Deep Learning Assignment - 5

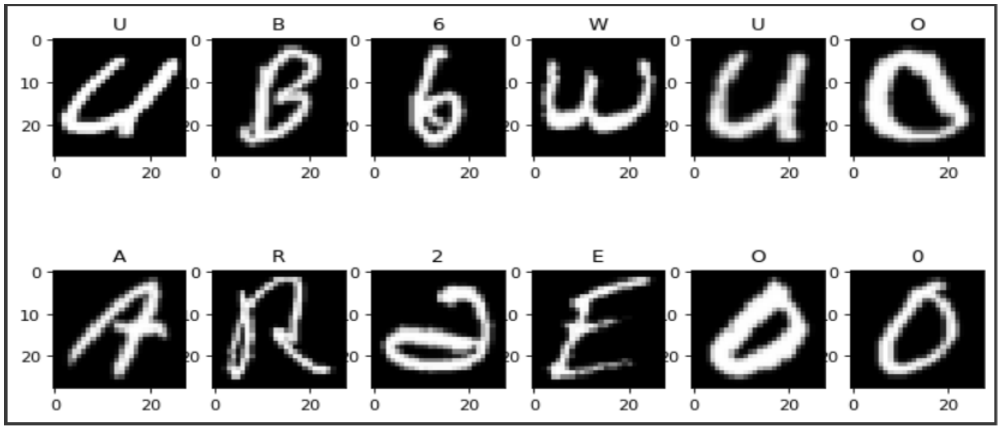
Report

Submitted by:
Aditya Mishra (M20MA201)

Question 1.

Link of code (Link)

Dataset Details: Train a **DCGAN** to generate images from noise. Use the **EMNIST(Extended MNIST)** database to learn the **GAN.**



Since my roll no is **M20MA201** % 2 == 1: so I will be using the **resnet56** for a discriminator.

Perform the following tasks:

a. Uniformly generate ten noise vectors that act as latent representation vectors, and generate the images for these noise vectors, and visualize them at

i. After the first epoch.
ii. After n/2 th epoch.
iii. After your last epoch. (say n epochs in total)

Since I am using a total of **20 epochs** .

Hyperparameters and parameters :

Discriminator optimizer : `lr = 0.0002, betas = (0.5, 0.999)`
Generator optimizer : `lr = 0.0002, betas = (0.5, 0.999)`

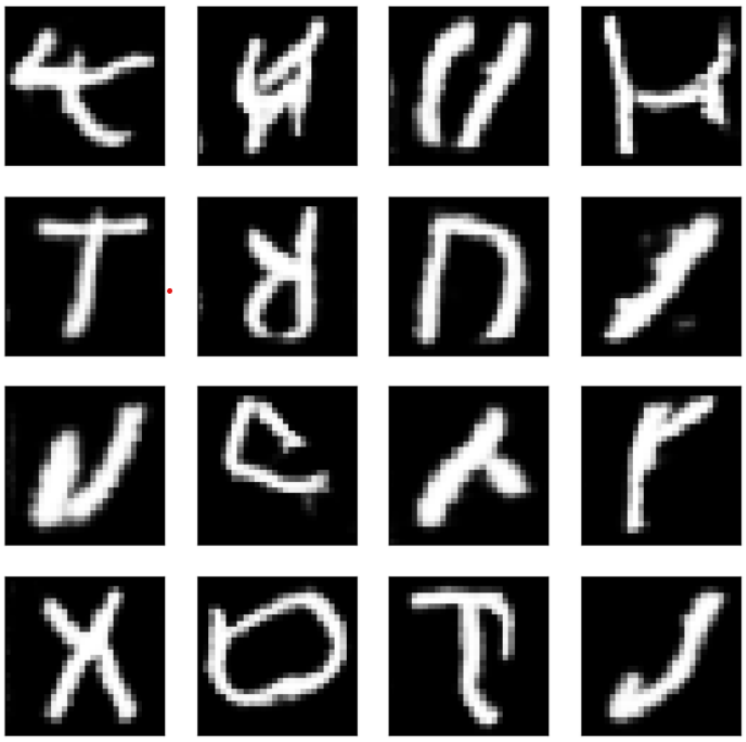
Batch size = 32
Epoch = 20

Sample size = 16
Loss function as **BCEWithLogitsLoss()**

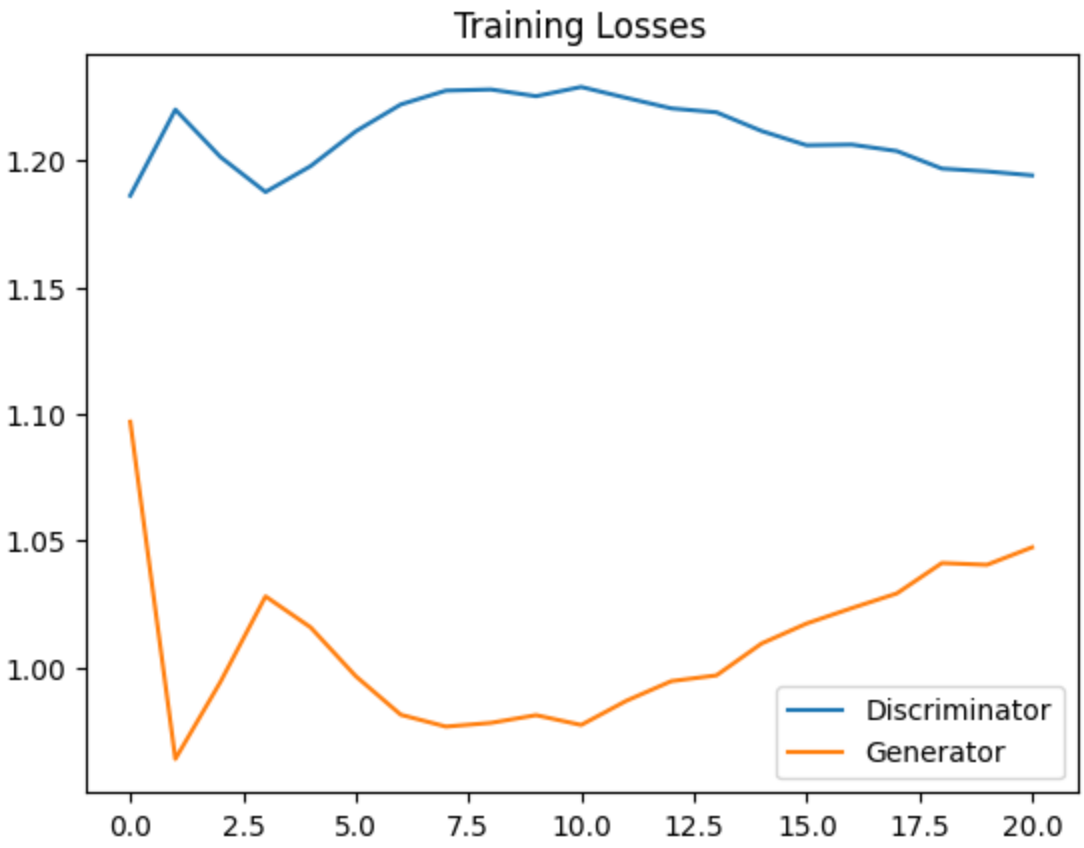
i. After the first epoch.

ii. After 10th epoch :

iii. After Last Epoch :



b. Plot generator and discriminator losses for all the iterations. Also display the best-generated images by the model.[One iteration = forward pass of a mini-batch]


Training Losses
1.20
1.15
1.10
1.05
1.00
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
Discriminator
Generator