

EX 7

CODING:

```
import math  
X = [1,2,3,4,5,6]  
y = [0,0,0,1,1,1]  
w = 0  
b = 0  
lr = 0.1  
  
def sigmoid(z):  
    return 1 / (1 + math.exp(-z))  
  
for _ in range(1000):  
    dw = db = 0  
  
    for i in range(len(X)):  
        y_pred = sigmoid(w*X[i] + b)  
        dw += (y_pred - y[i]) * X[i]  
        db += (y_pred - y[i])  
    w -= lr * dw  
    b -= lr * db  
  
    correct = 0  
  
    for i in range(len(X)):  
        y_pred = sigmoid(w*X[i] + b)  
        if (y_pred >= 0.5) == y[i]:  
            correct += 1  
  
    print("Accuracy:", correct/len(X))
```

OUTPUT:

main.py

```
1 import math
2 X = [1,2,3,4,5,6]
3 y = [0,0,0,1,1,1]
4 w = 0
5 b = 0
6 lr = 0.1
7 def sigmoid(z):
8     return 1 / (1 + math.exp(-z))
9 for _ in range(10000):
10    dw = db = 0
11    for i in range(len(X)):
12        y_pred = sigmoid(w*X[i] + b)
13        dw += (y_pred - y[i]) * X[i]
14        db += (y_pred - y[i])
15    w -= lr * dw
16    b -= lr * db
17 correct = 0
18 for i in range(len(X)):
19     y_pred = sigmoid(w*X[i] + b)
20     if (y_pred >= 0.5) == y[i]:
21         correct += 1
22 print("Accuracy:", correct/len(X))
23
```

Output

Accuracy: 1.0
== Code Execution Successful ==