This last (top-most) node represents
the probability of survival

$$x_1^{(3)} = \sigma\left(s_1^{(3)}\right) = \frac{1}{1 + e^{-s_1^{(3)}}}$$

You will often see these nodes
labeled as **z** for outputs.
We are using **x** to simplify the math
later in the document.

$$s_1^{(3)} = \sum_{i=1}^{2} w_{1,i}^{(2)} x_i^{(2)}$$

You will often see these nodes
labeled as **h** for hidden units.
We are using **x** to simplify the
math later in the document.

$$x_1^{(2)} = \sigma\left(s_1^{(2)}\right) = \frac{1}{1 + e^{-s_1^{(2)}}}$$

$$x_2^{(2)} = \sigma\left(s_2^{(2)}\right) = \frac{1}{1 + e^{-s_2^{(2)}}}$$

$$s_1^{(2)} = \sum_{i=1}^{3} w_{2,i}^{(1)} x_i^{(1)}$$

$$s_2^{(2)} = \sum_{i=1}^{3} w_{2,i}^{(1)} x_i^{(1)}$$