1. 折线图
2. 直方图
3. 散点图
4. 面积图
5. 三维图

要求：选择其中的一种图，或者全选，要求代码和运行结果。

导入库和数据准备
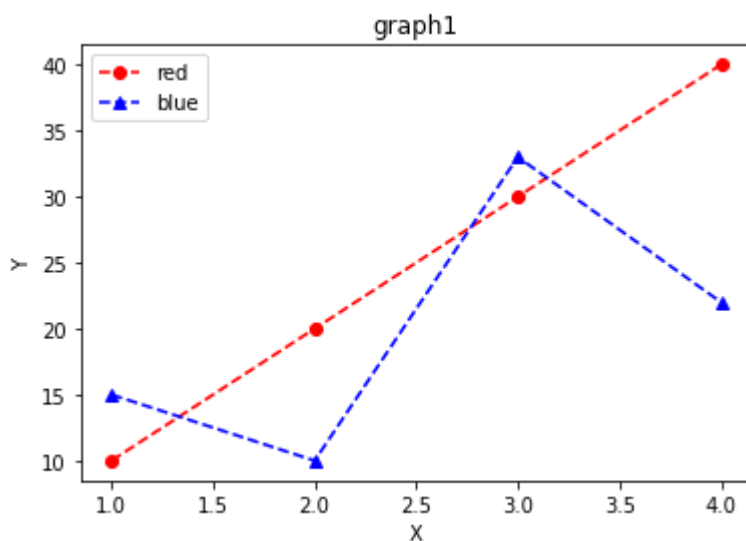
In [24]:

```python
import matplotlib.pyplot as plt
import numpy as np
```

1.折线图

In [35]:

```python
x = [1,2,3,4]
y1 = [10,20,30,40]
y2 = [15,10,33,22]
plt.plot(x,y1,'ro--',label = 'red')
plt.plot(x,y2,'b^--',label = 'blue')
plt.title("graph1")
plt.xlabel('X')
plt.ylabel('Y')
plt.legend()
plt.show()
```
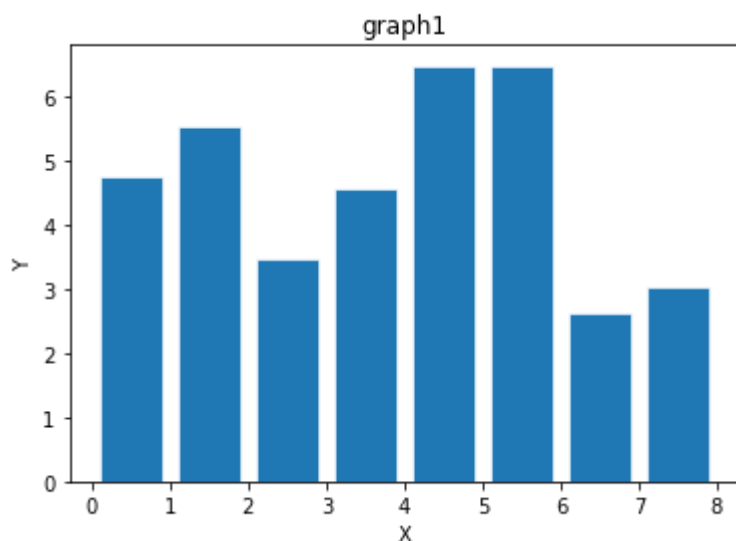

2.直方图

In [36]:

```python
np.random.seed(3)
x = 0.5 + np.arange(8)
y = np.random.uniform(2, 7, len(x))

# plot
#fig, ax = plt.subplots()

#ax.bar(x, y, width=1, edgecolor="white", linewidth=0.7)
plt.bar(x,y,edgecolor='white',linewidth=0.7)
plt.title("graph1")
plt.xlabel('X')
plt.ylabel('Y')

ax.set(xlim=(0, 8), xticks=np.arange(0, 8),
       ylim=(0, 8), yticks=np.arange(0, 8))

plt.show()
```
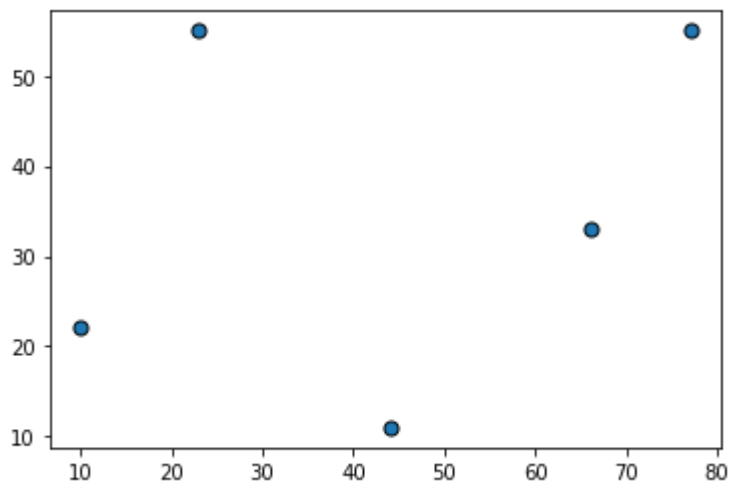

