Homework 1: Neural Net Implementation

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The attached file, `faustino_hw1.py`, contains the class `NeuralNetwork` which creates a neural network with a single hidden layer. By default it uses the RelU function as the activation function, but this can be changed to sigmoid if desired. The `NeuralNetwork` member function `train` uses SGD to minimize the cross-entropy error. The default training parameters are:

$$\begin{aligned} d_h &= 100 \\ \alpha_{init} &= 0.5 \\ \text{epochs} &= 25 \\ \text{batch size} &= 25 \end{aligned}$$

Using the member function `test` with these parameters gives a test accuracy of **97.2%**.