Training Homework (Monday May 3)

Due: Thursday

1. Build a regression neural net (using the sample code from Friday):

   Let $-2 \leq x \leq 2$, and $y = \sin(\pi x)$, with added noise with standard deviation of 0.2 (see the code snippet below). Use 50 evenly spaced points in x to build some sample data, then build a $1 - 15 - 1$ network and train it. When it is finished training, be sure to put in another set of x values (say 200 points), put those into the network, then plot the original data and the output of the net.

   Here's a code snippet for data.

   ```
   x=linspace(-2,2,50);
   t=sin(pi*x)+0.2*randn(size(x));
   ```

2. Go through the code from Friday, and make the appropriate changes to add a second hidden layer. This shouldn't take too long, but you do need to be careful about where the code is added.

3. Build an 8-15-15-2 feedforward neural network for the diabetes dataset that we've been working with. This is really to test problem (2) of the homework.

4. (Not due) Be sure to go through the autoencoder example from Monday. We won't code these up, but they are important contributions to neural nets.