

08 Prove - Neural Networks

1. **Please submit a link to your GitHub repository for your class**

<https://github.com/johnmwood/CS450>

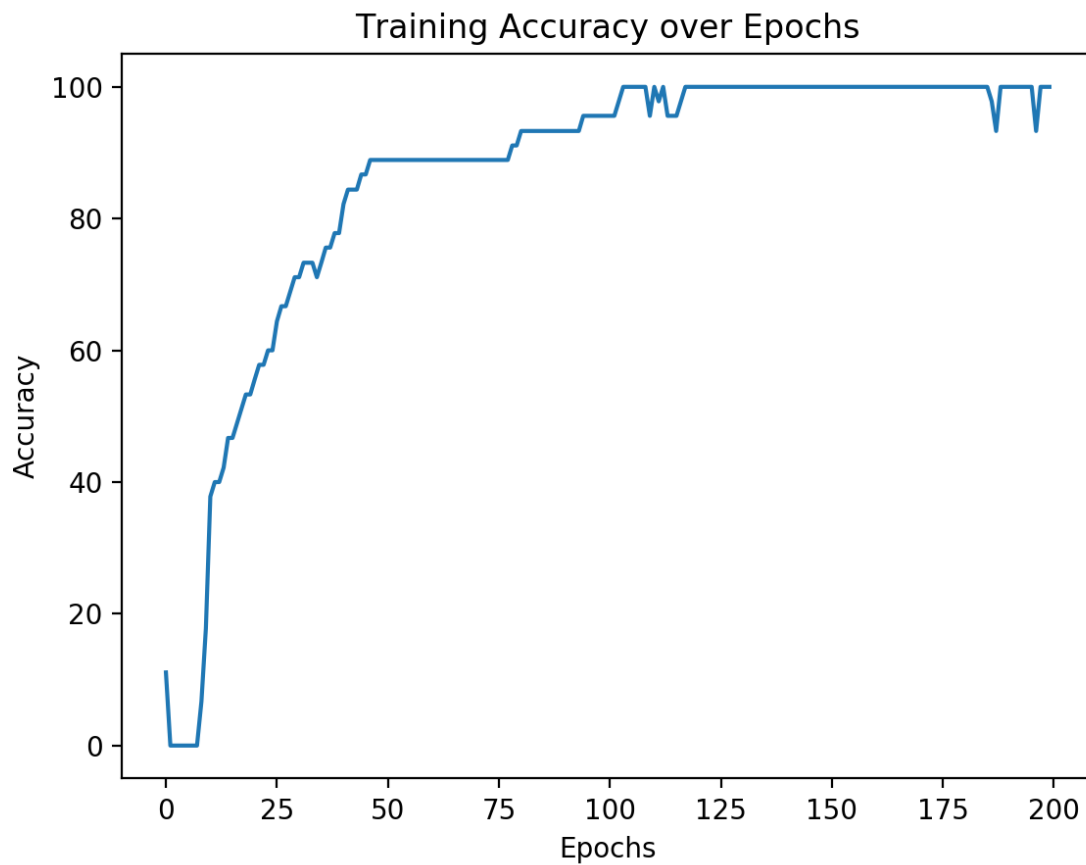
1. **Describe your overall approach to implementing the algorithm in code. How are your classes/data structures organized? How do you keep track of the necessary pieces for back-propagation.**

There is a NeuralNet class that has a list of Layers which is also a class. Each layer has a list of Nodes and each node contains the weights to its left, the activation value, and the error.

1. **Describe the part of the assignment that gave you the most trouble, and how you overcame it.**

The hardest part of the assignment was getting the backpropagation to work and getting our various activation functions to work.

1. **Produce at least one graph to show the training progress for the Iris dataset.**

