Homework 4 report

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1 DCGAN

In this task I implemented a DCGAN network to generate fake images of CIFAR10 dataset.

1.1 Execution Parameters

Here are the parameters I used for training Discriminator and Generator.

1.1.1 Discriminator

- learning rate = 2e-4
- kernel size = 4
- padding = 1
- epoch = 50
- stride = 2
- Batch Size for training = 32

1.1.2 Generator

- learning rate = 2e-4
- kernel size = 4
- padding = 1
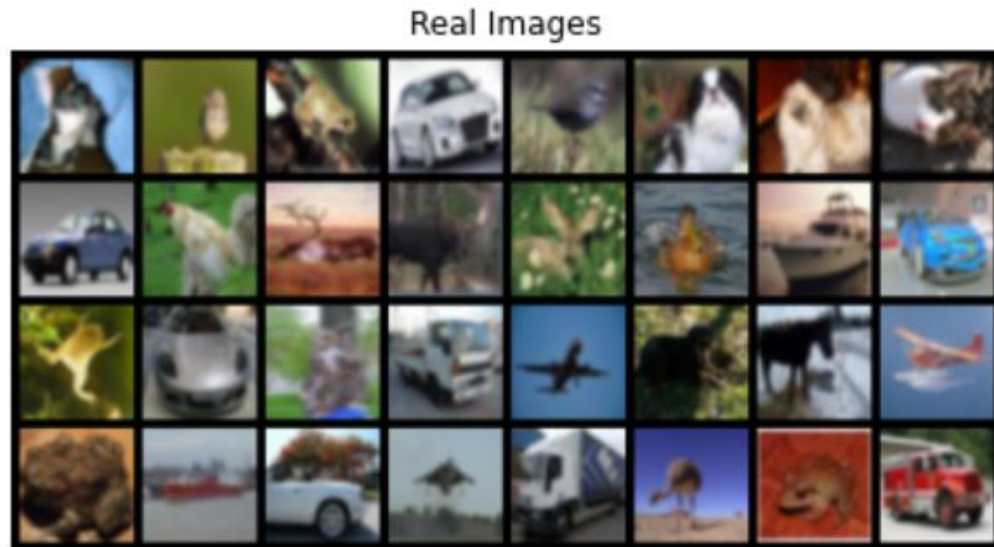- epoch = 50
- stride = 2
- Batch Size for training = 32

Figure 1: DCGAN Real Images

2 WGAN

In this task I implemented a WGAN network to generate fake images of CI-FAR10 dataset.

2.1 Execution Parameters

Here are the parameters I used for training Discriminator and Generator.

2.1.1 Discriminator

- learning rate = 5e-5
- weight clip = 0.01
- kernel size = 4
- padding = 1
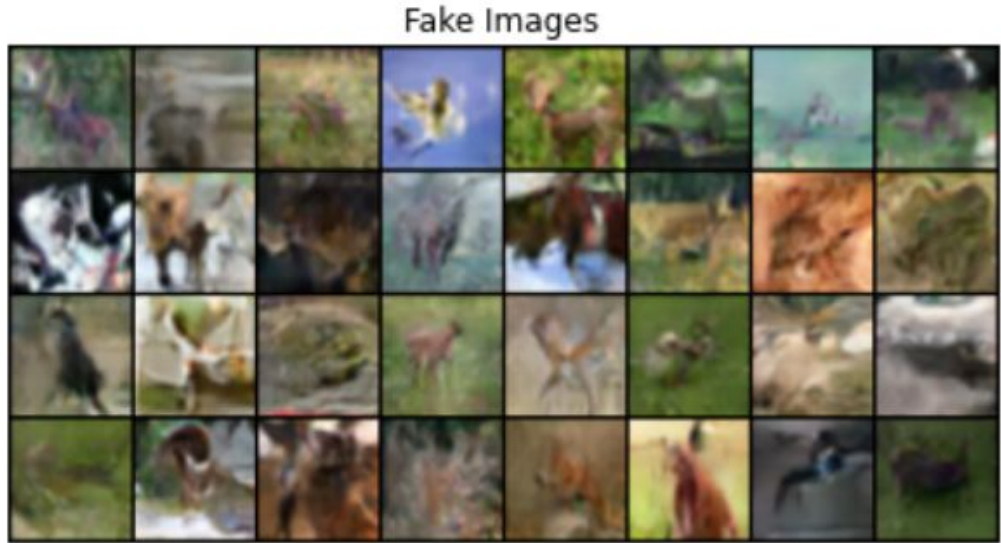- epoch = 50
- stride = 2
- Batch Size for training = 32

