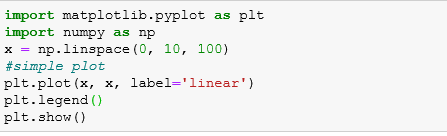
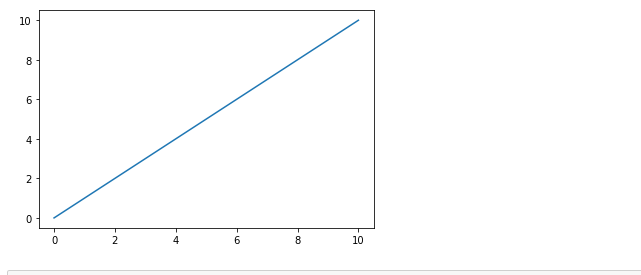
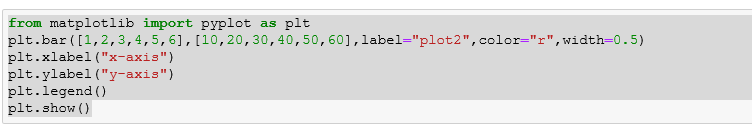
**PROGRAM 3**

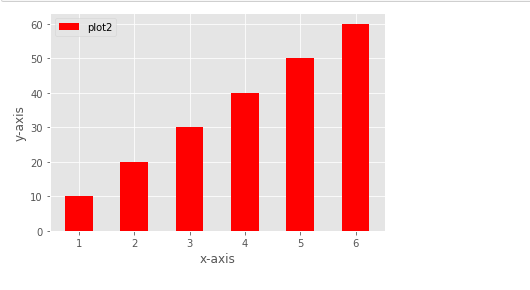
**Aim:** Demonstrate the use of matplotlib

