CSC8637 – Deep Learning

Task 1 – Using an Existing Model – CycleGAN

I used an existing model – CycleGAN to implement the unpaired image to image translation between human faces and cats/dogs. I adopted the method used by A_K_Nain in CycleGAN (keras.io) used their saved model checkpoints of 90 epochs and train my model with that checkpoints for 15 epochs to produce the desired result.

The existing model was built upon the translation between horses and zebras, and they used to load the dataset from TensorFlow saved dataset where the dataset was split into train and test by itself. I changed that approach since the dataset I used requires different approach to set it for use. I used pre-process image dataset from directory method for both human faces and cats/dogs and split that into training and validation set in the ratio of 80:20. Shuffle = True will shuffle the images in order every time we try to run the code.

In original method, they imported tfa_addons and used Instance normalization whereas I used Batch normalization since we need to normalize all images from the batch, and we cannot use tfa_addons in the ML azure platform to perform the operation.

There is no need to change the hyper parameters they used, and I kept it as it is. I used four adam optimizer for each generator and discriminator of the model. Moreover, I tested the model with some images, and it came out very well. I can see the translation of images from human to cats/dogs.