

## Hints for the NN MNIST assignment

- 1) Unzip the MNIST data you downloaded and move it into the Eclipse project for this assignment
- 2) Decide on the network architecture!
  - a. How many neurons do you need at the output layer?
  - b. How many input units do you need? Have a look at the documentation for the MNIST data and see how many bytes are in an image.
  - c. Hint: You only need one hidden layer. Size? You think about it.
- 3) Look at the documentation for the MNIST data, i.e. <http://yann.lecun.com/exdb/mnist/>  
To quote:

### **TRAINING SET LABEL FILE (train-labels-idx1-ubyte):**

[offset]	[type]	[value]	[description]
0000	32 bit integer	0x00000801(2049)	magic number (MSB first)
0004	32 bit integer	60000	number of items
0008	unsigned byte	??	label
0009	unsigned byte	??	label
.....			
xxxx	unsigned byte	??	label

The labels values are 0 to 9.

Notice that the first 8 bytes are stuff that you can either ignore or already know from reading the documentation, so after you read in those bytes, don't do anything with them. Please have a look at the information for the other three files. You can either ignore the first 8 or the first 16 bytes.

- 4) When you do file I/O here are some hints:

```
BufferedInputStream inputFile;  
inputFile = new BufferedInputStream(new FileInputStream(trainingFile));  
  
int pixel = inputFile.read();
```