**Part 1**

The Class\_8\_CGAN\_MINST.ipynb notebook implements a CGAN based on the MNIST data set. If it works well, the generator should learn to create real looking numbers that the discriminator cannot distinguish from the actual data set. When I first ran the code, it had an error and could not concatenate float 32 and float 64 data. I solved this by casting the labels to float 32 in two locations.

The CGAN ran for 30 epics. It did not appear to converge during these 30 epics. Both the generator and discriminator were going up and down as the training progressed. It may take many more epics to get to a low loss.

Looking at the results, I can see that the generator has not learned how to draw digits yet. There are some examples that look like 0s, 1s, 3s, and 9s. But it seems to me that most of the generated images do not look like numbers yet. You could say that they evoke numbers. There are several vertical likes that look like ones but they have additional bends in them that a one would not have. It is going to take many more epochs to be able to draw numbers.

**Part 2**

The Class\_8\_WGAN\_GP.ipynbI notebook implements a WGAN based on the Fashion MNIST data set. If it works well the generator should learn to create real-looking cloths that the discriminator cannot distinguish from the actual data set. This code ran well on the first try.

The WGAN ran for 20 epics. Both loss function values were negative and consistently progressed towards zero.

The end result is three small images of cloths. They are very small, but they do resemble clothes. I tried to open them up in a picture viewing program. But the results were not great. The images appeared very grainy. It would have been nice if both Part 1 and Part 2 used the same data set. Then, we could compare the results better.