1. Do you get the same results if you run the notebook multiple times without changing any parameters?

Answer: No, we won’t get the exact same result even without changing any parameters because within the framework itself there is randomization and the kernel initialization is also randomized. To prevent this a “seed” can be set so as to reproduce the same results.

1. What happens if we increase the batch\_size?

Answer: Larger batch\_size will result in larger gradiant step. Because of this no of computations will be less but at the cost of increment in memory size.

In the case of GANS, it’s better go for lower batch\_size. This is because our goal of GAN is to make Generator over power the discriminator and produce more realistic fake images.

By increasing the batch\_size we are sending more samples in a single iteration to the discriminator which will improve the speed of learning of discriminator and there will be a time where the Generator cannot overpower the Discriminator thus leading to Negative training.

1. What other activation functions could we use instead of sigmoid?

Answer: Instead of Sigmoid we can go for Softmax activation as Softmax is the derived form of sigmoid.

For Generator we usually go for Tanh for the final layer and LeakyReLu for the intermediate layers.

For Discriminator we go for Sigmoid/Softmax as it’s a binary classifier.

1. Why is the DCGAN output much better than Vanilla GAN? Elaborate

Answer: DCGANS are the basically the Vanilla GANS with CNN’S. The better output of the DCGAN can be derived from the advantages of the CNN over ANN.

CNN’s are able to capture “spatial co-relations” in the image which is not present in ANN’s, because of these reasons DCGAN perform better than Vanilla GAN.