Project 3   -Abhishek Kumar Shastry

1. I got an accuracy of about 87% on test data, with F-1 score of 0.87 on average. The top 3 mis-classified breeds based on f-1 score were Icelandic_sheepdog , Lowchen, Irish_red_and_white_setter.

2. Best data augmentations were decided based on data in validation and test set and intuition. Like, zoom level of images, can easily occur, when you photograph an object. Same is true for its brightness and contrast levels.

3. Parameters were chosen by pure experimentation, something like a parameter sweep but with large distances between parameters chosen. I also, experimented with different base layer architectures available in Keras for transfer learning. Finally found Inception-ResnetV2 and Dense201 to be best with comparable accuracy.

4. Yeah!! I noticed that when using transfer learning, the model starts with a good validation accuracy.

5. Transfer learning implementation was a bit of a challenge. First, I thought just turning off the base layers will do. But that resulted in huge training time. Hence, I switched to using bottleneck features for transfer learning, but was having problems with accuracy. Found I was not pre-processing the images and was using extremely low-resolution of images.

Note: The final reported accuracy can be improved with using higher image resolution and probably training the entire model with training of last few layers of base model along with the dense layers.