**CS4990 Project 2 Report**

For the assignment I have one model that I used which made use of 3 convoluted layers all of which used relu with the first two having 32 filters and the third having 64. This is then followed by a flattening of the data and a dense layer immediately followed by a dropout in order to aid in the prevention of overfitting. Finally there is the final softmax layer in order to get the three most likely categories that the images may be. The model makes use of adam although I did do some testing with SGD with marginal differences. For my first attempt I made use of the data as is with the only preprocessing being that the values were divided by 255. The number of epochs varied but for the most part it seems to stop improving after the twelfth epoch when using a validation split of .15. I made use of various epochs and validation split ratios however other then .2 validation split having slightly less varying validation loss the model did not improve much regardless of the parameters staying at about .73 validation accuracy. My second attempt made use of the same model but would instead make use of generators in order to create copies of the data with slight modifications. The moifications that I did changed with testing but the most consistent results seemed to arise from having the changes that I do have in my final code. I am not familiar with generators so I do not believe that I made proper use of them however I was able to achieve mostly consistent increase in the validation accuracy with each epoch although it would eventually cap out at about .75 with it occasionally going further. This approach although was an increase in accuracy was only a slight increase and actually takes significantly longer to get the same accuracy as the first attempt(~40s per epoch). I did attempt a third method of making use of a pretrained model however I have already met the requirements of the assignment and unfortunately have other task with greater precedence. As such although the vestiges of the code remain in my final code it is not working code.