWeightList,numpyAgeList,"y")
```

Out[8]:
```
[<matplotlib.lines.Line2D at 0x163222d8070>]
```



In [9]:
```
plt.plot(numpyAgeList,numpyWeightList,"b")
plt.xlabel("Age")
plt.ylabel("Weight")
plt.title("Change of weight with age")
plt.show()
```



Customize

In [10]:
```
numpyArray1 = np.linspace(0,10,20)
```

In [11]:
```
numpyArray1
```

Out[11]:
```
array([ 0.        ,  0.52631579,  1.05263158,  1.57894737,  2.10526316,
        2.63157895,  3.15789474,  3.68421053,  4.21052632,  4.73684211,
        5.26315789,  5.78947368,  6.31578947,  6.84210526,  7.36842105,
        7.89473684,  8.42105263,  8.94736842,  9.47368421, 10.        ])
```

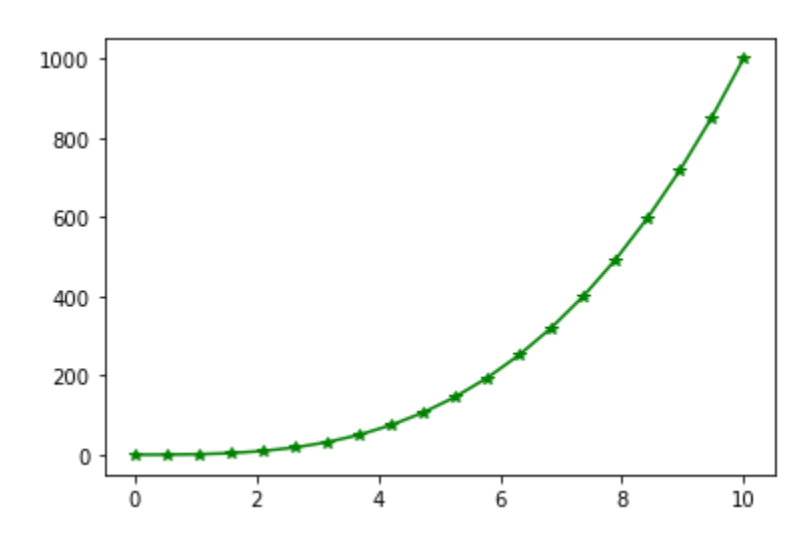
In [12]:
```
