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Image Classification

Sequential Model:
For the sequential model, we evaluated the model on 25 epochs, ending with an accuracy of 74.666%.

Various Architectures:
For the simpleRNN model, we evaluated the model on 10 epochs. Because we are flattening a three-dimensional tensor to a one-dimensional tensor, the model is not learning after each epoch, leading to a constant accuracy of around 33%. We started the model with 1000 max iterations but increasing this number had no little to no effect on the accuracy because of the cap on max iterations. Additionally, other RNN models like LSTM or GRU were not tried on our data since it would have made no difference on our image data set.

For the CNN model, we evaluated the model on 25 epochs. We built the Convolutional Neural Network and used tools like MaxPooling, Dropout, Flatten and Dense. The model trained efficiently and was used to predict on the test data. The model resulted in a prediction accuracy of 94.25%, which was the best overall. It is built in convolutional layers, reducing the high dimensionality of images without losing its information, which is why CNN's are best suited for image classification.

Transfer Learning:
Although we did not get around to finishing the transfer learning model, it would converge much faster than the previous models we tried. Transfer learning is the idea of freezing the early convolutional layers of a network and training only on the last few layers which make a prediction.