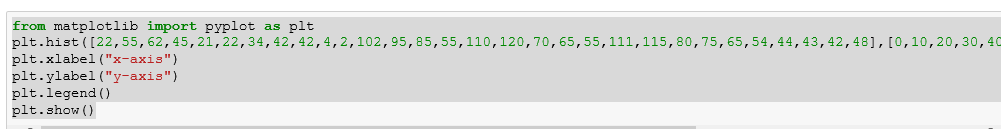
**Code:**

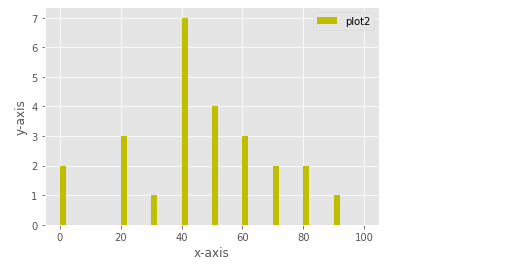


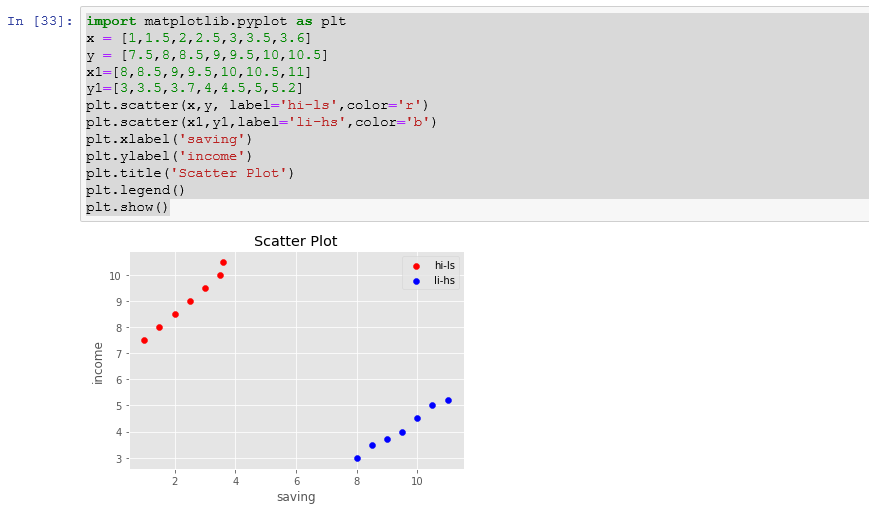


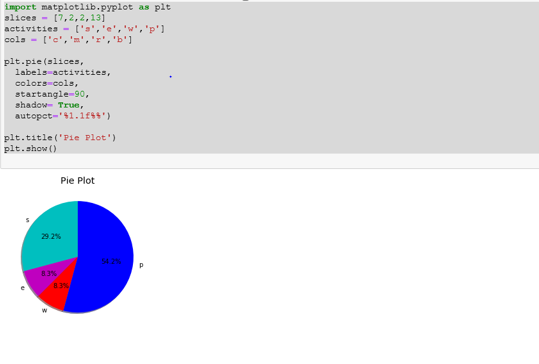








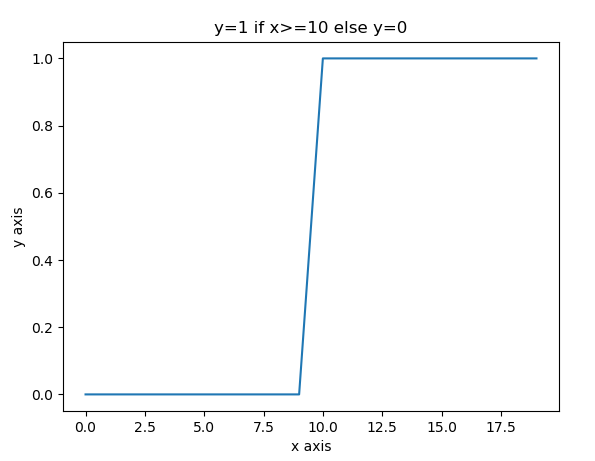




**Aim:** Plot the following equations:-

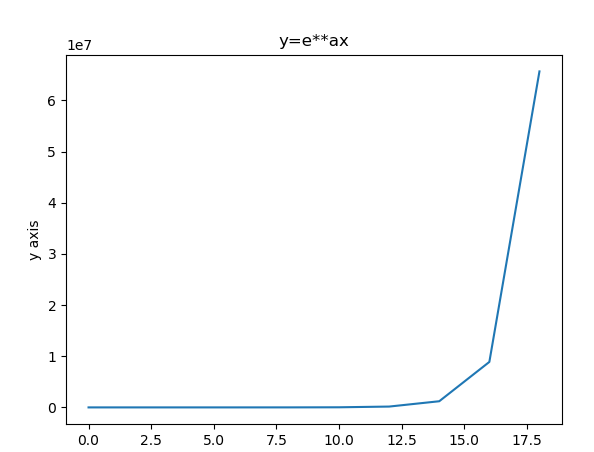
**Code:**

1. y={1 x<10 0   else

import matplotlib.pyplot as plt  
x=[num for num in range(0,20)]  
y=[]  
for i in x:  
    if i>=10:  
        y.append(1)  
    else:  
        y.append(0)  
plt.plot(x,y)  
plt.xlabel("x axis")  
plt.ylabel("y axis")  
plt.title("y=1 if x>=10 else y=0")  
plt.show()  


1. **.**y=eax **for different values of a.**

import numpy as np  
import matplotlib.pyplot as plt  
num=[num for num in range(0,10)]  
a=2 #constant value  
x=np.array(num)\*2  
y=np.exp(x)  
plt.plot(x,y)  
plt.xlabel("x axis")  
plt.ylabel("y axis")  
plt.title("y=e\*\*ax")  
plt.show()

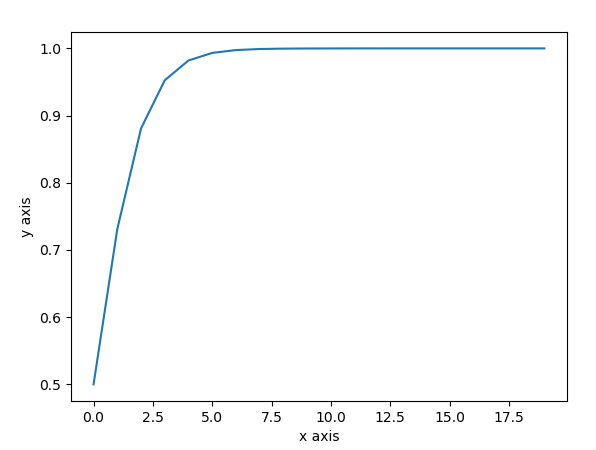


**3**.y=7x2+3x+10 for 2≤x≤5

import matplotlib.pyplot as plt  
x=[x for x in range(2,6)]  
y=[]  
for i in x:  
    y.append(7\*pow(i,2)+3\*i+10)  
plt.plot(x,y)  
plt.xlabel('x axis')  
plt.ylabel('y axis')  
plt.title('y=7x^2+3x+10')  
plt.show()

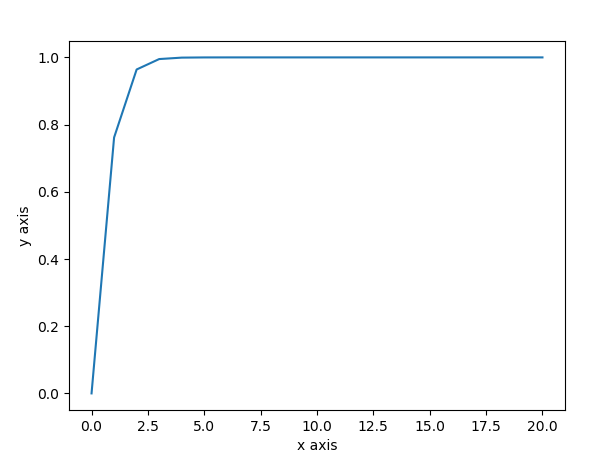
4.y=11+e-x

import matplotlib.pyplot as plt  
import numpy as np  
x=[x for x in range(0,20)]  
p=np.array(x)  
p=1+np.exp(-p)  
y=1/p  
plt.plot(x,y)  
plt.xlabel('x axis')  
plt.ylabel('y axis')  
plt.show()



**5.** y=1-e-ax1+e-ax**for different values of a.**

import matplotlib.pyplot as plt  
import numpy as np  
num=[num for num in range(0,21)]  
num=np.array(num)  
a=2  
p=1-np.exp(-num\*a)  
q=1+np.exp(-num\*a)  
y=p/q  
plt.plot(num,y)  
plt.xlabel('x axis')  
plt.ylabel('y axis')  
plt.show()



**6.** y=tan hx

import numpy as np  
import matplotlib.pyplot as plt  
in\_array = np.linspace(0, np.pi, 12)  
h=2  
out\_array =h\*np.tan(in\_array)  
print("in\_array : ", in\_array)  
print("\nout\_array : ", out\_array)  
# red for numpy.tan()  
plt.plot(in\_array, out\_array, color='red', marker="o")  
plt.title("numpy.tan()")  
plt.xlabel("X")  
plt.ylabel("Y")  
plt.show()

