# Quiz 8

This is a preview of the published version of the quiz

Started: Jan 20 at 5:23pm

# Quiz Instructions

This quiz will cover neural networks, deep learning and CNNs. You will have 30 minutes to complete the quiz.

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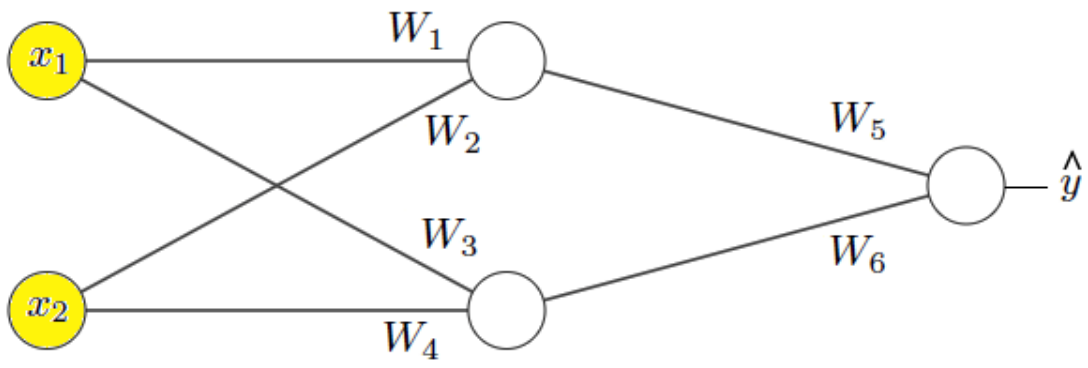
## Question 1 — 10 pts




The neural network above has two inputs ($x_1, x_2$), two hidden nodes (we'll call them $h_1$ and $h_2$ for the top and bottom respectively) and an output node ($\hat{y}$). Assume both $h_1$ and $h_2$ apply the following non-linearity: $a(z) = z^2$. Assume the output node applies no nonlinearity.

Let's say we are training the network using a squared loss $L = (y - \hat{y})^2$. We have our weights set to $w_1 = 1, w_2 = 2, w_3 = -1, w_4 = 1, w_5 = -1, w_6 = 2$. We see a sample $(x_1, x_2) = (0, 1)$ with a label of $y = -1$. Give the new weights after updating on this sample. Use a learning rate of $\eta = 0.1$.

Remember to use the chain rule here! It will make calculating all the derivatives much easier.

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