

## Assignment 2

```
In [5]: import numpy as np
```

Define McCulloch Pitts neuron

```
In [6]: def mp_neuron(inputs, weights, threshold):  
    # Compute the dot product of the inputs and weights  
    net = np.dot(inputs, weights)  
    # Apply the threshold function  
    if net >= threshold:  
        output = 1  
    else:  
        output = 0  
    return output
```

Define ANDNOT Neural Network

```
In [11]: def andnot_nn(inputs):  
    weights = [-2, 1]  
    threshold = 0  
    # Compute the outputs of the two neurons in the first layer  
    outputs = [mp_neuron(inputs, weights, threshold) for weights in [[-1, 1],  
        [1, -1]]]  
    # Compute the final output of the ANDNOT function  
    if outputs[0] == 1 and outputs[1] == 0:  
        output = 1  
    else:  
        output = 0  
    return output
```

Test the ANDNOT Neural Network

```
In [10]: inputs = np.array([[0, 0], [0, 1], [1, 0], [1, 1]])  
outputs = []  
  
for i in range(inputs.shape[0]):  
    y = andnot_nn(inputs[i].reshape(1, -1))  
    outputs.append(y)  
  
print("Inputs:", inputs)  
print("Outputs:", outputs)
```

```
Inputs: [[0 0]  
 [0 1]  
 [1 0]  
 [1 1]]  
Outputs: [0, 1, 0, 0]
```

