$$ForwardPass$$

$$E = X(C)$$

$$H = E \times W_1 + b_1$$

$$Z = \tanh(H)$$

$$\hat{y} = Z \times W_2 + b_2$$

$$BackPropagation$$

$$L = \frac{1}{2}(\hat{y} - y)^2$$

$$\frac{\partial L}{\partial \hat{y}} = \frac{1}{n}\sum(\hat{y} - y)$$

$$\frac{\partial L}{\partial b_2} = \frac{\partial L}{\partial \hat{y}}\frac{\partial \hat{y}}{\partial b_2}$$

$$\frac{\partial L}{\partial W_2} = \frac{\partial L}{\partial \hat{y}}\frac{\partial \hat{y}}{\partial W_2}$$

$$\frac{\partial L}{\partial b_1} = \frac{\partial L}{\partial \hat{y}}\frac{\partial \hat{y}}{\partial Z}\frac{\partial Z}{\partial H}\frac{\partial H}{\partial b_1}$$

$$\frac{\partial L}{\partial W_1} = \frac{\partial L}{\partial \hat{y}}\frac{\partial \hat{y}}{\partial Z}\frac{\partial Z}{\partial H}\frac{\partial H}{\partial W_1}$$

$$\frac{\partial L}{\partial E} = \frac{\partial L}{\partial \hat{y}}\frac{\partial \hat{y}}{\partial Z}\frac{\partial Z}{\partial H}\frac{\partial H}{\partial E}$$