CSCI 5561 : Assignment 4 Write-up
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Once again, an enjoyable assignment! I really appreciated how each version of the neural network paved the way for the next ones. It was a really helpful way to learn. The biggest issues with the assignment was the number of typos and inconsistencies in the skeleton code and mainly the HW4 pdf. There was a lot of confusion with being told to have the wrong sizes for arrays or the wrong derivatives.

The assignment got a lot easier when I started writing out the chained derivatives. Up until that point, I had no idea how to work with the incorrect matrix/vector sizes for multiplication.

Finally, calculating learning rates for each function was incredibly annoying. Turns out I could use the same for each neural network in the end, but I discovered that through a lot of trial and error.

Confusion Tables:

- SLP_Linear : 84%
    - Much higher than asked for. I just followed the homework, didn't try and do anything special.
    - https://github.umn.edu/olso7118/Spring2019/blob/master/CSCI5561/Assignment4/SLP_Linear_confusion.png
- SLP : 88.9%
    - https://github.umn.edu/olso7118/Spring2019/blob/master/CSCI5561/Assignment4/SLP_Confusion.png
- MLP : 88.8%
    - Not sure why this performed worse than my SLP. Still performed well though
    - https://github.umn.edu/olso7118/Spring2019/blob/master/CSCI5561/Assignment4/MLP_Confusion.png
- CNN : 92.25%
    - Finally getting this to work in the 90's was awesome!
    - https://github.umn.edu/olso7118/Spring2019/blob/master/CSCI5561/Assignment4/CNN_ConfusionTable.png