Q1. Number of Training Samples: 1500

Number of Validation samples: 45

Approx. training time: 5 min/ epoch

We freeze particular layers of the VGG model, means the model won’t be able to use those layers while training. Saved the model as “model\_min.h5”. The validation accuracy decreases with the increase in the number of frozen layers. This helps in faster training with increasing number of frozen layers, but it also hinders the ability to distinguish between the features of cats and dogs. So, we use the deeper layers that enables good accuracy and with less training time and less number of epochs as well. Gained an accuracy of 93.75% with 5 frozen layers. The reason behind the low accuracy is the lesser dataset provided to the model. This can rather be fixed with increase in epochs, but it will take more time.

Q2. Number of Training Samples: 30000

Number of Validation samples: 900

Approx. training time: 10 min/ epoch

Saved the final model named as “MyFinalModel.h5”. After running the model for 2 epochs, we get the following results:

loss: 0.1620 - acc: 0.9370 - val\_loss: 0.1267 - val\_acc: 0.9531

loss: 0.1351 - acc: 0.9450 - val\_loss: 0.1450 - val\_acc: 0.9420

This model is able to yield better results as more amount of dataset is provided during training.