numpyArray2 = numpyArray1 ** 3
```

In [13]:
```
numpyArray2
```

Out[13]:
```
array([0.00000000e+00, 1.45793847e-01, 1.16635078e+00, 3.93643388e+00,
       9.33080624e+00, 1.82242309e+01, 3.14914711e+01, 5.00072897e+01,
       7.46464499e+01, 1.06283715e+02, 1.45793847e+02, 1.94051611e+02,
       2.51931768e+02, 3.20309083e+02, 4.00058318e+02, 4.92054235e+02,
       5.97171599e+02, 7.16285173e+02, 8.50269719e+02, 1.00000000e+03])
```

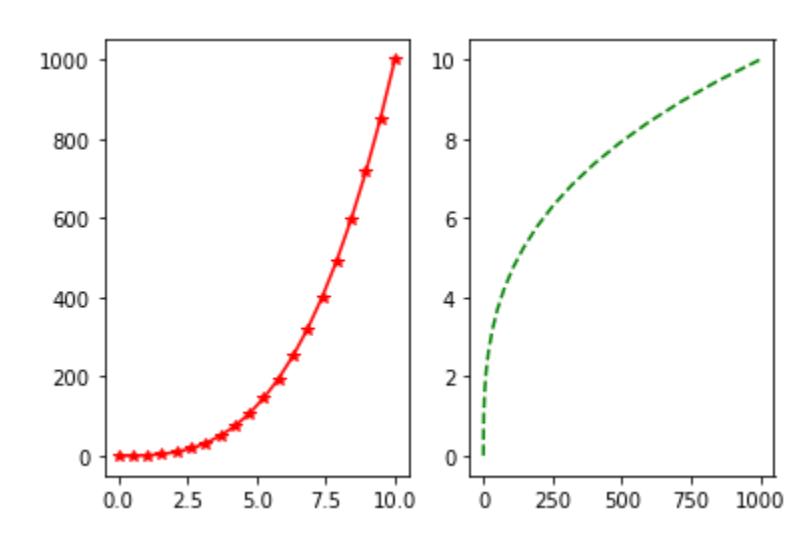
In [14]:
```
plt.plot(numpyArray1,numpyArray2,"g*-")
```

Out[14]:
```
[<matplotlib.lines.Line2D at 0x1632238dcd0>]
```



In [15]:
```
plt.subplot(1,2,1) # 1 sıra olacak , 2 kolon olacak , Şu an birinci grafiği çiziyorum
