**Lab Assignment No. 5**

**Code:**

import numpy as np  
  
class BAM:  
 def \_\_init\_\_(self):  
 self.weights = None  
  
 def train(self, X, Y):  
 X = np.array(X)  
 Y = np.array(Y)  
 self.weights = np.dot(Y.T, X)  
  
 def recall(self, X):  
 X = np.array(X)  
 Y = np.dot(X, self.weights.T)  
 Y[Y >= 0] = 1  
 Y[Y < 0] = -1  
 return Y  
  
if \_\_name\_\_ == '\_\_main\_\_':  
 bam = BAM()  
  
 X = [[1, 1, -1, -1],  
 [-1, -1, 1, 1]]  
 Y = [[1, -1],  
 [-1, 1]]  
  
 bam.train(X, Y)  
  
 test\_X = [[1, -1, 1, -1],  
 [1, 1, -1, -1]]  
  
 for x in test\_X:  
 recalled\_Y = bam.recall(x)  
 print(f"Input: {x}")  
 print(f"Recalled Output: {recalled\_Y}\n")

**Output:**

Input: [1, -1, 1, -1]  
Recalled Output: [1 1]  
  
Input: [1, 1, -1, -1]

Recalled Output: [ 1 -1]