Introduction to Activation Functions

Recap: Working of Neural Network

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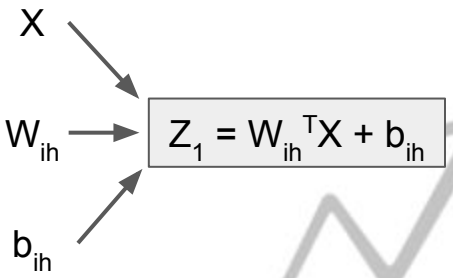

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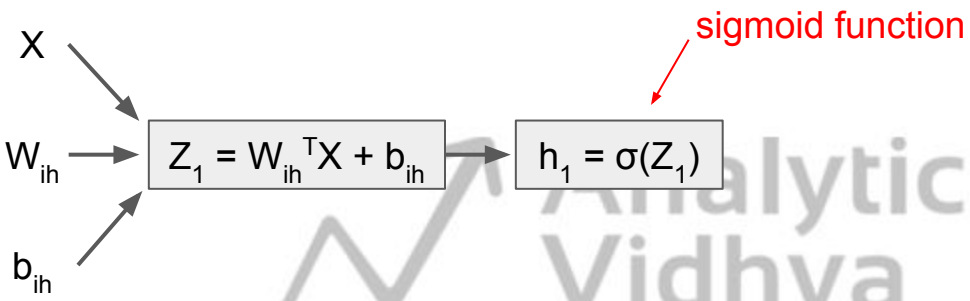

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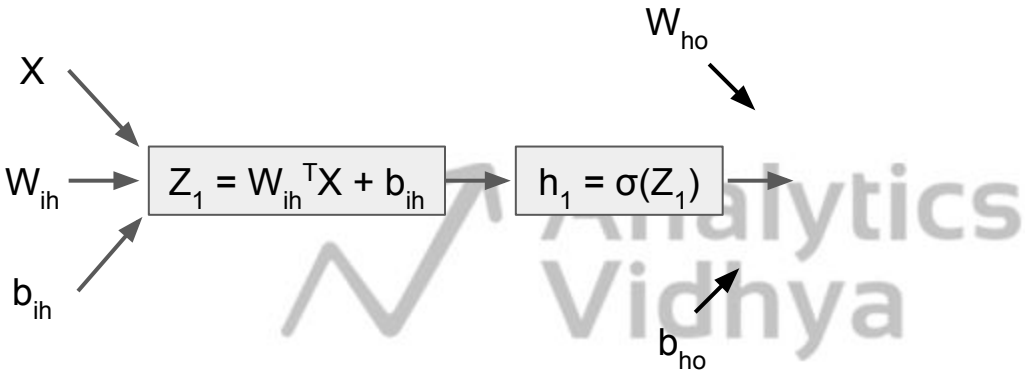

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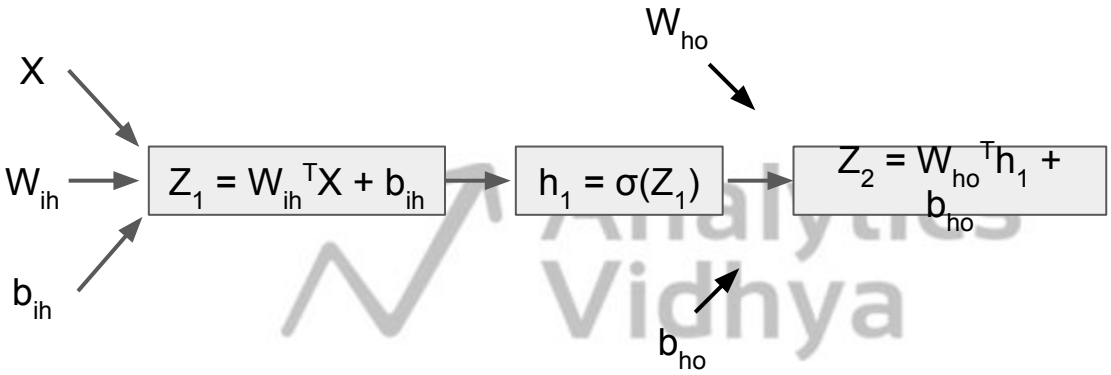

