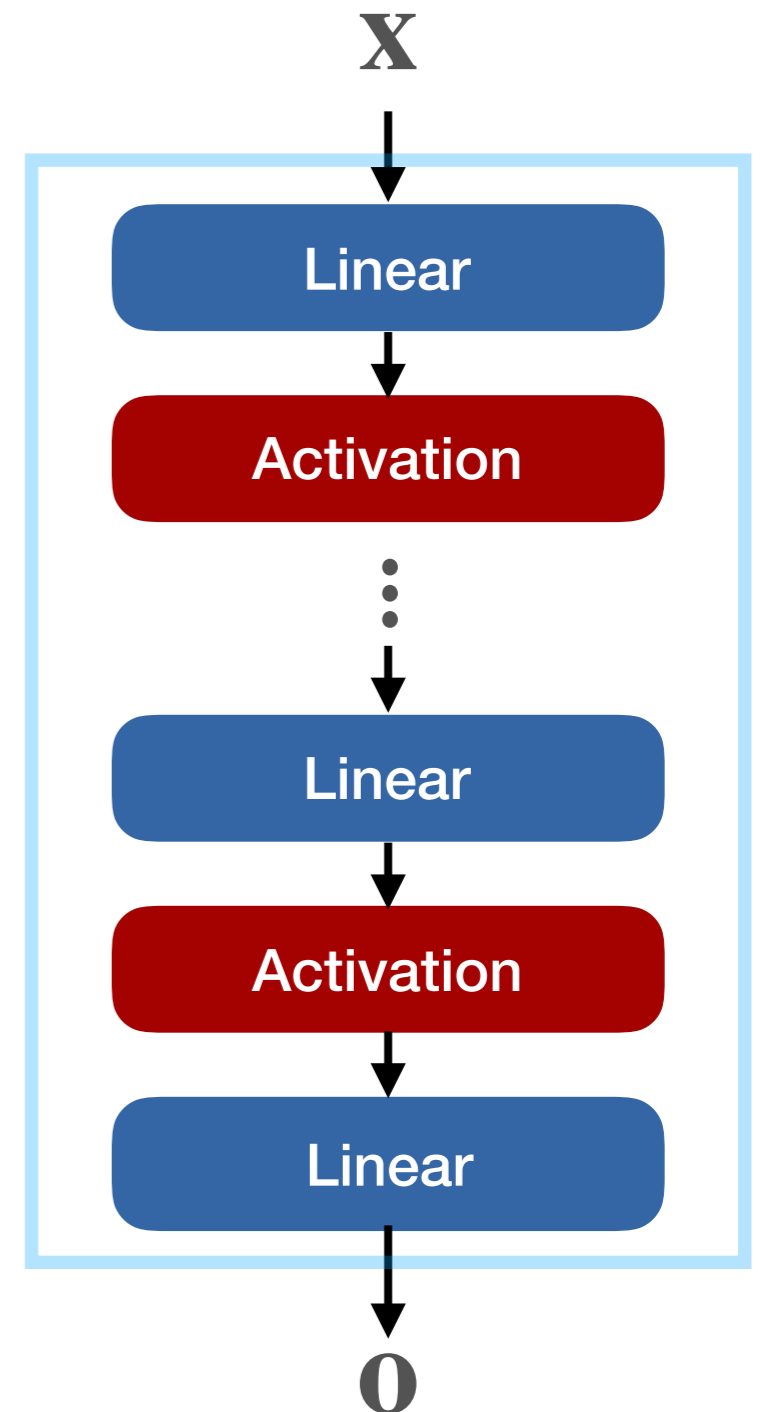


Loss functions

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Inputs and outputs of networks

- Input:
 - Tensor \mathbf{x}
- Output:
 - Tensor $\mathbf{0}$



Regression

- L1 loss

- $\ell = |\mathbf{y} - \mathbf{o}|$

- L2 loss

- $\ell = \|\mathbf{y} - \mathbf{o}\|^2$

Classification

- Compute likelihood
 - $p(1) = \sigma(o)$
 - $\mathbf{p} = \text{softmax}(\mathbf{o})$
- Cross entropy / -Log likelihood
 - $-\log(p(y))$

Classification losses in practice

- $\sigma(o) = 0$ for $o \rightarrow -50$
 - $\log(\sigma(o)) = \log(0)$
is undefined
- Combine \log and σ
 - BCEWithLogitsLoss
 - CrossEntropyLoss