Implementation of Data Visualization using Matplotlib

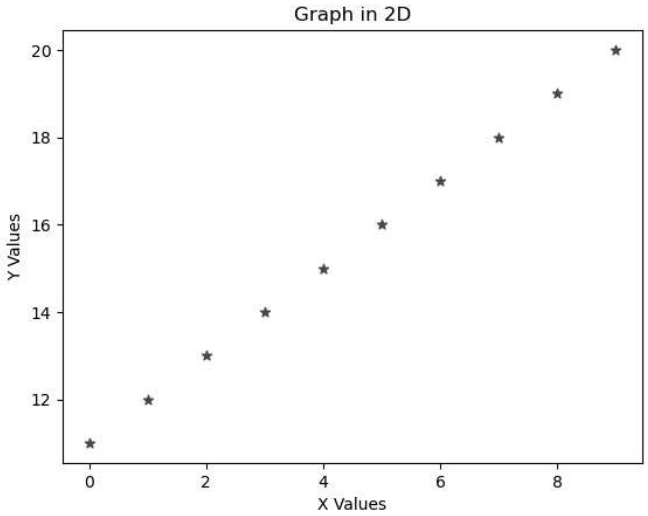
In [3]:
```
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
```

In [4]:
```
x = np.arange(0,10)
y = np.arange(11,21)
```

Scatter Plot

In [6]:
```
plt.scatter(x,y, marker='*', c='g')
plt.xlabel('X Values')
plt.ylabel('Y Values')
plt.title("Graph in 2D")
```

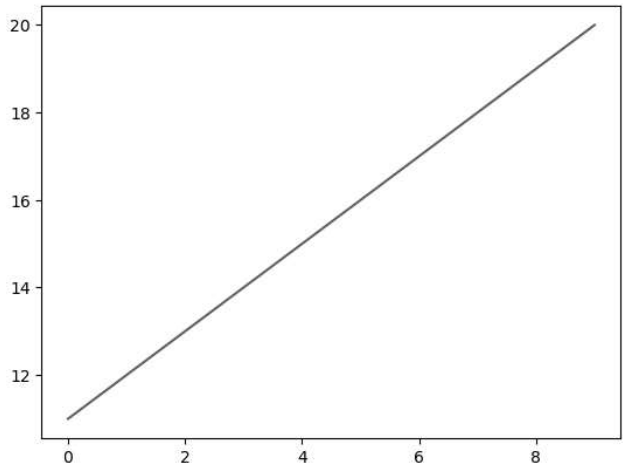
Out[6]: Text(0.5, 1.0, 'Graph in 2D')



Line Chart

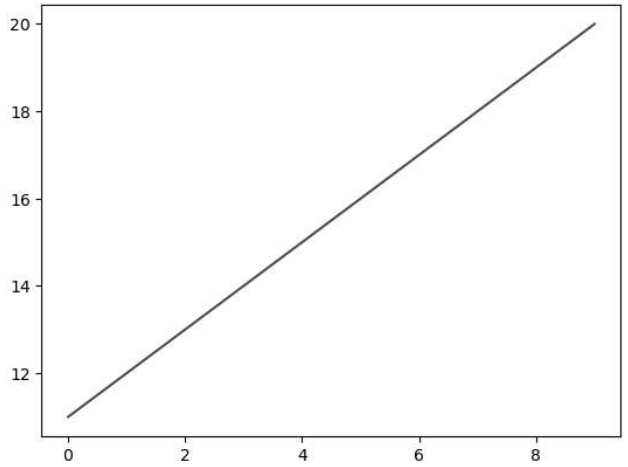
In [8]:
```
plt.plot(x,y)
```

Out[8]: [<matplotlib.lines.Line2D at 0x7fd077381090>]



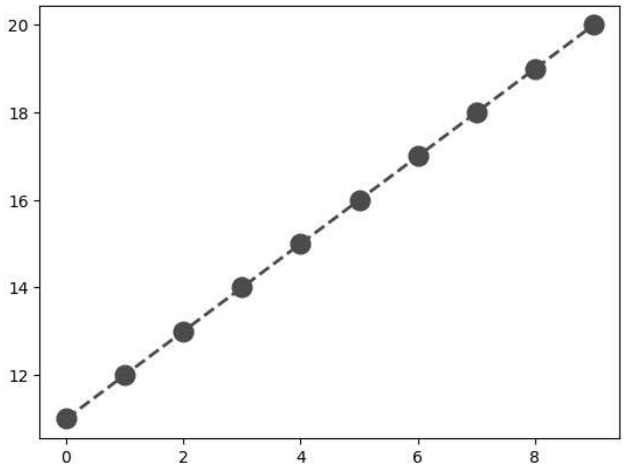
In [9]:
```
plt.plot(x,y,'r')
```

Out[9]: [<matplotlib.lines.Line2D at 0x7fd07ca4e350>]



