

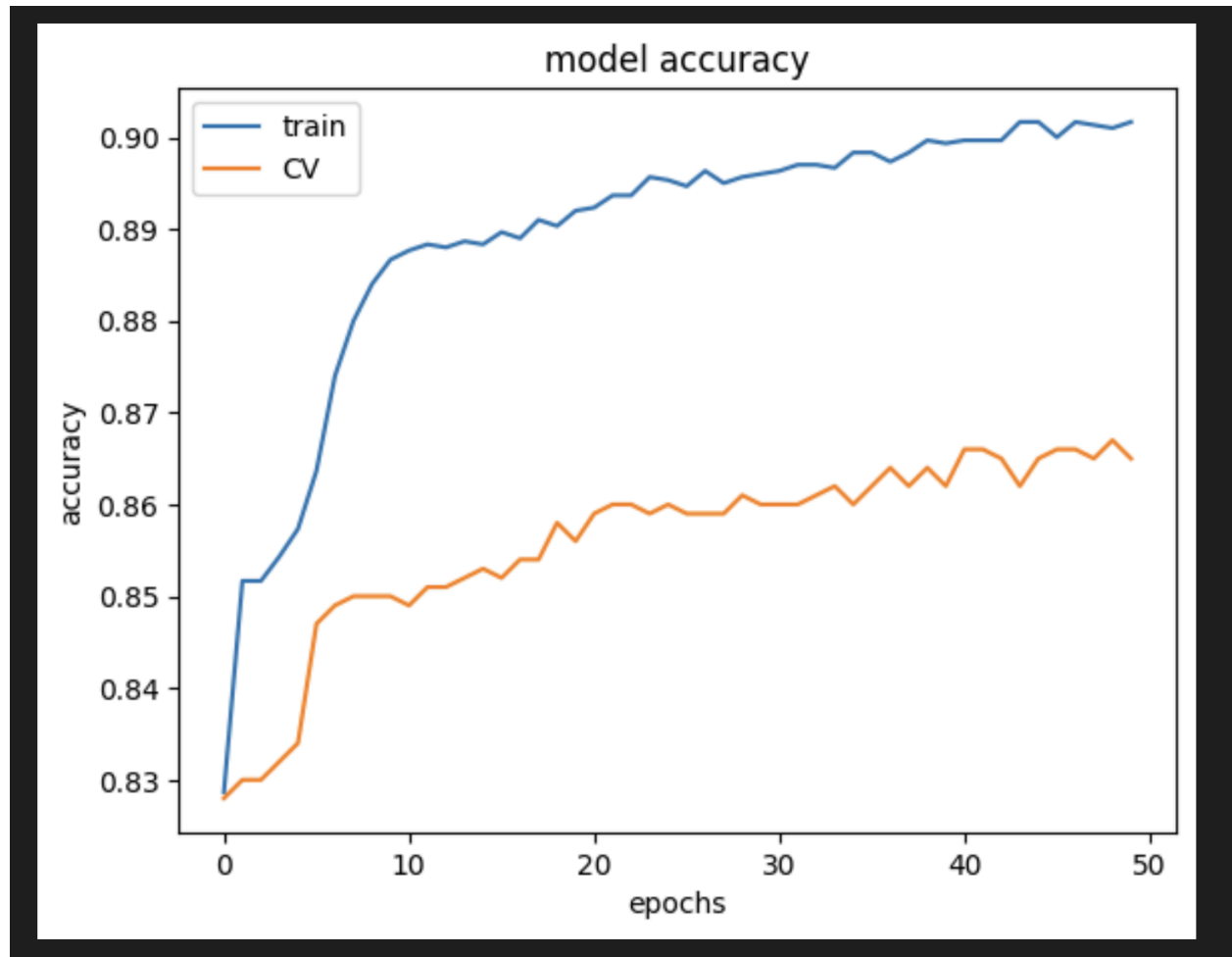
## Project 2: Neural Networks Report

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For the neural network in Shopper, I went with 4 layers.

The first dense layer goes to 14, then 7, then 4, and then the output layer of 1.

My process here, I initially tried just two layers, and started to add a couple of players, and play with the numbers. I ended up with these numbers for the layers that got the highest accuracy with our testing data.



For the neural network in GTSRB, i went with a 6 step model

The first is the dense layer, starting with 1024.

After, we use a lambda to normalize the data even more.

