

# HW1

109607514 張恩瑞

編譯：

```
henryc@52-0460994-H1:/mnt/c/Users/henry/desktop/College/Junior/DataSturcture/HW1_NN$ make_
```

Run：

```
henryc@52-0460994-H1:/mnt/c/Users/henry/desktop/College/Junior/DataSturcture/HW1_NN$ ./backprop_
```

```
henryc@52-0460994-H1:/mnt/c/Users/henry/desktop/College/Junior/DataSturcture/HW1_NN$ ./backprop
Enter the number of Layers in Neural Network:
3
Enter number of neurons in layer[1]:
2
Enter number of neurons in layer[2]:
2
Enter number of neurons in layer[3]:
1
Created Layer: 1
Number of Neurons in Layer 1: 2
Neuron 1 in Layer 1 created
Neuron 2 in Layer 1 created
Created Layer: 2
Number of Neurons in Layer 2: 2
Neuron 1 in Layer 2 created
Neuron 2 in Layer 2 created
Created Layer: 3
```

在這次的 Neural network implement 中

總共有三層

輸入層 兩個 Neuron

有四種輸入：

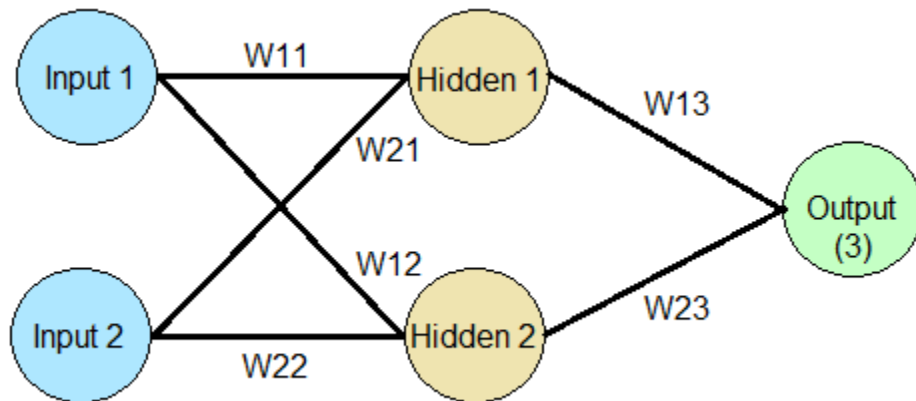
0 0、0 1、1 0、1 1

隱藏層 兩個 Neuron

輸出層 一個 Neuron

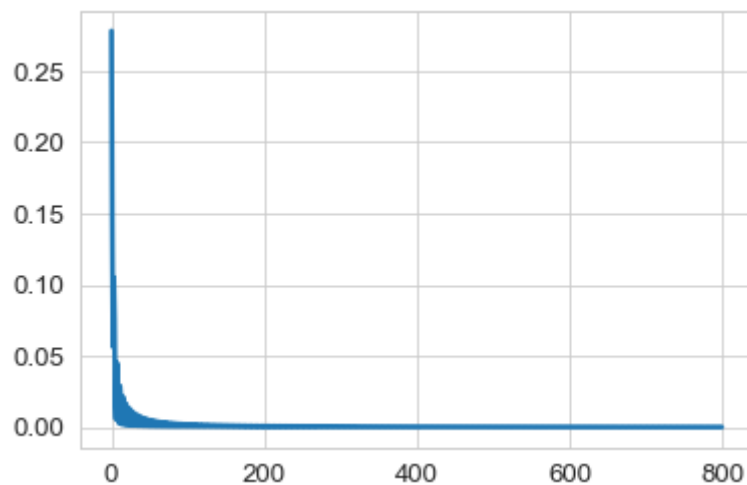
輸出為 0 或 1

示意圖：



Source : <https://codingvision.net/c-backpropagation-tutorial-xor>

Cost function：



從上圖可以看的出來隨著疊代次數的增加，其 **cost** 會逐漸降低。

而其將低的速度會隨著 **learning rate** 的改變而有所影響。

Reference：

<https://github.com/mayurbhole/Neural-Network-framework-using-Backpropagation-in-C>