Figure 2: DCGAN Fake Images

2.1.2   Generator

- learning rate = 3e-5
- latent space dimension = 128
- weight clip = 0.01
- kernel size = 4
- padding = 1
- epoch = 50
- stride = 2
- Batch Size for training = 32

3   ACGAN

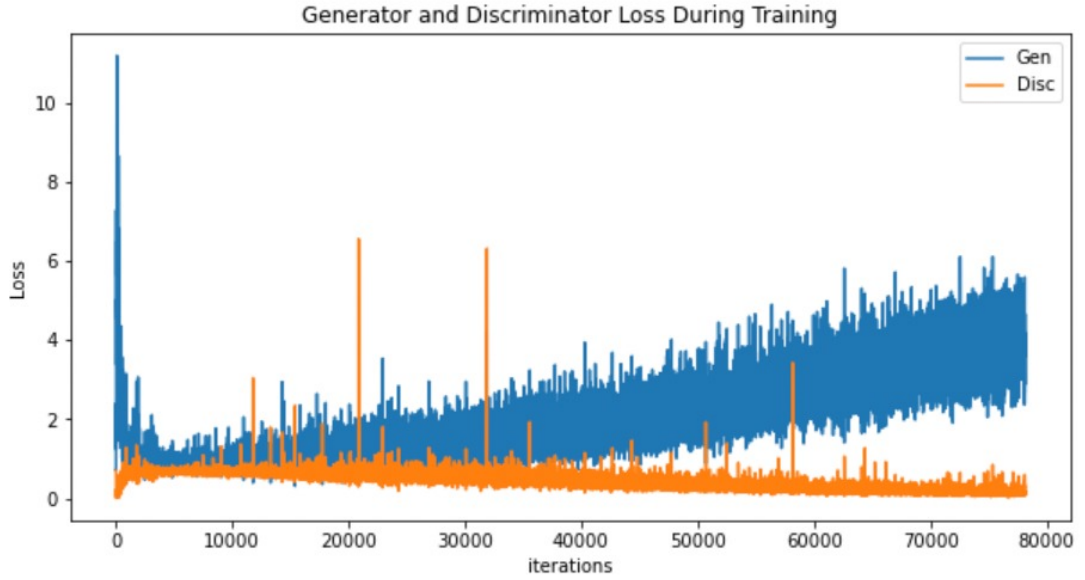In this task I implemented a ACGAN network to generate fake images of CI-FAR10 dataset.

Figure 3: DCGAN generator and discriminator loss plot

3.1 Execution Parameters

Here are the parameters I used for training Discriminator and Generator.

3.1.1 Discriminator

- learning rate = 2e-4

- epoch = 500

- Batch Size for training = 100

- Optimiser = Adam Optimiser

- kernel size = 4

- padding = 1

3.1.2 Generator

- learning rate = 2e-4

- latent space dimension = 110
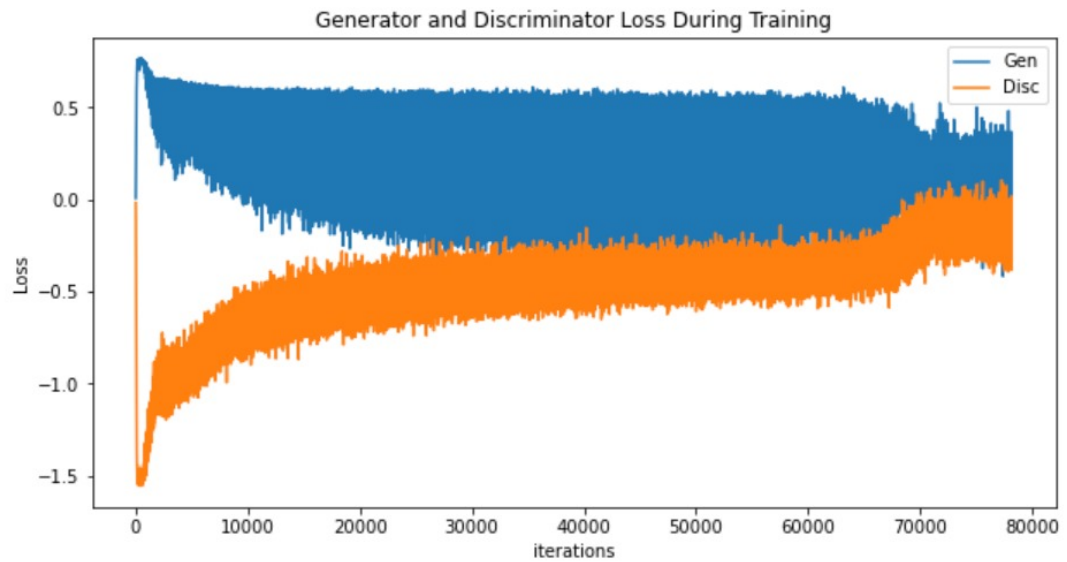
- epoch = 500

