# Part 1

## Architecture

Input Nodes: 4  
Hidden Nodes: 2  
Output Nodes: 3

Input nodes is set to four as there are four different data points relating to each feature. Output nodes are set to three to account for the three different class types of the iris’s. I set hidden nodes to two. This ensured enough data was being processed without overfitting and during testing this setting resulted with the best results.

## Learning Parameters

Learning Rate: 0.5  
Momentum: 0.0   
Random Range: 0.1

These values were gathered from trial and error testing. They provide consistent and accurate results.

## Termination Criteria

Critical Error: 0.001  
Percentage: 101

Having the critical error set to 0.001 was low enough to allow for accurate weighting but also did not take too long to compute. I set the percentage over 100% so that percentage could not be used as a termination condition. With this set to 100% the learning would finish with a relatively high critical error

## Results

|  |  |
| --- | --- |
| Mean Squared Error | Incorrect Classifications |
| 0.009 | 1 |
| 0.009 | 1 |
| 0.010 | 1 |
| 0.010 | 1 |
| 0.009 | 1 |
| 0.009 | 1 |
| 0.009 | 1 |
| 0.011 | 1 |
| 0.009 | 1 |
| 0.010 | 1 |

Average = 0.0095

The results show that the parameters I have used provide very consistent results with only 1 incorrect classification but test. With the Mean squared error of the training always being 0.001 as that was the only reachable termination condition set. It is clear and expected that the test set does not achieve this value, but the results do show that it was not far off on a consistent basis.