SHUBHAM SHARMA
18i190002
MSc PhD(OR)

(The preprocessing has been done in Data_preperation.ipynb to make x_train(**D**) and x_val(**V**) with 80-20 weightage and are saved in .npy format to be used in CNN-GAN code. Many of the images are of size (3, 256, 256). So, if the image have a different size, then those are resized to (2, 256, 256).The links of the following:
x_val:
https://drive.google.com/file/d/1-JMyWk-v6eM9xi-ewWikZniM3DyplJpS/view?usp=sharing

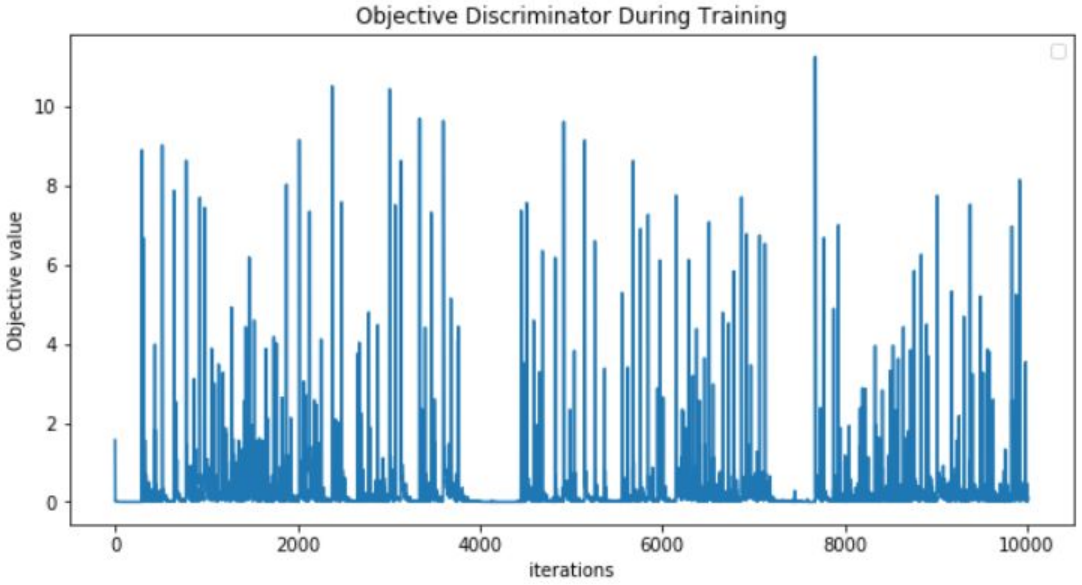
netG:
https://drive.google.com/file/d/1iz0m3Lizv0CYxbZF7K_LvmrEoPJNzOcv/view?usp=sharing

netD:
https://drive.google.com/file/d/1-2qU7YnM89bqPtpaZaDq_QzfdWFXDHFb/view?usp=sharing