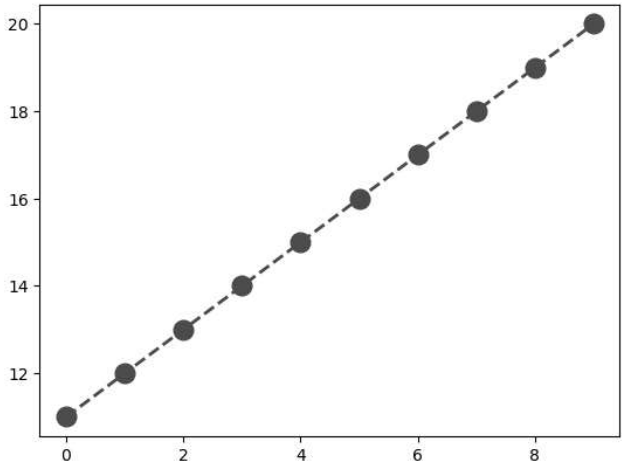
In [10]:
```
plt.plot(x,y,'ro--',linewidth=2, markersize=12)
```

Out[10]: [<matplotlib.lines.Line2D at 0x7fd07c48ae60>]



Save Graph

In [12]:
```
plt.plot(x,y,'ro--',linewidth=2, markersize=12)
plt.savefig('test.png')
```



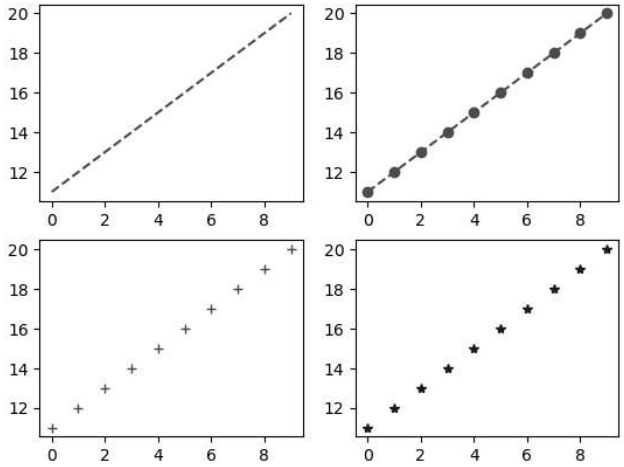
Subplot

In [14]:
```
plt.subplot(2,2,1)
plt.plot(x,y,'r--')
```



```
plt.subplot(2,2,2)
plt.plot(x,y,'ro--')
plt.subplot(2,2,3)
plt.plot(x,y,'g+')
plt.subplot(2,2,4)
plt.plot(x,y,'b*')
```

Out[14]: [<matplotlib.lines.Line2D at 0x7fd076e722f0>]

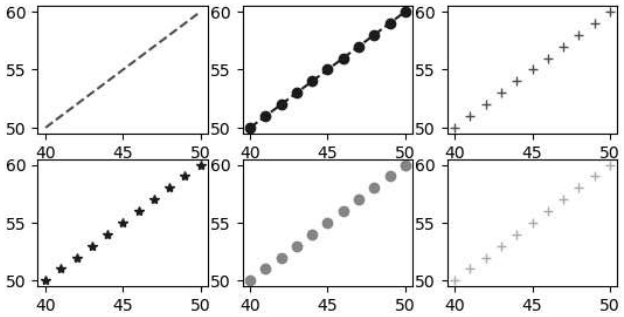


Exercise

In [16]:
```
a = np.arange(40,51)
b = np.arange(50,61)
```

In [17]:
```
plt.subplot(3,3,1)
plt.plot(a,b,'r--')
plt.subplot(3,3,2)
plt.plot(a,b,'bo--')
plt.subplot(3,3,3)
plt.plot(a,b,'g+')
plt.subplot(3,3,4)
plt.plot(a,b,'b*')
plt.subplot(3,3,5)
plt.plot(a,b,'co')
plt.subplot(3,3,6)
plt.plot(a,b,'y+')
```

