

PART 2

To address the issue of varying image dimensions, I first applied a resize transformation on the data. This ensure that all the images were of the same dimension

The second issue was the number of classes, I only had 10 classes and thus I had to replace the output layer with a custom fully connected layer that has 10 nodes as the output.

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To reduce the number of computations done when fine tuning, I opted to take the output of the neurons just before the output layer. I took these outputs and used them as the input data for an MLP. In a nutshell, I used the pretrained model on inference mode and i only had to train the MLP.

What is important to note, is that some of that taking data from one layer might not suffice and thus i opted to take from four layers and then concatenated them, then used them as the input.

I also tried gradual unfreezing as a mechanism of reducing the number of parameters that need to be fine-tuned.

Ques: 3

An important observation when doing gradual unfreezing is that this technique offer us a lot of control over the training process. It also helps us demystify the model so that we can easily see and explain which neurons in the network are most important. It is common to refer to a neural network as a black box. However, gradual unfreezing help in making it less so.