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HW 4

For this HW assignment I attempted to build a Convolutional neural network with the given MNIST dataset. I will admit off the start that it is not the best.

A quick summary of the model I used is as follows:

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Layer (type) Output Shape Param #

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conv2d\_1 (Conv2D) (None, 24, 24, 32) 832

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max\_pooling2d\_1 (MaxPooling2 (None, 12, 12, 32) 0

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conv2d\_2 (Conv2D) (None, 8, 8, 64) 51264

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max\_pooling2d\_2 (MaxPooling2 (None, 4, 4, 64) 0

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flatten\_1 (Flatten) (None, 1024) 0

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dense\_1 (Dense) (None, 10) 10250

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Total params: 62,346

Trainable params: 62,346

Non-trainable params: 0

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It consist of a convolution followed by a max-pooling. 32 filters were made using a 5x5 window for the convolutional layer and a 2x2 window for the pooling layer. I used the ReLU activation function for these layers. The input layer is in the form of a 28x28 image which is our digit. I also created a second layer of 64 filters with a 5x5 convolutional window and a 2x2 window in the pooling layer. There was then a final layer of softmax to do classification. I then made the batch size equal to 100 and chose an epoch of 200. I do not have a good reason for choosing these but I will still keep researching it.

Finally, my learning curve looks as follows:A close up of a map

Description automatically generated