- Batch Size for training = 100

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Figure 4: WGAN generator and discriminator loss plot

- Optimiser = Adam Optimiser
- kernel size = 4
- padding = 1

4 Git link for the project

Click here for git link In case the click doesn't work : https://github.com/Shaileshalluri/DeepLearning-Homework-4
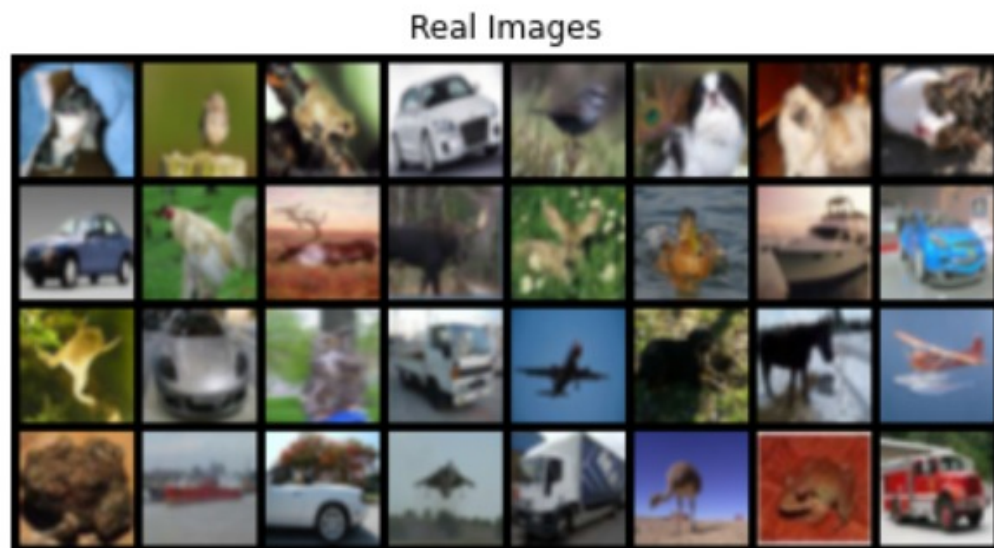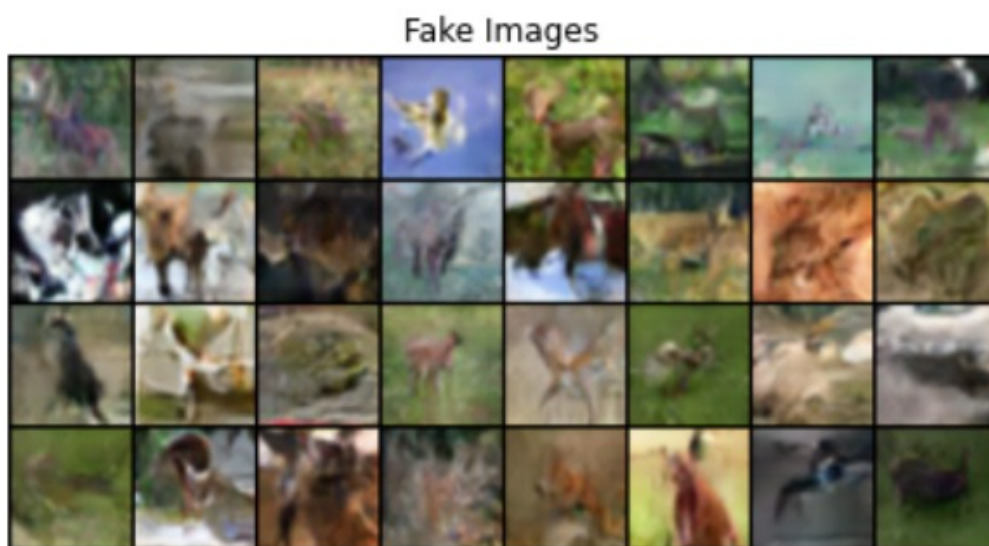
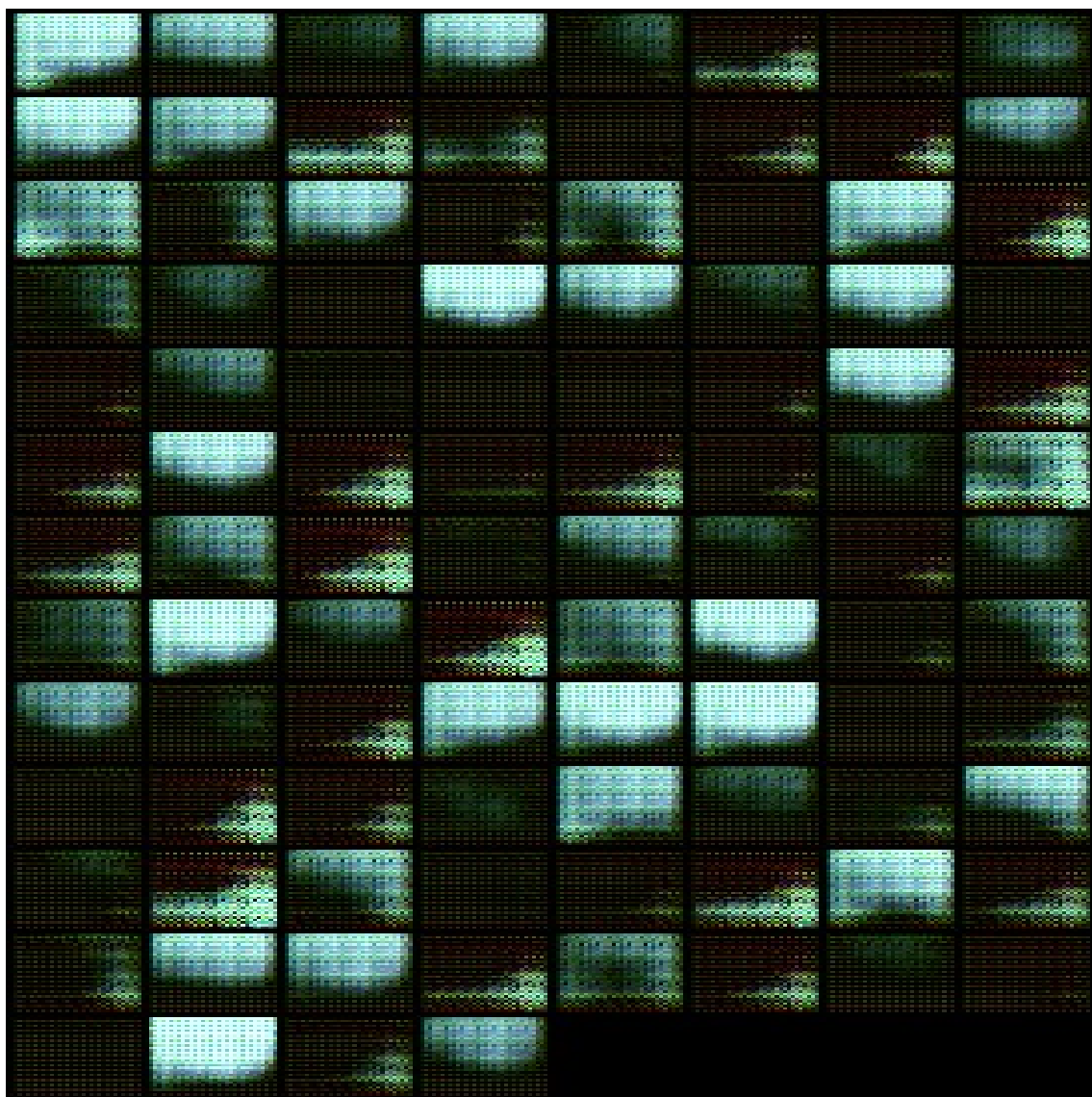Figure 5: WGAN real images