3.散点图

In [40]:

```python
x = [10, 23, 44, 66, 77]
y = [22, 55, 11, 33, 55]
plt.scatter(x, y, s=50, facecolor='C0', edgecolor='k');
```
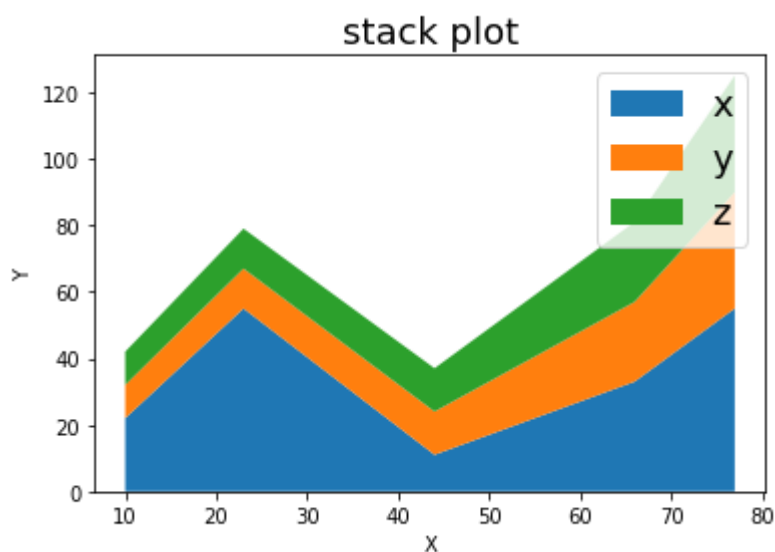

4.面积图

In [49]:

```python
x = [10, 23, 44, 66, 77]
y = [22, 55, 11, 33, 55]
z = [10, 12, 13, 24, 35]
k = [10, 12, 13, 24, 35]
plt.stackplot(x, y, z, k)
plt.xlabel('X')
plt.ylabel('Y')
plt.title('stack plot', fontsize = 18)
plt.legend(['x', 'y', 'z', 'k'], fontsize = 18)
```

Out[49]:

<matplotlib.legend.Legend at 0x1f44f506130>

5.三维图

In [50]:

```python
from mpl_toolkits import mplot3d
import matplotlib.pyplot as plt
import numpy as np

ax = plt.axes(projection='3d')

# 三维线的数据
zline = np.linspace(0, 15, 1000)
xline = np.sin(zline)
yline = np.cos(zline)
ax.plot3D(xline, yline, zline, 'gray')

# 三维散点的数据
zdata = 15 * np.random.random(100)
xdata = np.sin(zdata) + 0.1 * np.random.randn(100)
ydata = np.cos(zdata) + 0.1 * np.random.randn(100)
ax.scatter3D(xdata, ydata, zdata, c=zdata, cmap='Greens');

plt.show()
```
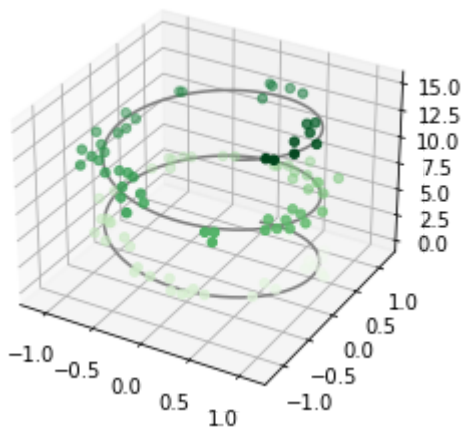

In [ ]: