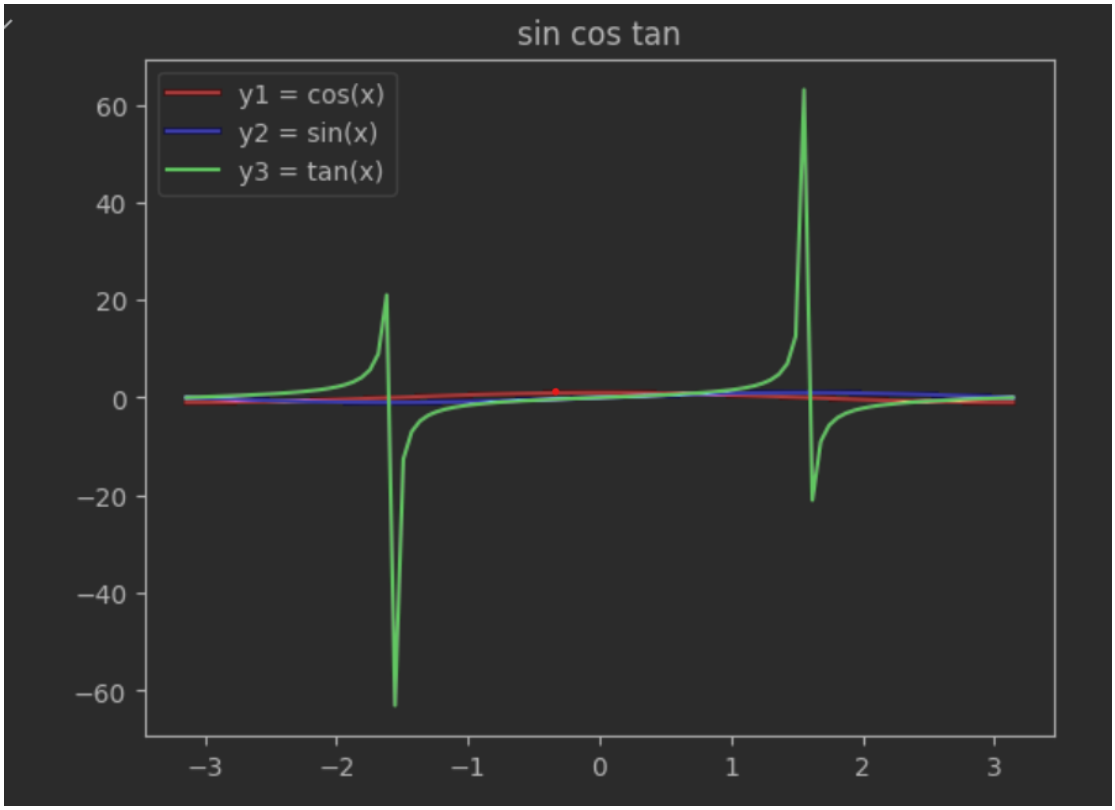
In 1
```
import ...
```
Executed at 2024.05.16 19:45:23 in 1s 151ms

In 7
```
# 绘sin cos tan
x = np.linspace(-np.pi, np.pi, 100)
y1, y2, y3 = np.cos(x), np.sin(x), np.tan(x)

plt.title("sin cos tan")
plt.plot(x, y1, label="y1 = cos(x)", color="red")
plt.plot(x, y2, label="y2 = sin(x)", color="blue")
plt.plot(x, y3, label="y3 = tan(x)", color="green")
plt.legend(loc="upper left")

plt.show()
```
Executed at 2024.05.16 20:01:32 in 91ms



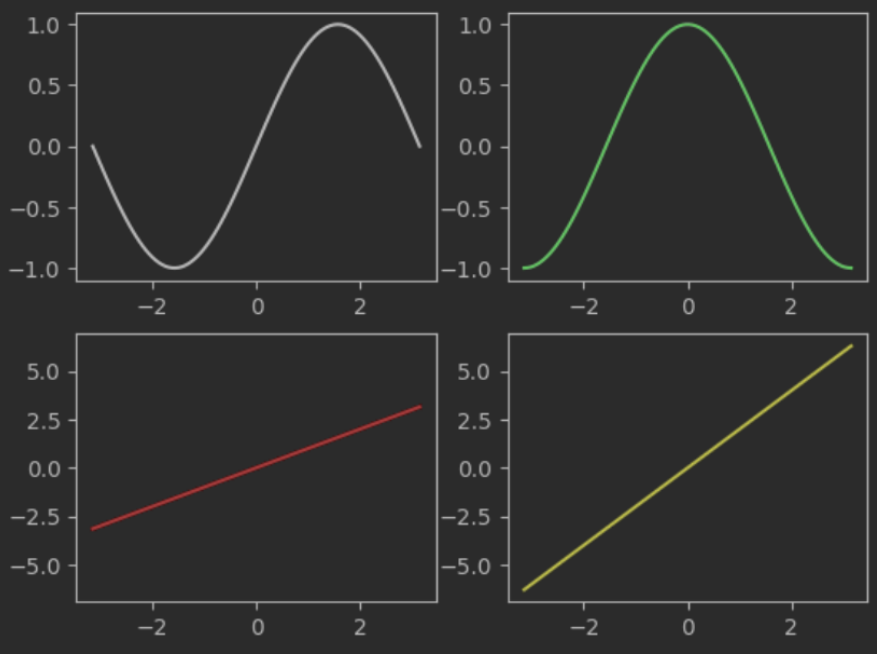
In 9

```python
# 使用子图
ax1 = plt.subplot(2, 2, 1)
plt.plot(x,np.sin(x), 'k')

ax2 = plt.subplot(2, 2, 2, sharey=ax1) # 与 ax1 共享y轴
plt.plot(x, np.cos(x), 'g')

ax3 = plt.subplot(2, 2, 3)
plt.plot(x,x, 'r')

ax4 = plt.subplot(2, 2, 4, sharey=ax3) # 与 ax3 共享y轴
plt.plot(x, 2*x, 'y')


```

Executed at 2024.05.16 20:05:51 in 197ms

Out 9

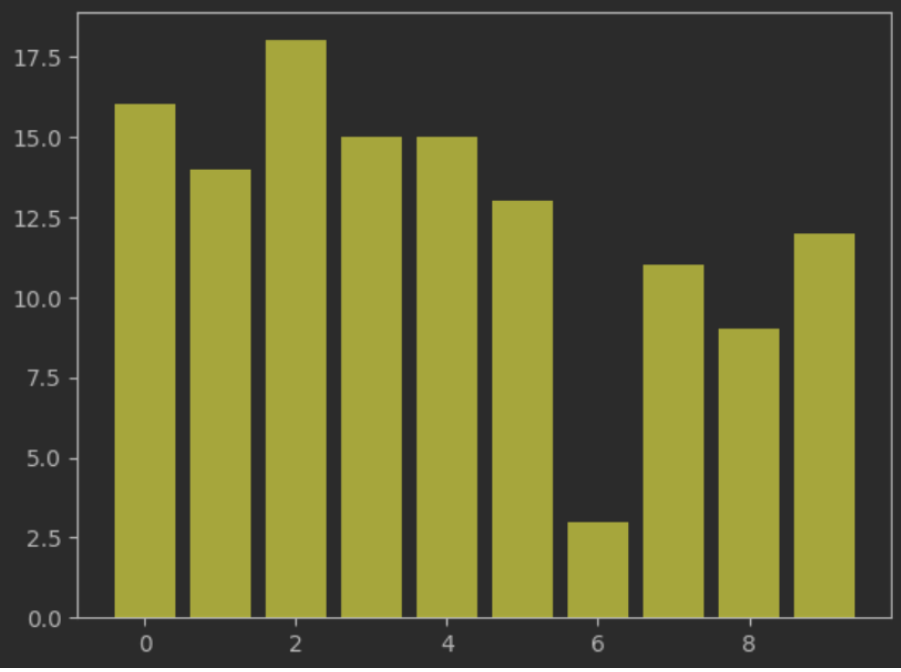
```
[<matplotlib.lines.Line2D at 0x229464225d0>]
```



In 11

```
# 柱状图
x = np.arange(10)
y = np.random.randint(0,20,10)
plt.bar(x, y, align='center', color='yellow')
plt.show()
```

