Summary:

For smaller dataset like iris.csv, RELU performed best overall but tanh had best training accuracy.

I think this performance is dependent on the classification boundary generated by the activation function and the type of data supplied for training.

For large dataset like adult income data adult.data having thousands of tuples, Sigmoid worked best with high training and test accuracy.

We tried modifying the learning rate but found 0.05 worked best with 2 layers of Neural net.

**After the neural net converged on best weights, we persisted that model weights and used it for prediction by making forward passes in the neural network.**

Trainig accuracy % :

|  |  |  |  |
| --- | --- | --- | --- |
| Activation | IRIS | CAR | ADULT income(Large) |
| Sigmoid | 37.5 | 35.6 | 75.2 |
| Tanh | 75.8 | 1.7 | 75.23 |
| Relu | 58.3 | 23.2 | 75.2 |

Test accuracy %:

|  |  |  |  |
| --- | --- | --- | --- |
| Activation | IRIS | CAR | ADULT income(Large) |
| Sigmoid | 41.6 | 24.8 | 75.13 |
| Tanh | 16.7 | 4.9 | 75.11 |
| Relu | 44.1 | 24.8 | 75.14 |