

```

import random

data = [
    ([5.1,3.5],0), ([4.9,3.0],0), ([4.7,3.2],0),
    ([7.0,3.2],1), ([6.4,3.2],1), ([6.9,3.1],1)
]

random.shuffle(data)
w=[0.0,0.0]; b=0.0; lr=0.1

def predict(x):
    return 1 if sum(w[i]*x[i] for i in range(2))+b >= 0 else 0

for _ in range(20):
    for x,y in data:
        y_hat=predict(x)
        err=y-y_hat
        w[0]+=lr*err*x[0]
        w[1]+=lr*err*x[1]
        b+=lr*err

pred=[predict(x) for x,_ in data]
actual=[y for _,y in data]
acc=sum(p==a for p,a in zip(pred,actual))/len(actual)

print("Predicted:",pred)
print("Actual :",actual)
print("Accuracy:",acc)

```

OUTPUT:

```
IDLE Shell 3.13.9
File Edit Shell Debug Options Window Help
Python 3.13.9 (tags/v3.13.9:8183fa5, Oct 14 2025, 14:09:13) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>>
===== RESTART: C:/Users/prast/OneDrive/Desktop/ML LAB/EXP 18.py =====
Predicted: [1, 0, 1, 0, 0, 1]
Actual   : [1, 0, 1, 0, 0, 1]
Accuracy: 1.0
>>> |
```