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]
```