import numpy as np

X = np.array([

[1, 1],

[1, -1],

[-1, 1],

[-1, -1]

])

Y = np.array([1, -1, -1, -1])

weights = np.zeros(2)

bias = 0

learning\_rate = 1

for i in range(len(X)):

weights += learning\_rate \* X[i] \* Y[i]

bias += learning\_rate \* Y[i]

print(f"After sample {i+1}: weights = {weights}, bias = {bias}")

def predict(x):

result = np.dot(weights, x) + bias

return 1 if result >= 0 else -1

print("\nTesting:")

for i in range(len(X)):

prediction = predict(X[i])

print(f"Input: {X[i]}, Target: {Y[i]}, Predicted: {prediction}")