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Machine Learning Lab – 10
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Explanation:

1. We generate the AND and OR operator data for all possible combinations.
2. We initialize weights with random value between -0.5 and 0.5.
3. We find the output by using np.dot function and then applying step function on it.
4. We obtain error by subtracting predicted and actual value.
5. We update weight by adding to weight delta w which is equal to learning rate * input times * error.

Output:

```
X: [[0 0]
 [0 1]
 [1 0]
 [1 1]]
y: [0 0 0 1]
Error: 0        Weight: [ 0.1 -0.5]
Error: 0        Weight: [ 0.1 -0.5]
Error: 0        Weight: [ 0.1 -0.5]
Error: 1        Weight: [ 0.2 -0.4]
Error: 0        Weight: [ 0.2 -0.4]
Error: 0        Weight: [ 0.2 -0.4]
Error: 0        Weight: [ 0.2 -0.4]
Error: 1        Weight: [ 0.3 -0.3]
Error: 0        Weight: [ 0.3 -0.3]
Error: 0        Weight: [ 0.3 -0.3]
Error: -1       Weight: [ 0.2 -0.3]
Error: 1        Weight: [ 0.3 -0.2]
Error: 0        Weight: [ 0.3 -0.2]
Error: 0        Weight: [ 0.3 -0.2]
Error: -1       Weight: [ 0.2 -0.2]
Error: 1        Weight: [ 0.3 -0.1]
Error: 0        Weight: [ 0.3 -0.1]
Error: 0        Weight: [ 0.3 -0.1]
Error: -1       Weight: [ 0.2 -0.1]
Error: 1        Weight: [ 3.00000000e-01 -2.77555756e-17]
```

```
X: [[0 0]
 [0 1]
 [1 0]
 [1 1]]
y: [0 1 1 1]
Error: 0        Weight: [0.3 0.5]
Error: 0        Weight: [0.3 0.5]
Error: 1        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
Error: 0        Weight: [0.4 0.5]
```