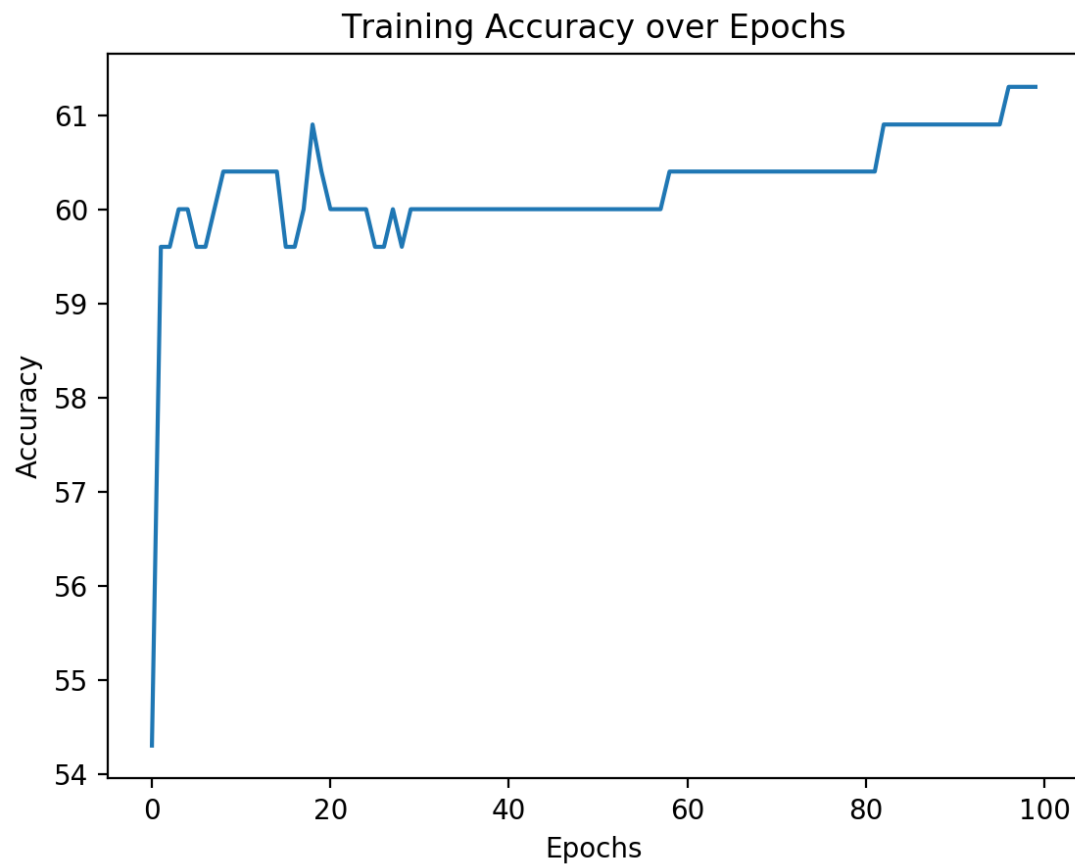


1. **Compare your results on the Iris dataset to those of an existing implementation.**

Existing implementation: 65%

Our implementation: 94.3%

1. **Produce at least one graph to show the training progress for the Diabetes dataset.**

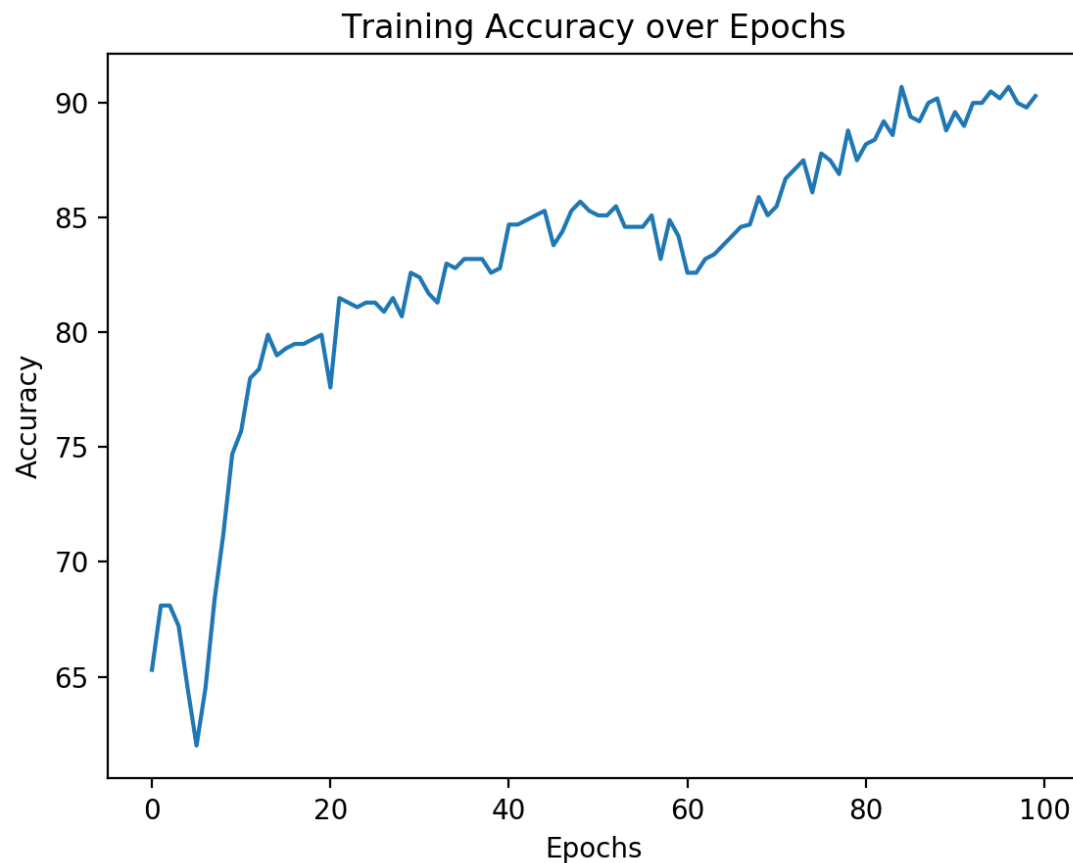


1. **Compare your results on the Diabetes dataset to those of an existing implementation.**

Existing implementation: 63%

Our implementation: 66%

1. **Describe any efforts you made to go above and beyond.**



Car existing: 69%

Car our implementation: 86.2%

1. **Please state which category you feel best describes your assignment and give a 1-2 sentence justification for your choice: A) Some attempt was made, B) Developing, but significantly deficient, C) Slightly deficient, but still mostly adequate, D) Meets requirements, E) Shows creativity and excels above and beyond requirements.**

E. The neural network was implemented with not only the sigmoid function, but also a tanh and softsine function. Alongside those activation functions, we used the cars dataset from a previous assignment.