The second dense layer, we reduce it by half at 512

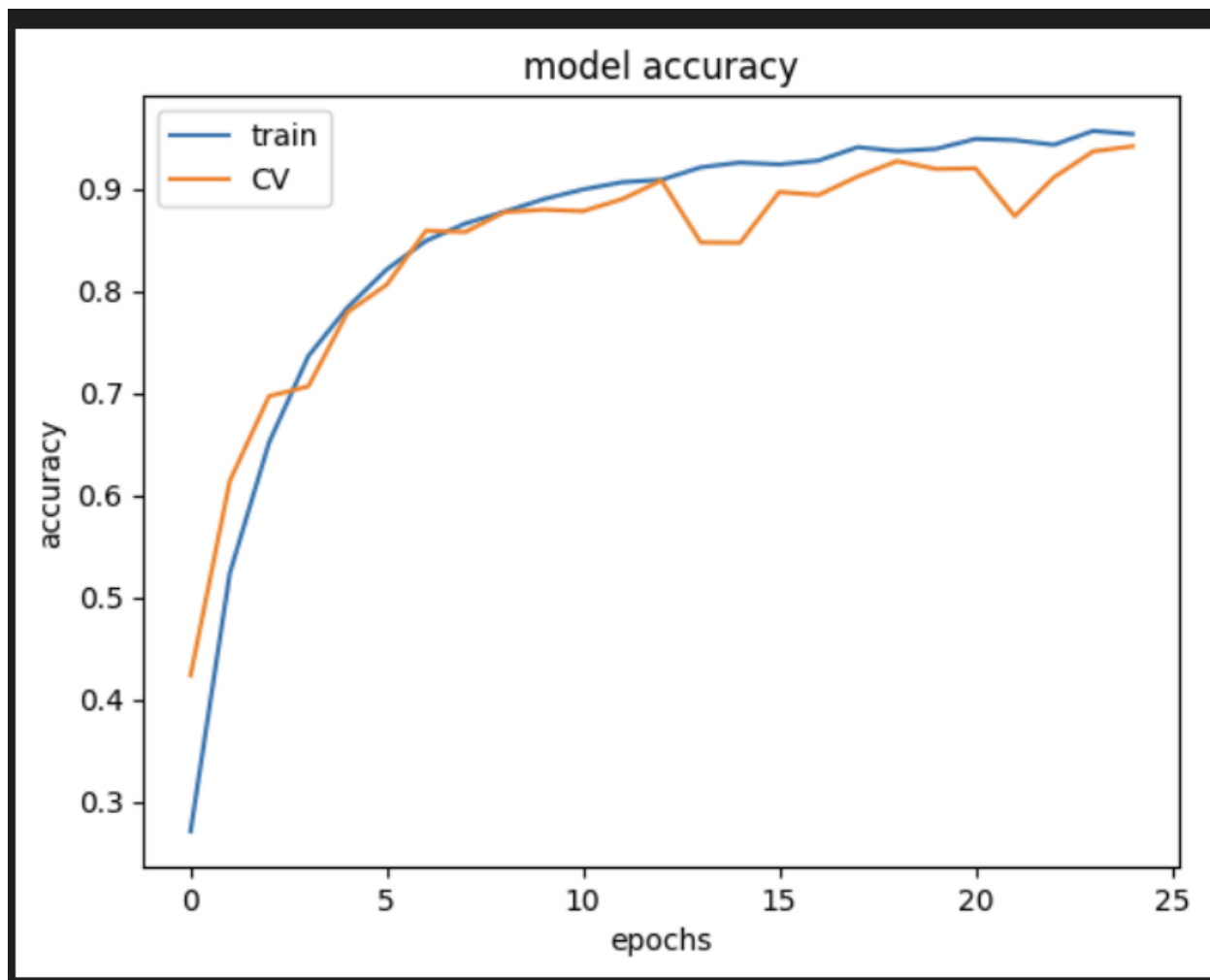
The third dense layer, again we reduce by half at 256

The fourth dense layer, we reduce by half again at 128.

The fifth dense layer, we reduce again by half at 64

The last and output layer, we have 43 for the categories.

I initially only had all of the layers from 256 and below, it still got over 90%. But I added 512 and 1024 anyway to get near 95% on the testing data. I also initially didn't have a lambda in the model, but after adding, accuracy increased by a good margin.



I am very happy with both models' accuracy. However, I do want to somehow increase the accuracy of the shopper neural network. I did try adding a lambda, but accuracy did not increase. Potentially getting rid of some features that are not necessary, or something else could increase the accuracy.