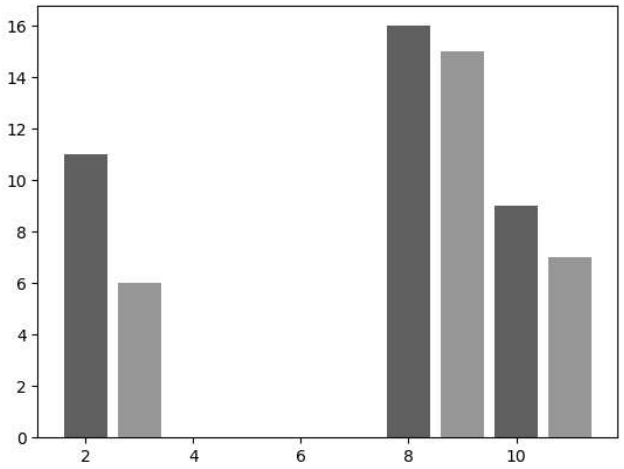
Out[17]: [<matplotlib.lines.Line2D at 0x7fd06e8961d0>]



Bar Plot

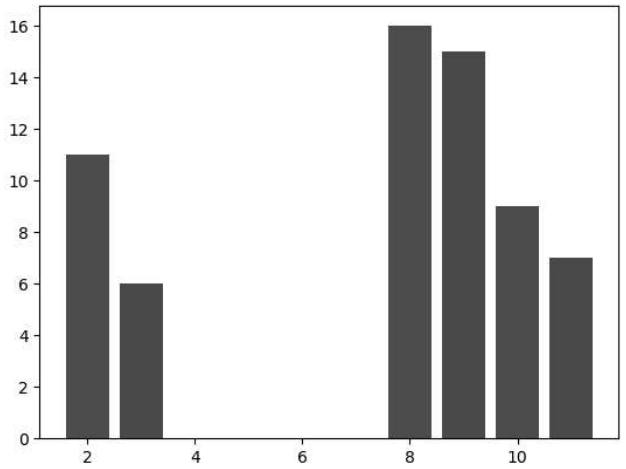
In [19]:
```
x1 = [2,8,10]
y1 = [11,16,9]

x2 = [3,9,11]
y2 = [6,15,7]
plt.bar(x1,y1)
plt.bar(x2,y2)
```

Out[19]:
```
<BarContainer object of 3 artists>
```



In [20]:
```
plt.bar(x1,y1,color='red')
plt.bar(x2,y2, color='green')
```

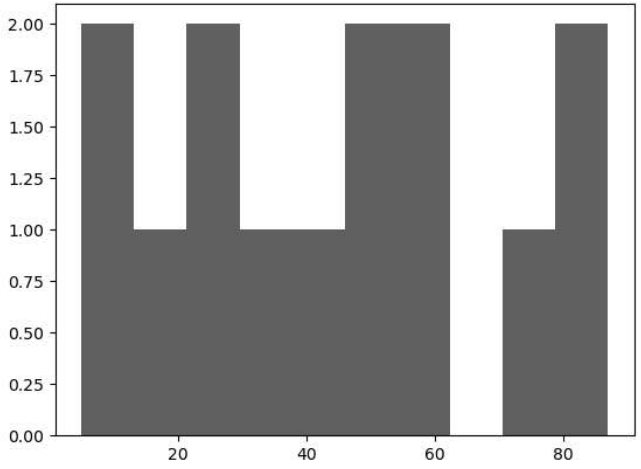
Out[20]:
```
<BarContainer object of 3 artists>
```

Histogram

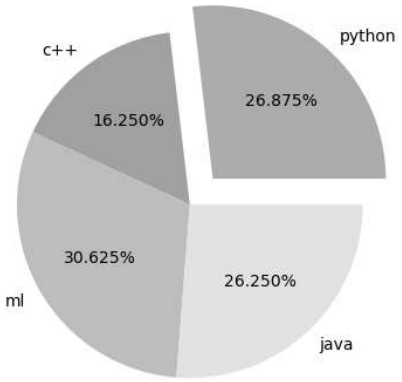
In [22]:
```
p = np.array([22,87,5,43,56,73,55,54,22,20,51,5,79,31])
plt.hist(p)
```

Out[22]:
```
(array([2., 1., 2., 1., 1., 2., 2., 0., 1., 2.]),
 array([ 5. , 13.2, 21.4, 29.6, 37.8, 46. , 54.2, 62.4, 70.6, 78.8, 87. ]),
 <BarContainer object of 10 artists>)
```



Pie Chart

In [24]:
```
labels = ['python','c++','ml','java']
students = [215,130,245,210]
colors = ['yellowgreen','lightcoral','lightskyblue','yellow']

explode = (0.2,0,0,0)

plt.pie(students, labels=labels, colors=colors,autopct='%1.3f%%', explode=explode)
plt.show()
```



In [25]:
```
labels = ['M3','DBMS','S/W Engg.','Data Science', 'OS']
students = [28,23,25,25,27]
colors = ['yellowgreen','lightcoral','lightskyblue','yellow','pink']

plt.pie(students, labels=labels, colors=colors,autopct='%1.1f%%')
plt.show()
```