• Recurrent Neural Networks RNNs

Here, I use 'log' in mathematical form, meaning: log 1 = lg 1 (log base to the 10)

One-hot Encoding

① Create a vector of zeros with length 5

② When representing number i in [1, 5], set $w_i = 1$

- "one" → [1, 0, 0, 0, 0]
- "two" → [0, 1, 0, 0, 0]
- "three" → [0, 0, 1, 0, 0]
- "four" → [0, 0, 0, 1, 0]
- "five" → [0, 0, 0, 0, 1]

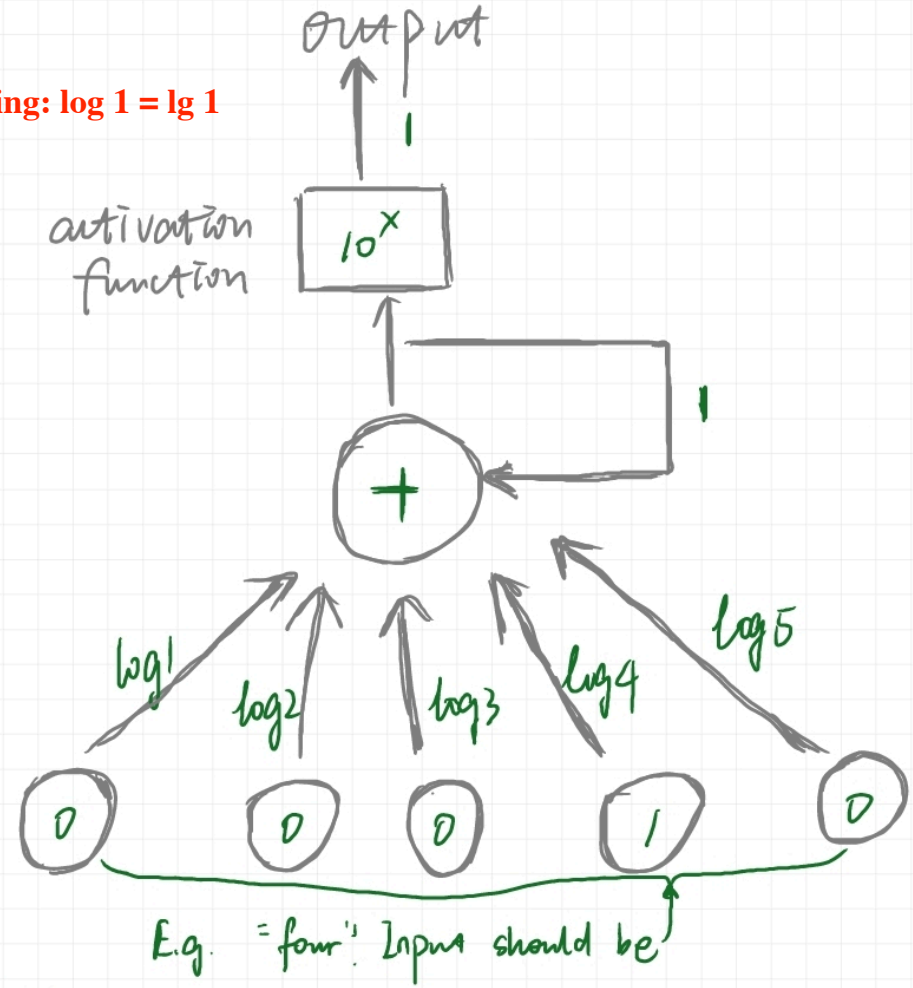
Weights & Activation Function

Weights for input: log1 log2 log3 log4 log5

Weights for update state: 1

Weights for output: 1

Activation function: $f(x) = 10^x$



["three", "one", "four", "one", "five", "two", "five", "three", "fwe"]

inputs are

$$\begin{bmatrix} 0,0,1,0,0 \\ 1,0,0,0,0 \\ 0,0,0,1,0 \\ 1,0,0,0,0 \\ 0,0,0,0,1 \\ 0,1,0,0,0 \\ 0,0,0,0,1 \\ 0,0,1,0,0 \\ 0,0,0,0,1 \end{bmatrix}$$

outputs is

$10^{\log(3\times1\times4\times1\times5\times2\times5\times3\times5)}$ → 9000