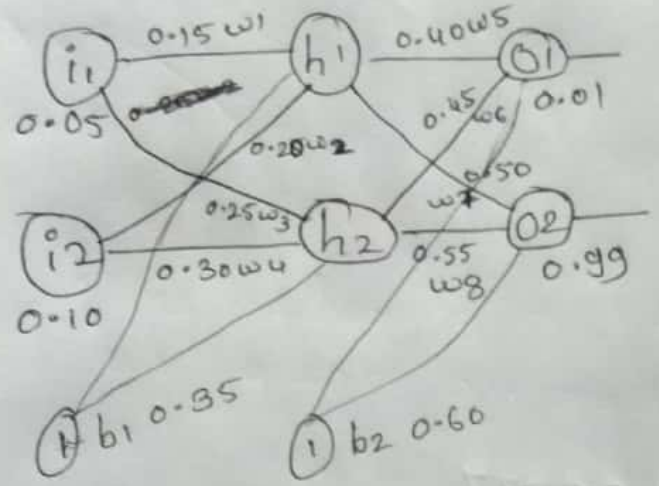
Problems:-



Given:- $i_1 = 0.05$, $i_2 = 0.10$

$w_1 = 0.15$, $w_2 = 0.20$, $w_3 = 0.25$, $w_4 = 0.30$,

$b_1 = 0.3$

$w_5 = 0.4$, $w_6 = 0.45$, $w_7 = 0.5$, $w_8 = 0.55$

$b_2 = 0.6$

$O1 = 0.01$, $O2 = 0.99$.

$$net_{h_1} = w_1 * i_1 + w_2 * i_2 + b_1 * 1$$

$$net_{h_1} = 0.15 * 0.05 + 0.2 * 0.1 + 0.35 * 1 = 0.3775$$

$$Out\ h_1 = \frac{1}{1+e^{-net_{h_1}}} = \frac{1}{1+e^{-0.3775}} = \frac{1}{1+0.6856} = \frac{1}{1.6856} = 0.5932\ //$$

Now,

$$net_{h_2} = w_4 * i_2 + w_3 * i_1 + b_1 * 1$$

$$= 0.3 * 0.1 + 0.25 * 0.05 + 0.35 * 1 = 0.3925$$

$$Out\ h_2 = \frac{1}{1+e^{-net_{h_2}}} = \frac{1}{1+e^{-0.3925}} = \frac{1}{1+0.6754} = \frac{1}{1.6754} = 0.59688$$

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$$net_{O_2} = w_7 * out_{h_1} + w_8 * out_{h_2} + b_2 * 1$$

$$= 0.5 \times 0.5932 + 0.55 * 0.5968 + 1 * 0.6$$

$$net_{O_2} = 1.22484$$

$$\underline{Out_{O_2}} = \frac{1}{1 + e^{-net_{O_2}}} = \frac{1}{1 + e^{-1.22484}} = \frac{1}{1 + 0.2938} = \underline{0.7729}$$

$$E_{total} = \sum \frac{1}{2} (target - output)^2$$

$$E_{O_2} = \frac{1}{2} (target_{O_2} - out_{O_2})^2$$

$$= \frac{1}{2} (0.99 - 0.7729)^2$$

$$= \frac{1}{2} (0.04713241)$$

$$\underline{E_{O_2} = 0.02356} \quad //$$

$$E_{total} = E_{O_1} + E_{O_2} = 0.274811 + 0.02356 = 0.298371$$

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