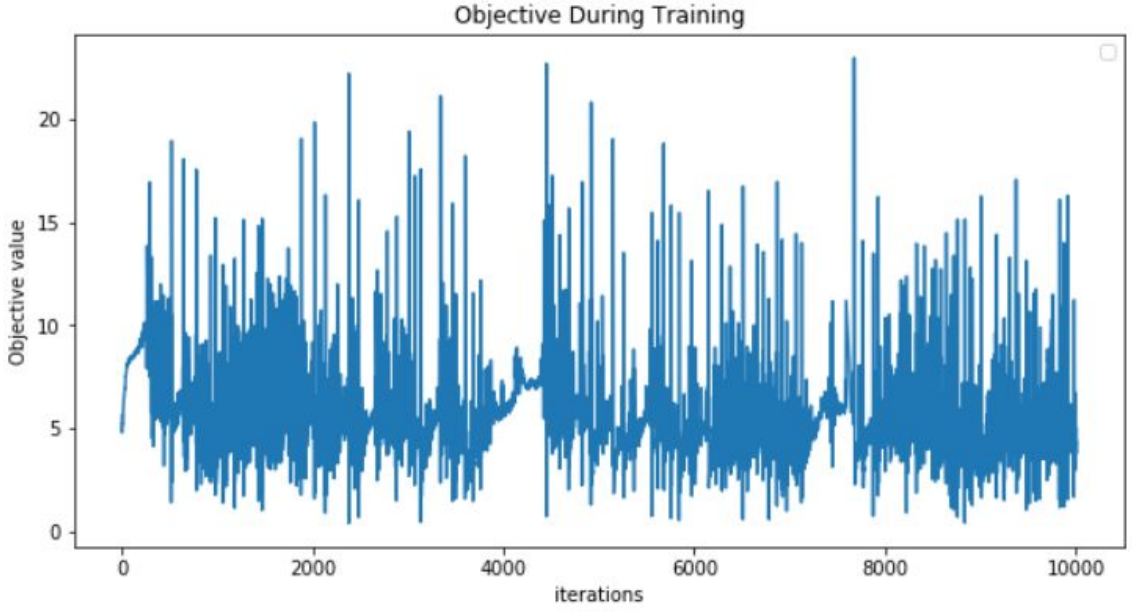
X_train:
https://drive.google.com/file/d/1-BcnSV0zTU-w5HdXBUuFjZ_hWUJJ31ol/view?usp=sharing

Part a) The CNN-GAN2.ipynb has the code for CNN-GAN
Part b) The network was trained for 500 epochs with lr = 1e-4 and adam optimizer with a batch size of 64.
Part c) The CNN-GAN.ipynb has the experiments with lr rate and batch size using the validation set(**V**) x_val and the batch_size is chosen to be 64 and the lr rate is chosen to be 1e-4

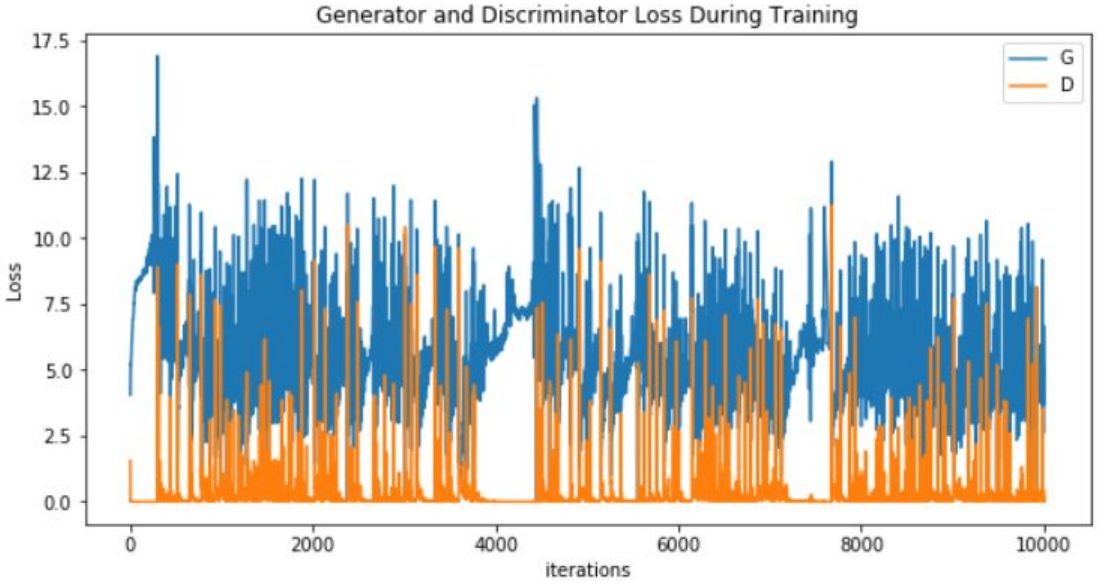
Part e) The Objective of discriminator while training **The**