plt.plot(numpyArray1,numpyArray2,"r*-")
plt.subplot(1,2,2) # 1 sıra olacak , 2 kolon olacak , Şu an ikinci grafiği çiziyorum
plt.plot(numpyArray2,numpyArray1,"g--")
```

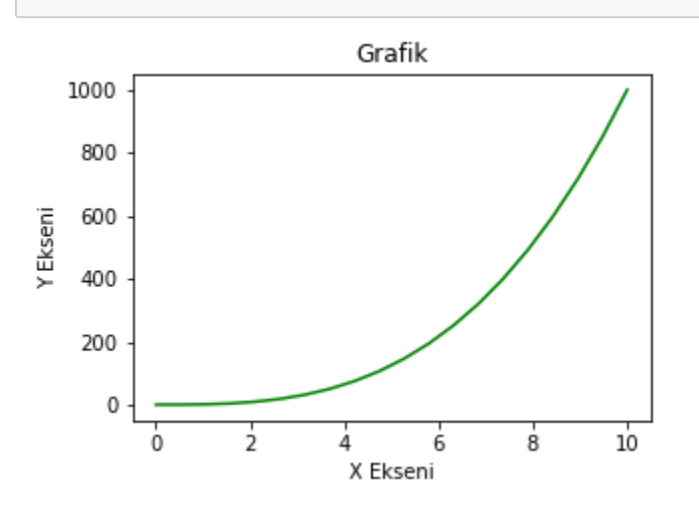
Out[15]:
```
[<matplotlib.lines.Line2D at 0x1632241b250>]
```



In [16]:
```
myFigure = plt.figure()
```

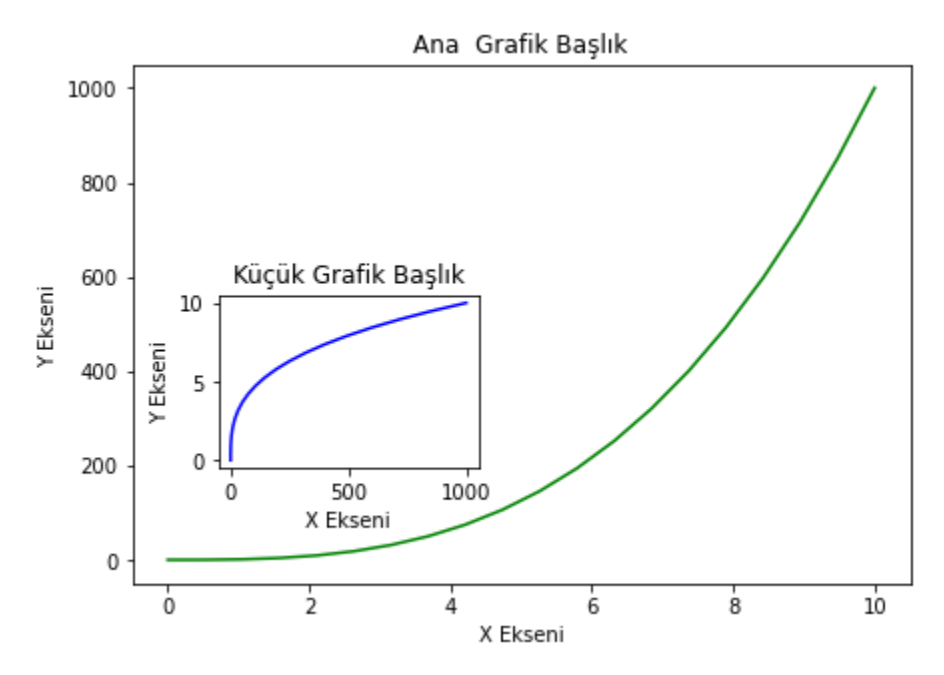
```
<Figure size 432x288 with 0 Axes>
```

In [17]:
```
myFigure = plt.figure()
figureAxes = myFigure.add_axes([0.4,0.4,0.6,0.6])
figureAxes.plot(numpyArray1,numpyArray2,"g")
figureAxes.set_xlabel("X Ekseni")
figureAxes.set_ylabel("Y Ekseni")
figureAxes.set_title("Grafik")
plt.show()
```



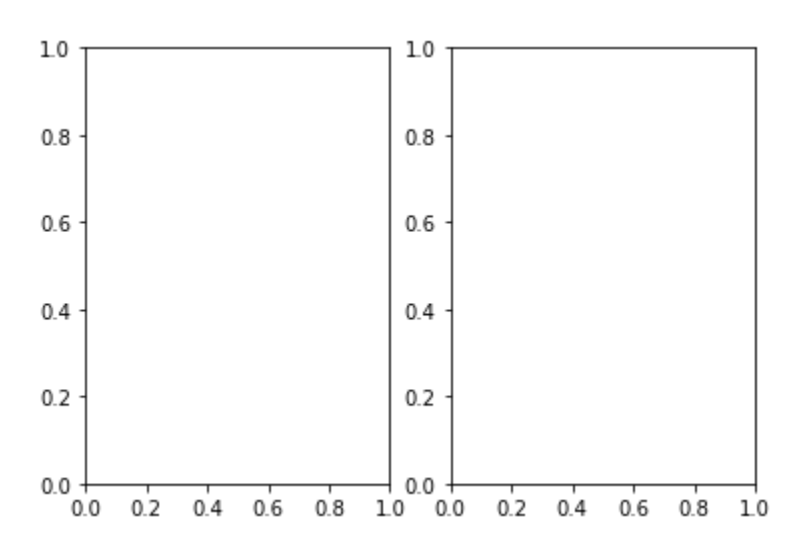
In [18]:
```
figure2 = plt.figure()

