A close-up of a piece of paper

Description automatically generated

4.1.1:

A close-up of math equations

Description automatically generated

4.1.2:

A screenshot of a computer program

Description automatically generated

4.2.1:

A math equations on a piece of paper

Description automatically generated

4.2.2:

A screenshot of a computer program

Description automatically generated

4.3.1:

A close-up of math equations

Description automatically generated

4.3.2:

A screenshot of a computer program

Description automatically generated

4.4.1:

A math equations on a piece of paper

Description automatically generated

4.4.2:

A screenshot of a computer program

Description automatically generated

5.1:

A screenshot of a computer program

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Description automatically generated

5.2:

Pass 1:  
Learning Rate: 0.7

Hidden Layer Size: 20

Test Loss: 5.5331 Test Accuracy: 0.3667

Pass 2:

Learning Rate: 0.5

Hidden Layer Size: 25

Test Loss: 5.5331 Test Accuracy: 0.3667

Pass 3:

Learning Rate: 0.1

Hidden Layer Size: 50

Test Loss: 5.5331 Test Accuracy: 0.3667

Loss vs Iterations for best model:

A graph with blue lines

Description automatically generated

6.1:

A screenshot of a computer program

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6.2.1:

A close-up of a math problem

Description automatically generated

6.2.2:

A screen shot of a computer program

Description automatically generated

6.3.1:

A close-up of a note

Description automatically generated

6.3.2:

A screen shot of a computer program

Description automatically generated

7.1:

A screenshot of a computer program

Description automatically generated

A screen shot of a computer

Description automatically generated

A screenshot of a graph

Description automatically generated

7.2:  
A screen shot of a computer

Description automatically generated

7.2:

Kaggle Username: Christopher Avakian

Kaggle Score: 0.704

7.3:

A graph with blue lines

Description automatically generated

7.4:

A lot of my design choices were mainly just normalizing the data, which helped improve the overall speed, and running (and waiting) on a large number of epochs, which allowed me to gain approximately 5% on my Kaggle submission score. Otherwise, implementation wise, it has a lot fundamentally in common with the neural net we had to code up for questions 4, 5, and 6, only instead it was done with PyTorch and some of the functions already implemented (because of PyTorch).

References:

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Code Appendix:

A screenshot of a computer program

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A computer screen with text on it

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A screen shot of a computer program

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