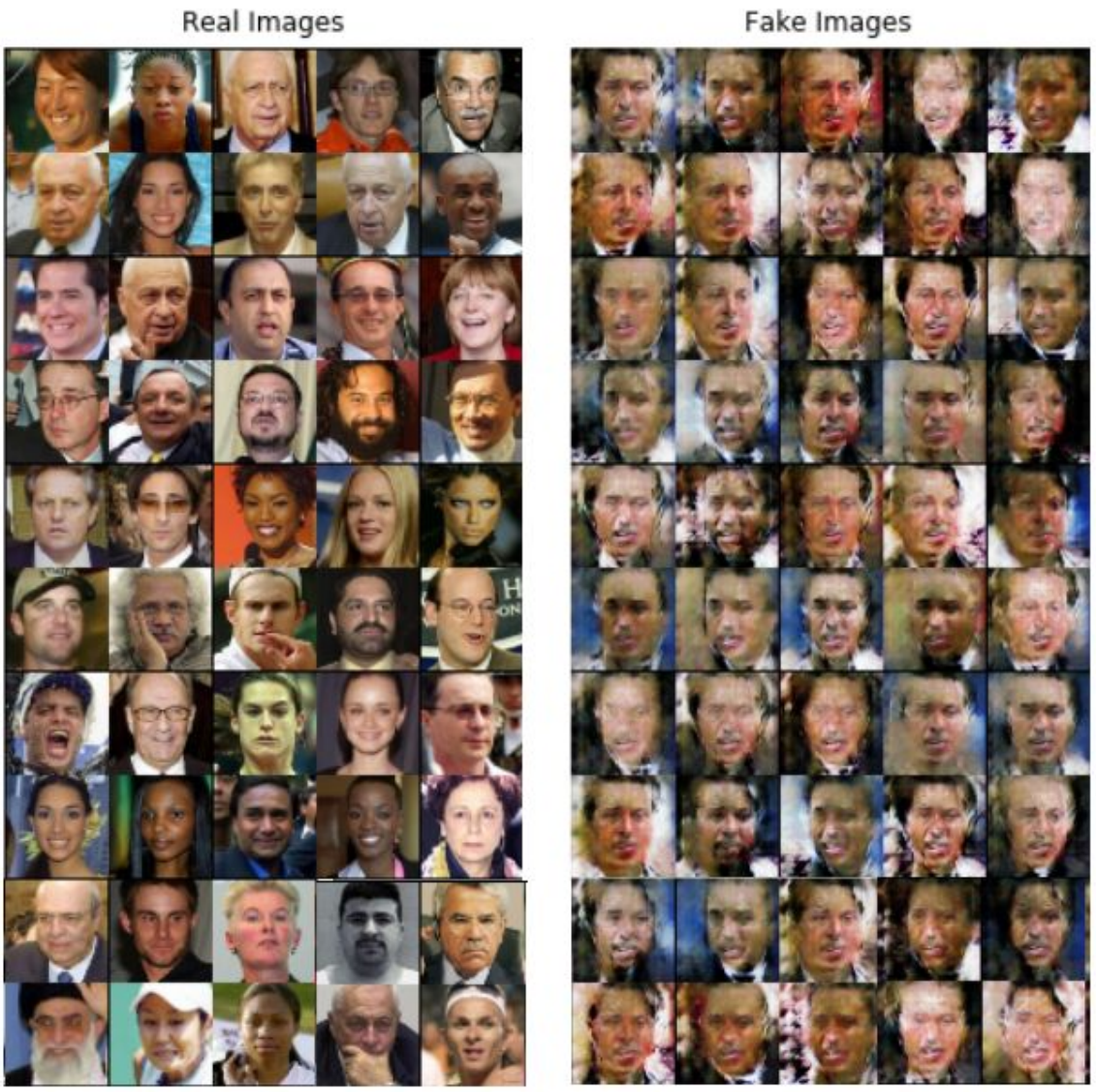
If we add the objective of discriminator and generator then we get the following plot:



Part f)


Generator and Discriminator Loss During Training
G
D
Loss
iterations
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
0
2000
4000
6000
8000
10000

Part g)



The generated outputs are not very sharp but still we can see that it has started generating human faces or human like faces. It can be improved with more images in the training of the network.