

Hebb Formula

$$w_i(new) = w_i(old) + x_i y$$

Bias Formula

$$b(new) = b(old) + y$$

```
In [1]: import numpy as np
```

```
In [2]: x1 = np.array([1,1,1,-1,1,-1,1,1,1,])
```

```
In [3]: b = 0
```

```
In [4]: y = np.array([1,-1])
```

```
In [5]: wtold = np.zeros((9,))
        wtnew = np.zeros((9,))
```

```
In [6]: wtnew = wtnew.astype(int)
        wtold = wtold.astype(int)
```

```
In [7]: wtnew
```

```
Out[7]: array([0, 0, 0, 0, 0, 0, 0, 0, 0])
```

```
In [8]: wtold
```

```
Out[8]: array([0, 0, 0, 0, 0, 0, 0, 0, 0])
```

```
In [9]: print('First input with target = 1')
        for i in range(0,9):
            wtold[i]=wtold[i]+x1[i]*y[0]
        wtnew = wtold
        b = b+y[0]
```

First input with target = 1

```
In [10]: print('New weight ', wtnew)
         print('Bias value', b)
```

New weight [1 1 1 -1 1 -1 1 1 1]
Bias value 1

```
In [11]: x2 = np.array([1,1,1,1,-1,1,1,1,1])
        x2
```

```
Out[11]: array([ 1,  1,  1,  1, -1,  1,  1,  1,  1])
```

```
In [12]: print('First input with target = -1')
         for i in range(0,9):
             wtnew[i]=wtold[i]+x2[i]*y[1]
         b = b+y[1]
```

First input with target = -1

```
In [13]: print('New weight ', wtnew)
         print('Bias value', b)
```

New weight [0 0 0 -2 2 -2 0 0 0]
Bias value 0

```
In [ ]:
```