**COMP30230 Programming Assignment Report**

I found this assignment tough, between figuring out what language to program it in (initially I chose C by quickly abandoned the idea) to figuring out what forward and backpropagation does to implementing it but overall, I enjoyed this assignment. In course of the assignment, I ran 18 experiments in total. 9 for XOR and 9 for SIN. Each experiment changed the max\_epochs and learning\_rate. This allowed for a good range of results across different values. Below you can see a key for the experiments including: the experiment number, value of max\_epochs, and value of learning\_rate.

Experiments Key

XOR

1. Max\_epochs = 10000, learning\_rate = 0.1
2. Max\_epochs = 10000, learning\_rate = 0.5
3. Max\_epochs = 10000, learning\_rate = 1
4. Max\_epochs = 1000, learning\_rate = 0.1
5. Max\_epochs = 5000, learning\_rate = 0.1
6. Max\_epochs = 1000, learning\_rate = 0.5
7. Max\_epochs = 5000, learning\_rate = 0.5
8. Max\_epochs = 5000, learning\_rate = 1
9. Max\_epochs = 1000, learning\_rate = 1

SIN

1. Max\_epochs = 10000, learning\_rate = 0.1
2. Max\_epochs = 10000, learning\_rate = 0.5
3. Max\_epochs = 10000, learning\_rate = 1
4. Max\_epochs = 5000, learning\_rate = 0.1
5. Max\_epochs = 5000, learning\_rate = 0.5
6. Max\_epochs = 5000, learning\_rate = 1
7. Max\_epochs = 1000, learning\_rate = 0.1
8. Max\_epochs = 1000, learning\_rate = 0.5
9. Max\_epochs = 1000, learning\_rate = 1

Experiment Results

The experiments consisted of trying different max\_epoch values (10000, 5000, 1000) and different learning\_rate values (0.1, 0,5, 1) and combinations of these.

Coding Choices

Conclusion