**Implementation Note: Unrolling Parameters**

With neural networks, we are working with sets of matrices:

|  |
| --- |
| Θ(1), Θ(2), Θ(3), …  D(1), D(2), D(3), … |

In order to use optimizing functions such as "fminunc()", we will want to "unroll" all the elements and put them into one long vector:

thetaVector = [ Theta1(:); Theta2(:); Theta3(:); ]

deltaVector = [ D1(:); D2(:); D3(:) ]

If the dimensions of Theta1 is 10x11, Theta2 is 10x11 and Theta3 is 1x11, then we can get back our original matrices from the "unrolled" versions as follows:

Theta1 = reshape(thetaVector(1:110),10,11)

Theta2 = reshape(thetaVector(111:220),10,11)

Theta3 = reshape(thetaVector(221:231),1,11)

To summarize:

