

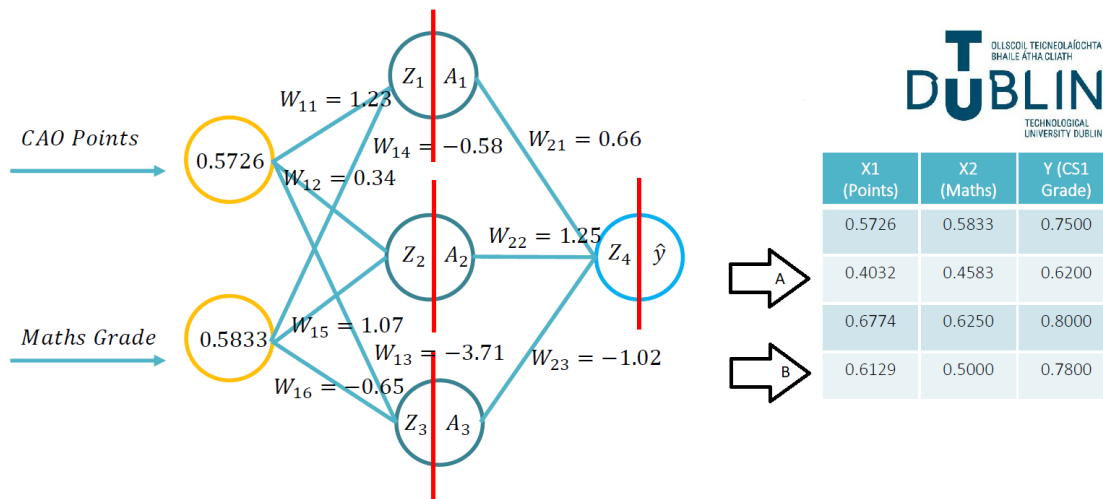
Lab_1_Q1 _Solution

1 Human Centric Deep Learning (HCAIM)

1.1 Lab 1 Q1: Network Weights

In [5]: `from IPython.display import Image`
`Image("lab1out.png")`

Out [5]:



1.1.1 A)

$$Z_1 = 0.2301$$

$$Z_2 = 0.6274$$

$$Z_3 = -1.7937$$

$$A_1 = 0.5572$$

$$A_2 = 0.6519$$

$$A_3 = 0.1426$$

$$Z_4 = 1.0372$$

$$\hat{y} = 0.7383$$

$$Prediction = 73.83\%$$

1.1.2 B)

$$Z_1 = 0.4638$$

$$Z_2 = 0.7433$$

$$Z_3 = -2.5988$$

$$A_1 = 0.6139$$

$$A_2 = 0.6777$$

$$A_3 = 0.0692$$

$$Z_4 = 1.1817$$

$$\hat{y} = 0.7652$$

$$Prediction = 76.52\%$$

1.1.3 Error

$$Error_{total} = \sum_{n=0}^{Outputs} \frac{1}{2} (target - \hat{y})^2$$

$$Error_{total} => \frac{1}{2} (0.62 - 0.7383)^2 + \frac{1}{2} (0.78 - 0.7652)^2$$

$$Error_{total} => 0.0069 + 0.0001$$

$$Error_{total} = 0.007$$