CPSC 501 – Assignment 4

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Part 1

To optimize the given MNIST model, I performed the following:

- Added a Dense layer with 512 neurons
- To prevent overfitting, Dropout layer was added as well
- The algorithm was changed to 'Adam'
- Number of epochs increased from 1 to 10

Resulting model is 99% accurate on the training data and 98% accurate on the test data.

Part 2

Part 2.1

Initial model for Part 2 was using the same layers as the model for Part 1, which can be seen here 14cec7c3. The accuracy with that model was roughly 93%. However, the model failed to identify image `user_inputs/image_A_lower.png`.

Part 2.2

To improve the model, I implemented a Convolution Neural Network, which increased the accuracy of notMNIST model to roughly 95%. This model was able to identify the image `user_inputs/image_A_lower.png`.

Besides the convolution network, adding more neurons via extra Dense layers and Dropout layers that prevent overfitting increased the predictions.

Part 3

Initial model had accuracy of roughly 70%.