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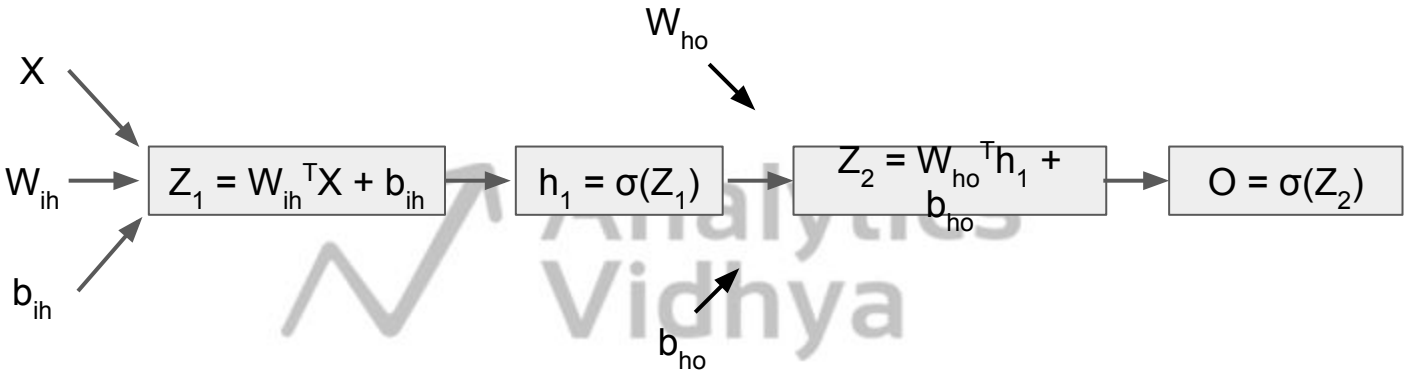
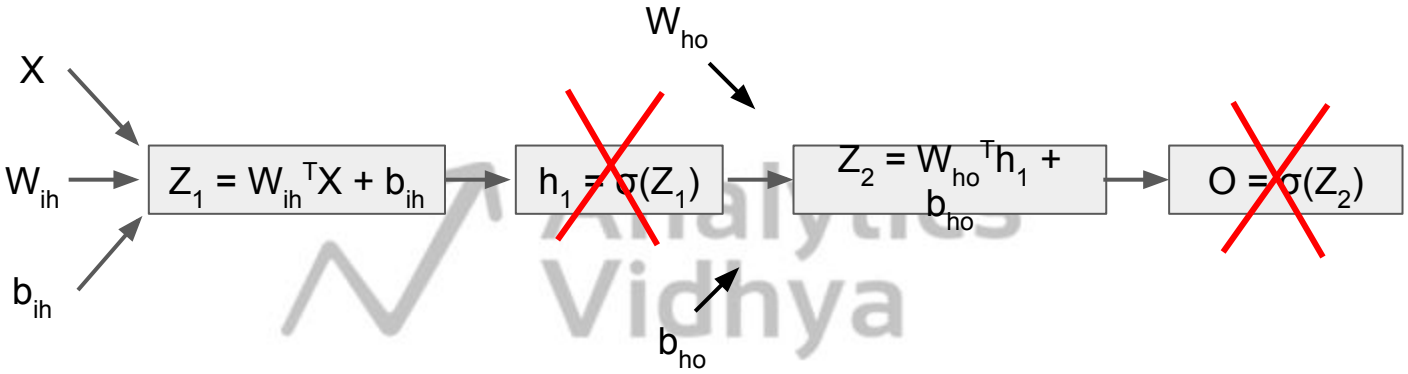


Why do we need Activation Functions?



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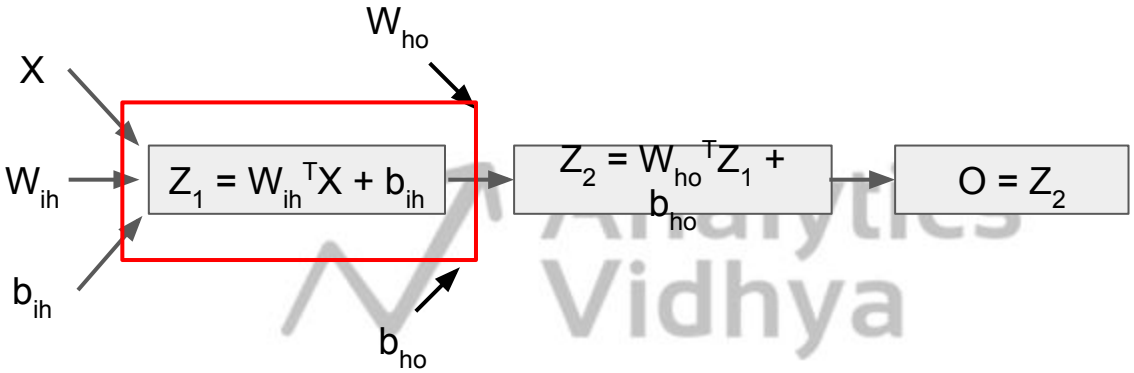

