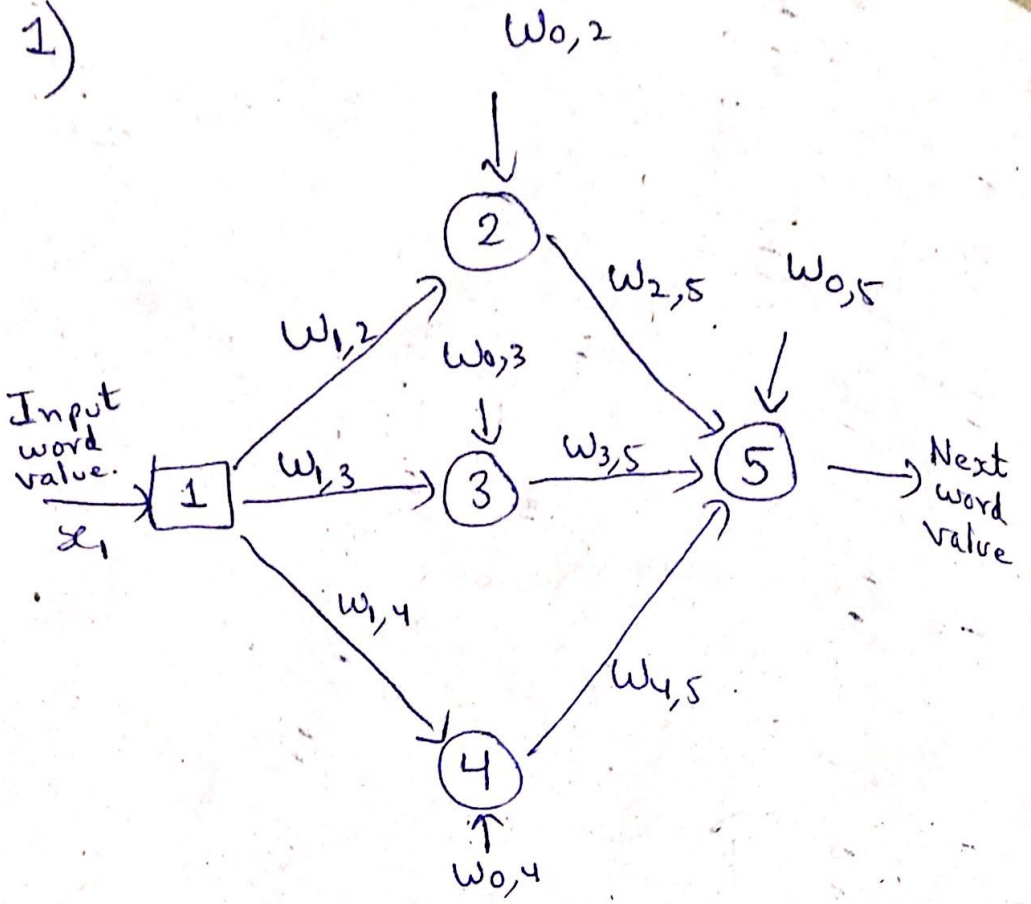
1)



Equations:

$$y_2 = w_{0,2} + w_{1,2} \cdot x_1$$

$$y_3 = w_{0,3} + w_{1,3} \cdot x_1$$

$$y_4 = w_{0,4} + w_{1,4} \cdot x_1$$

$$y_5 = w_{0,5} + w_{2,5} \cdot y_2 + w_{3,5} \cdot y_3 + w_{4,5} y_4$$

$$= w_{0,5} + w_{2,5}(w_{0,2} + w_{1,2} \cdot x_1) + w_{3,5}(w_{0,3} + w_{1,3} \cdot x_1) + w_{4,5}(w_{0,4} + w_{1,4} \cdot x_1)$$

$$\Rightarrow w_{0,5} + w_{0,2} \cdot w_{2,5} + w_{2,5} \cdot w_{1,2} \cdot x_1 + w_{3,5} \cdot w_{0,3} + w_{3,5} \cdot w_{1,3} \cdot x_1 + w_{4,5} \cdot w_{0,4} + w_{4,5} \cdot w_{1,4} \cdot x_1$$

Weight updation equations

$$w_{0,5} = w_{0,5} - 2\alpha (y_5 - y_{actual})$$

$$w_{2,5} = w_{2,5} - 2\alpha (y_5 - y_{actual}) \times (w_{0,2} + w_{1,2} x_1)$$

$$w_{3,5} = w_{3,5} - 2 \cdot \alpha \cdot (y_5 - y_{actual}) \times (w_{0,3} + w_{1,3} \cdot x_1)$$

$$w_{4,5} = w_{4,5} - 2 \cdot \alpha \cdot (y_5 - y_{actual}) \times (w_{0,4} + w_{1,4} \cdot x_1)$$

$$w_{0,2} = w_{0,2} - 2 \cdot \alpha \cdot (y_5 - y_{actual})$$

$$w_{0,3} = w_{0,3} - 2\alpha \cdot (y_5 - y_{actual})$$

$$w_{0,4} = w_{0,4} - 2\alpha \cdot (y_5 - y_{actual})$$

$$w_{1,2} = w_{1,2} - 2 \cdot \alpha x_1 (y_5 - y_{actual})$$

$$w_{1,3} = w_{1,3} - 2 \cdot \alpha \cdot x_1 \cdot (y_5 - y_{actual})$$

$$w_{1,4} = w_{1,4} - 2 \cdot \alpha \cdot x_1 \cdot (y_5 - y_{actual})$$