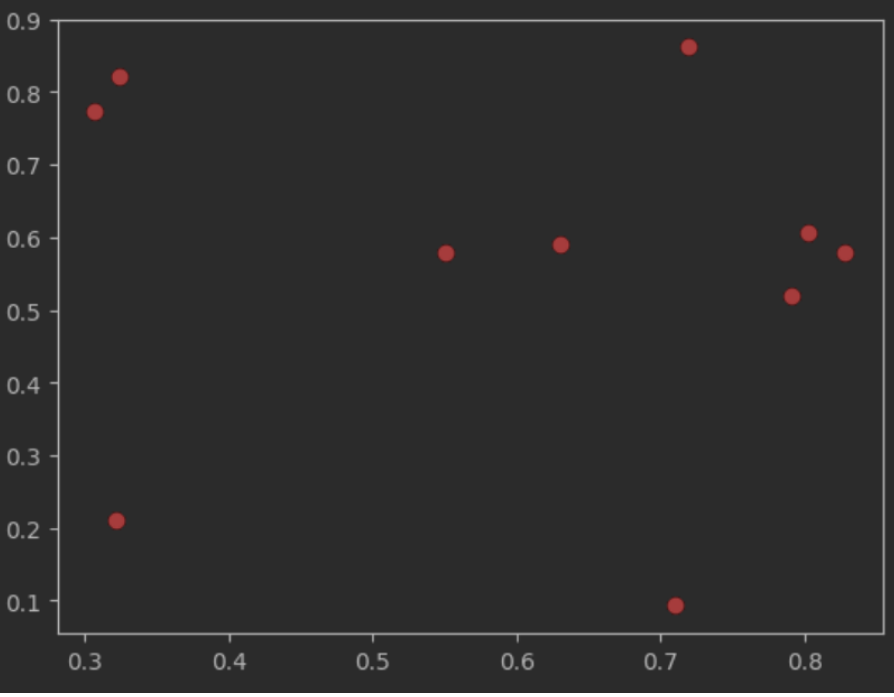
Executed at 2024.05.16 20:06:16 in 68ms



In 12

```
# 散点图
x = np.random.rand(10)
y = np.random.rand(10)
plt.scatter(x,y, color='red')
plt.show()
```

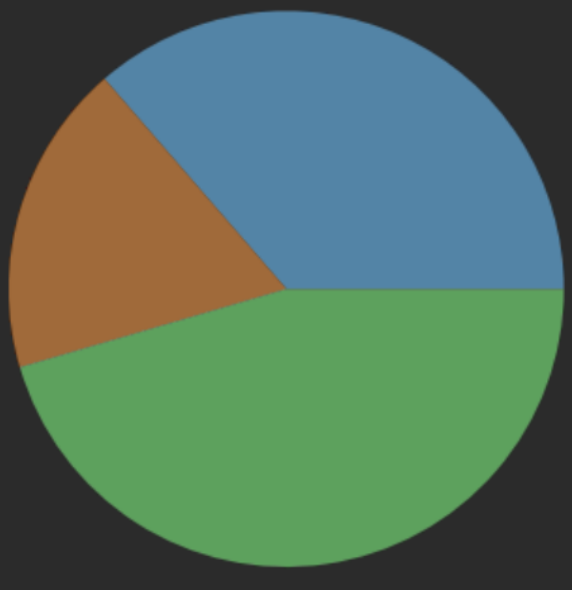
Executed at 2024.05.16 20:07:10 in 76ms



In 13

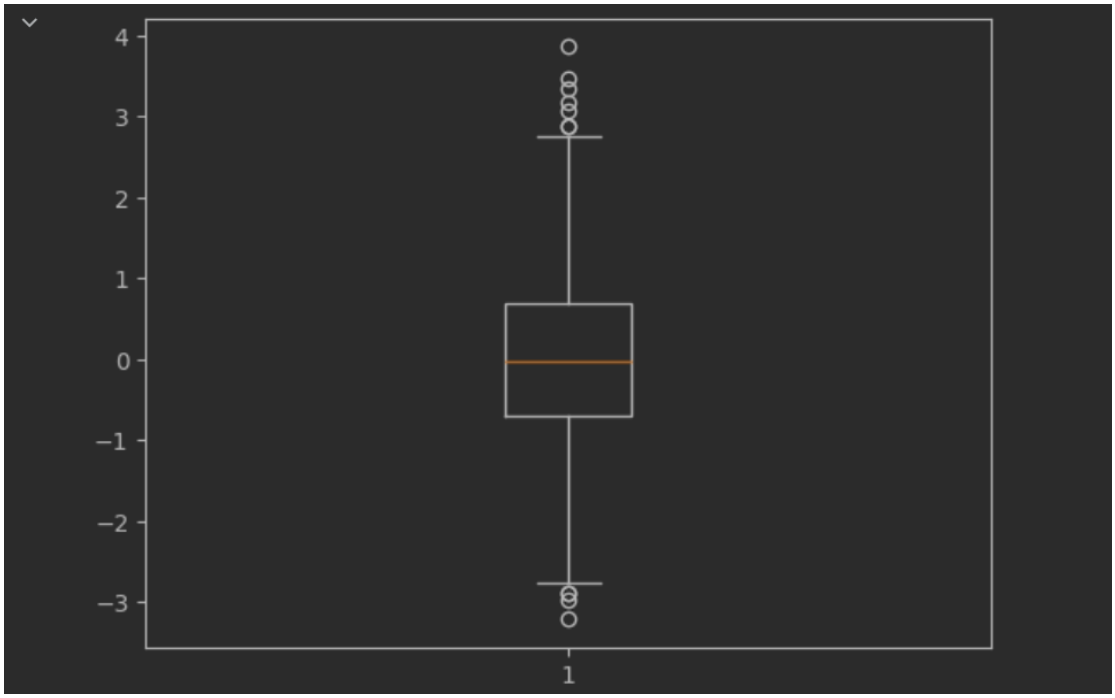
```python
# 饼状图
x = np.random.randint(1, 10, 3)
plt.pie(x)
plt.show()
```

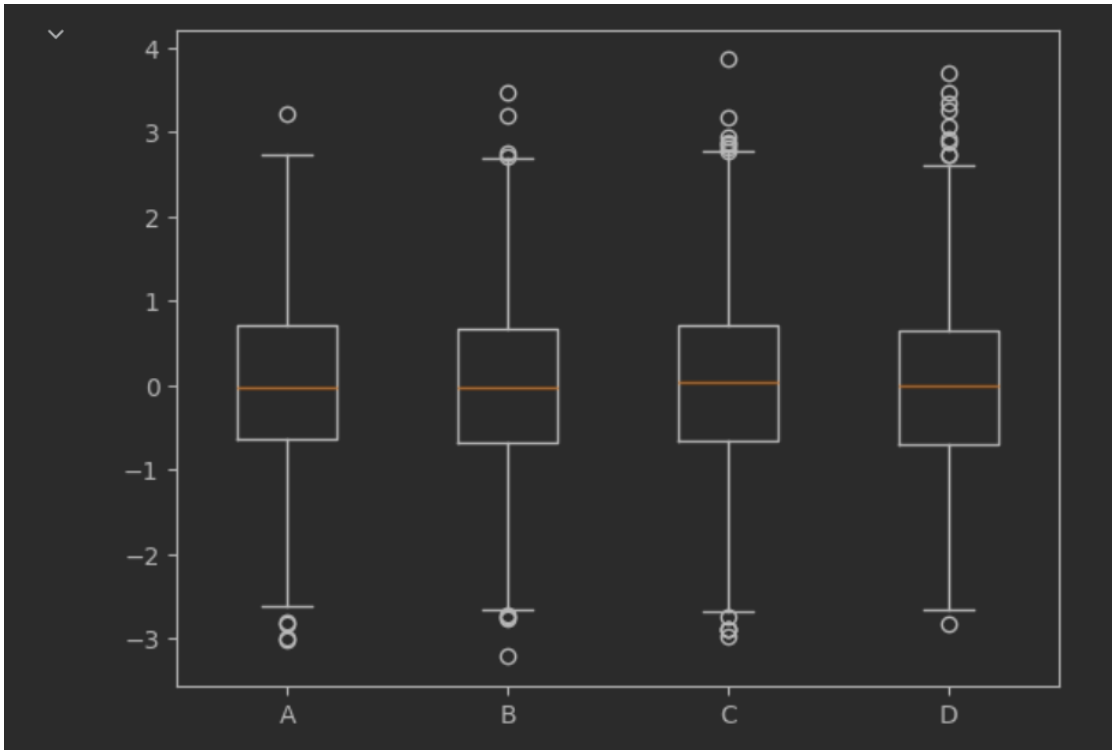
Executed at 2024.05.16 20:08:07 in 36ms



```python
# 绘制箱型图
np.random.seed(100)#生成随机数
data=np.random.normal(size=1000,loc=0,scale=1)
# sym：异常值的形状 ；whis：用于调节上下垂直线的长度
plt.boxplot(data,sym='o',whis=1.5)
plt.show()

# 多个箱型图
np.random.seed(100)#生成随机数
data=np.random.normal(size=(1000,4),loc=0,scale=1) #1000个值得4维数组
lables = ['A','B','C','D']
plt.boxplot(data,labels=lables)
plt.show()
```

Executed at 2024.05.16 20:15:00 in 107ms


4
3
2
1
0
−1
−2
−3
1


4
3
2
1
0
−1
−2
−3
A
B
C
D