axis1 = figure2.add_axes([0.1,0.1,0.9,0.9])
axis2 = figure2.add_axes([0.2,0.3,0.3,0.3])

axis1.plot(numpyArray1,numpyArray2,"g")
axis1.set_xlabel("X Ekseni")
axis1.set_ylabel("Y Ekseni")
axis1.set_title("Ana  Grafik Başlık")

axis2.plot(numpyArray2,numpyArray1,"b")
axis2.set_xlabel("X Ekseni")
axis2.set_ylabel("Y Ekseni")
axis2.set_title("Küçük Grafik Başlık")
```

Out[18]:
```
Text(0.5, 1.0, 'Küçük Grafik Başlık')
```



In [19]:
```
(myFigure , myAxes) = plt.subplots(nrows = 1 ,ncols = 2)
type(myAxis)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-19-b39353a6f428> in <module>
      1 (myFigure , myAxes) = plt.subplots(nrows = 1 ,ncols = 2)
----> 2 type(myAxis)

NameError: name 'myAxis' is not defined
```



In [ ]:
```
myAxes
```

In [ ]:
```
myFigure
```

Subplots

In [ ]:
```
(myFigure , myAxes) = plt.subplots(nrows = 1 ,ncols = 2)
type(myAxis)

for axis in myAxes:

    axis.plot(numpyArray1,numpyArray2,"g")
    axis.set_xlabel("X Ekseni")

plt.tight_layout()
```

visual enhancements

In [ ]:
```
newFigure = plt.figure(dpi=100)

newAxis = newFigure.add_axes([0.1,0.1,0.9,0.9])
newAxis.plot(numpyArray1,numpyArray2,label = "numpyArray1 ** 3")
newAxis.plot(numpyArray1,numpyArray1 ** 4,label = "numpyArray1 ** 4")
newAxis.legend()
```

Saveing graphics

In [ ]:
```
