Deep Learning (Lab)

Lab 2

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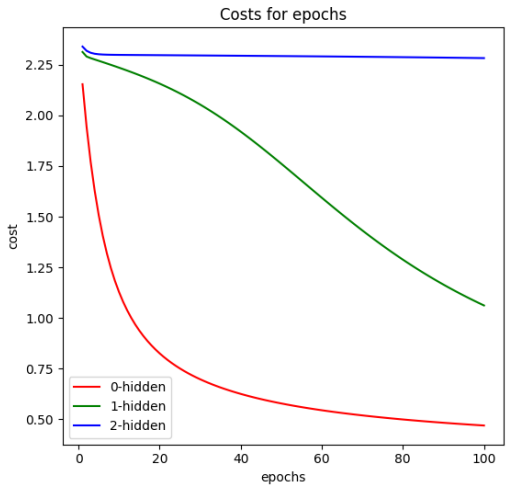
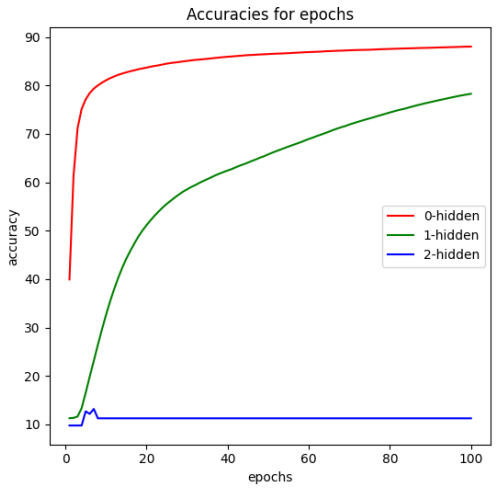
1. Make a performance table of MNIST classification neural networks (NN) with different number of layers (at least 2 trials). Repeat it using different activation functions such as sigmoid, hyperbolic tangent, and ReLU.

Number of Hidden Layer	**Accuray (%)**
0	88.66000000000001
1	79.13
2	11.35

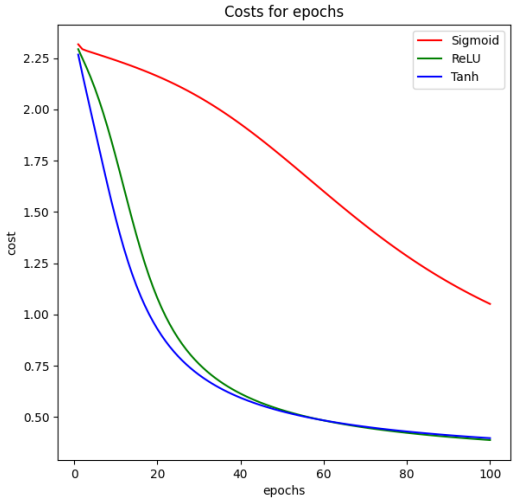
*Sigmoid is used for the activation function for all neural networks.

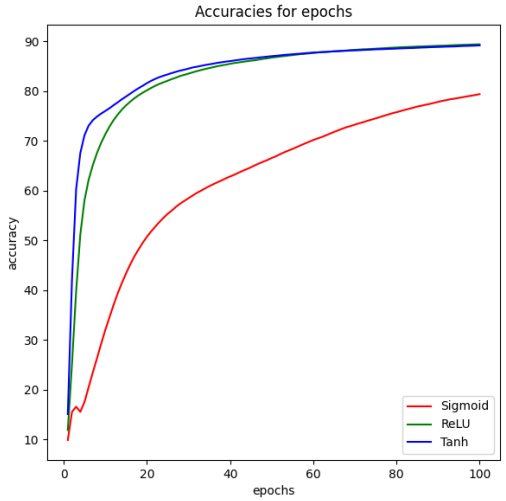




Activation Function	**Accuray (%)**
Sigmoid	80.06
ReLU	89.99000000000001
Tanh	89.86

*Same number (2) of the hidden layers are used for all neural networks.





2. Compare performance between logistic regression models and neural networks with several layers using a provided diabetes dataset. Access to the data using the code below.

[Neural Network Layers]

Linear(8, 12)

ReLU()

Linear(12, 1)

Sigmoid()

Algorithm	**Accuray (%)**
Logistic Regression	63.69047619047619
Neural Network	68.45238095238095