$$Z_1 = W_{ih}^T X + b_{ih}$$

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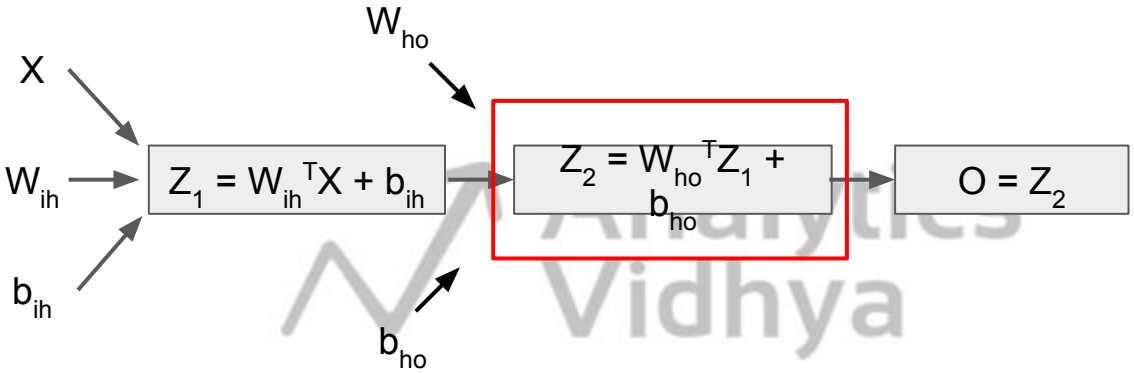

$$Z_1 = W_{ih}^T X + b_{ih}$$

$$Z_2 = W_{ho}^T Z_1 + b_{ho}$$

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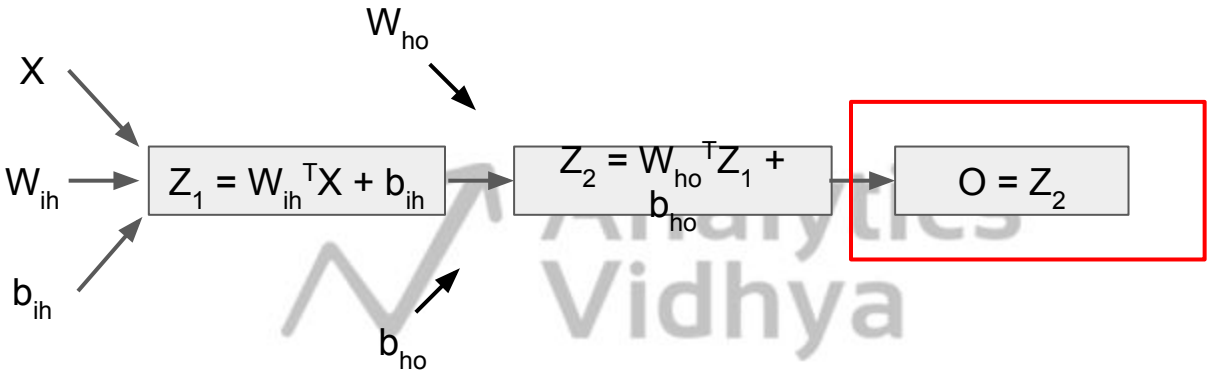

$$Z_1 = W_{ih}^T X + b_{ih}$$

$$Z_2 = W_{ho}^T Z_1 + b_{ho} \quad = W_{ho}^T (W_{ih}^T X + b_{ih}) + b_{ho}$$

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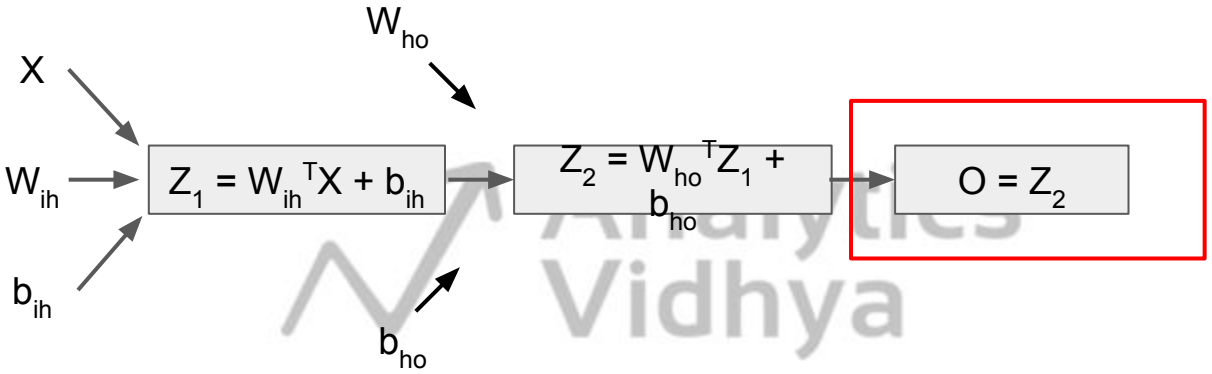

$$Z_1 = W_{ih}^T X + b_{ih}$$

$$Z_2 = W_{ho}^T Z_1 + b_{ho} \quad = W_{ho}^T (W_{ih}^T X + b_{ih}) + b_{ho}$$

Linear Combination

Why do we need Activation Functions?

linear

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Linear with non linear data

Why do we need Activation Functions?

Sigmoid with non linewar data

Why do we need Activation Functions?

Introduces non-linearity in the network

Thank You