newFigure.savefig("myFigure.png",dpi=200) #dpi = kalite
```

Visuality

In [ ]:
```
numpyArray1 = np.linspace(0,10,20)
```

In [33]:
```
numpyArray2 = numpyArray1 ** 2
```

In [34]:
```
numpyArray1
```

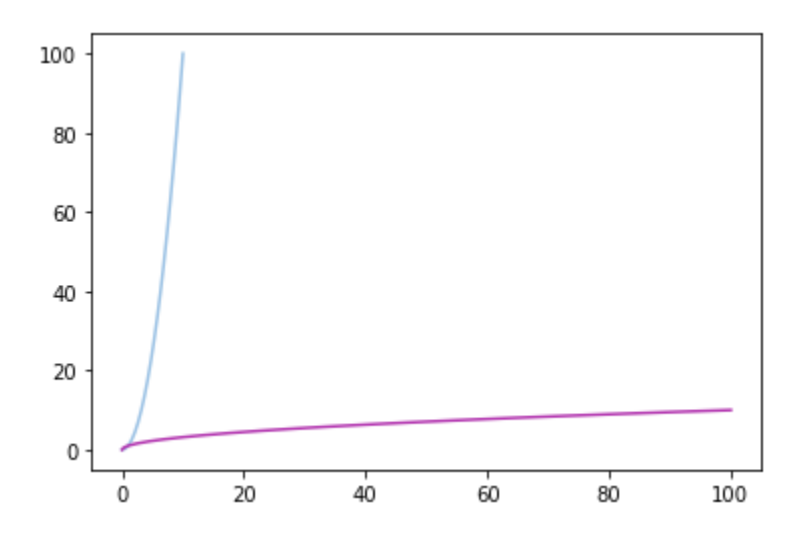
Out[34]:
```
array([ 0.        ,  0.52631579,  1.05263158,  1.57894737,  2.10526316,
        2.63157895,  3.15789474,  3.68421053,  4.21052632,  4.73684211,
        5.26315789,  5.78947368,  6.31578947,  6.84210526,  7.36842105,
        7.89473684,  8.42105263,  8.94736842,  9.47368421, 10.        ])
```

In [35]:
```
numpyArray2
```

Out[35]:
```
array([  0.        ,   0.27700831,   1.10803324,   2.49307479,
         4.43213296,   6.92520776,   9.97229917,  13.5734072 ,
        17.72853186,  22.43767313,  27.70083102,  33.51800554,
        39.88919668,  46.81440443,  54.29362881,  62.32686981,
        70.91412742,  80.05540166,  89.75069252, 100.        ])
```

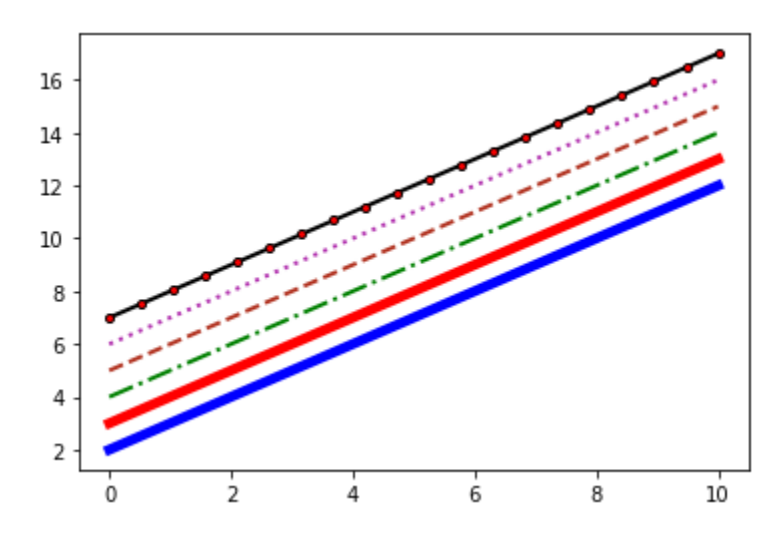
In [38]:
```
(myFigure,myAxis) = plt.subplots()
myAxis.plot(numpyArray1,numpyArray2, color = "#3685CB", alpha = 0.5)
myAxis.plot(numpyArray2,numpyArray1,color = "#B233AF")
```

Out[38]:
```
[<matplotlib.lines.Line2D at 0x16324b1f220>]
```



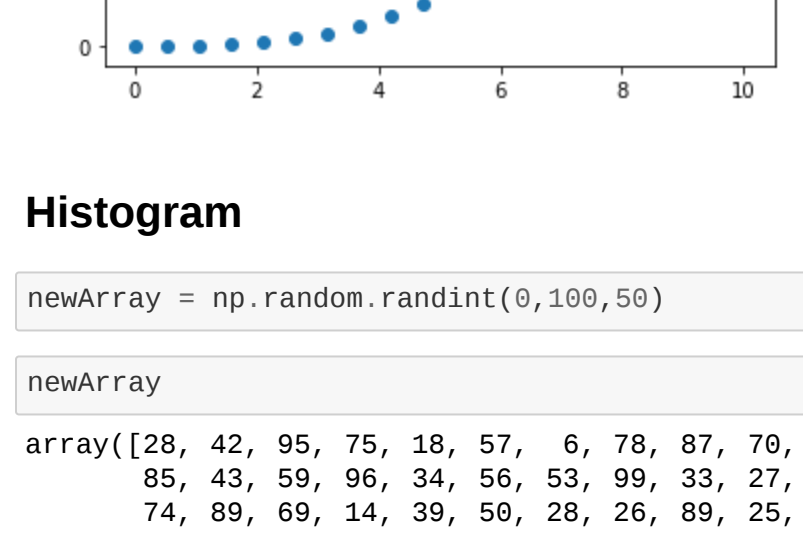
In [60]:
```
(myFigure,myAxis) = plt.subplots()

myAxis.plot(numpyArray1,numpyArray1 + 2, color = "blue",linewidth = 5)
myAxis.plot(numpyArray1,numpyArray1 + 3, color = "red",linewidth = 5)


myAxis.plot(numpyArray1,numpyArray1 + 4, color = "green",linewidth = 2,linestyle = "-.")
myAxis.plot(numpyArray1,numpyArray1 + 5, color = "#B23321",linewidth = 2,linestyle = "--")
myAxis.plot(numpyArray1,numpyArray1 + 6, color = "#B231AF",linewidth = 2,linestyle = ":")

myAxis.plot(numpyArray1,numpyArray1 + 7, color = "Black",linewidth = 2,linestyle = "-",marke
r = "o"
, markersize = 4 ,markerfacecolor = "red")
```

Out[60]:
```
[<matplotlib.lines.Line2D at 0x1f3bac4f1c0>]
```



Scatter

In [72]:
```
plt.scatter(numpyArray1,numpyArray2)
plt.show()
```



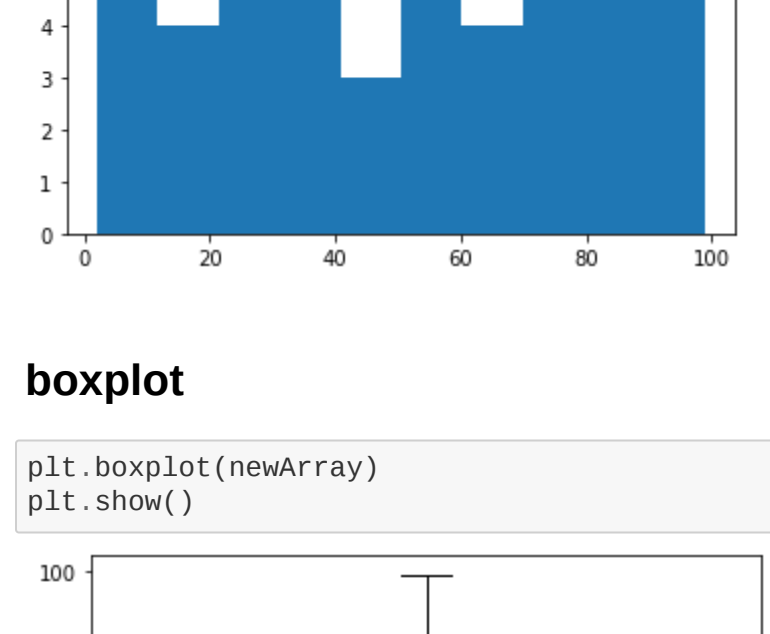
Histogram

In [62]:
```
newArray = np.random.randint(0,100,50)
```

In [63]:
```
newArray
```

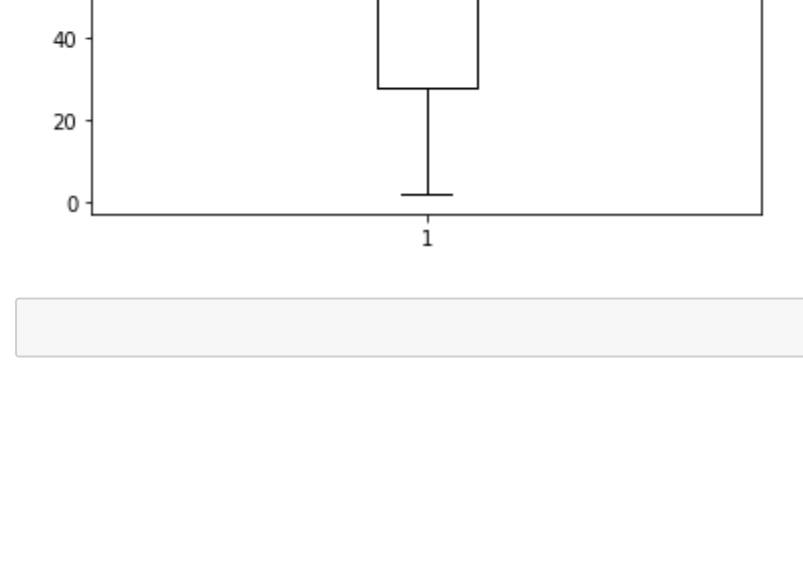
Out[63]:
```
array([28, 42, 95, 75, 18, 57,  6, 78, 87, 70, 35, 87, 13,  8,  2, 73, 11,
       85, 43, 59, 96, 34, 56, 53, 99, 33, 27, 62, 70, 58, 37, 73, 61, 97,
       74, 89, 69, 14, 39, 50, 28, 26, 89, 25, 68, 16,  7, 28, 98, 78])
```

In [66]:
```
plt.hist(newArray)
plt.show()
```



boxplot

In [71]:
```
plt.boxplot(newArray)
plt.show()
```



In [ ]:
```

```