Figure 6: WGAN fake images

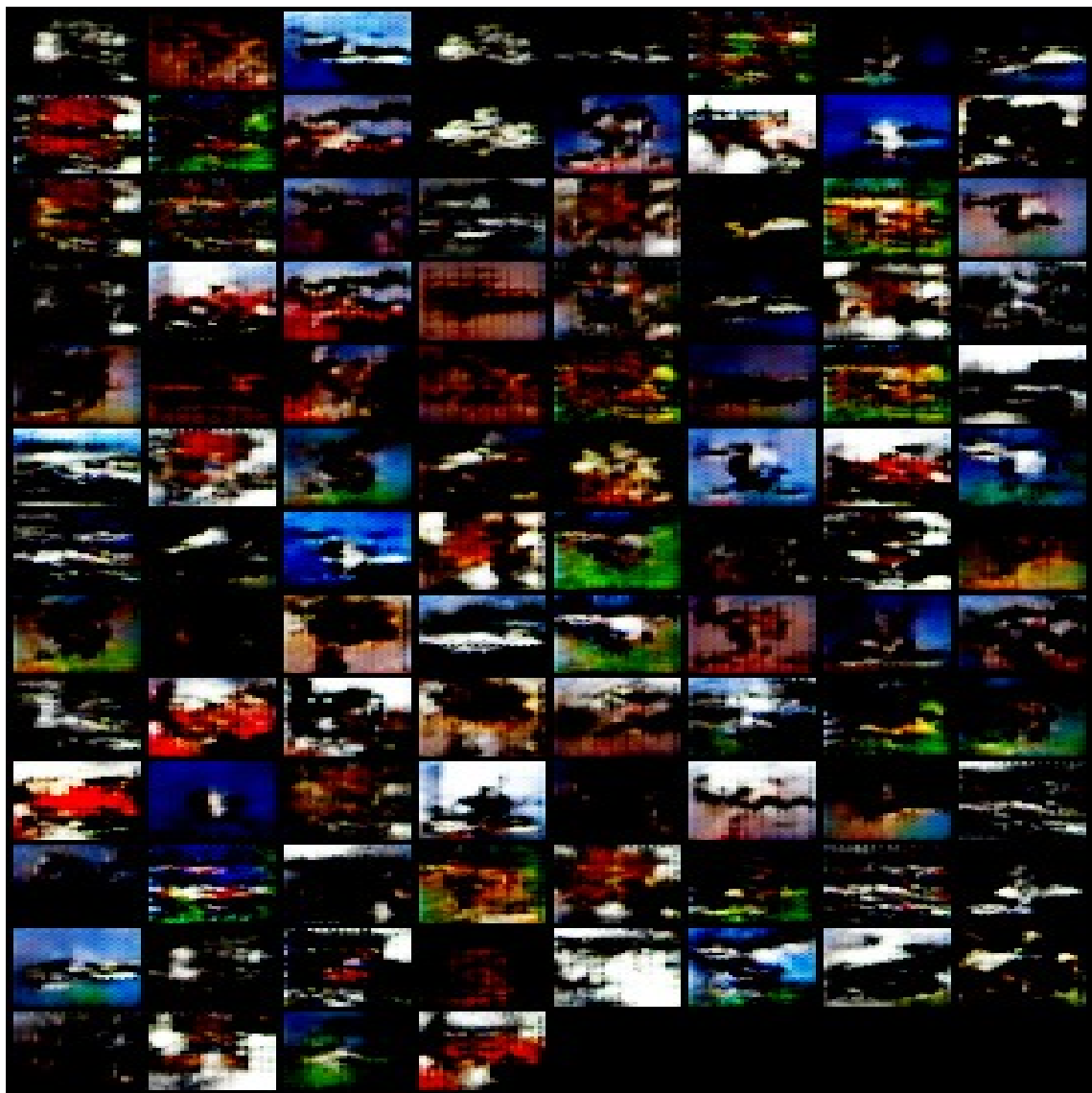Figure 7: ACGAN Fake image after 1 epochs

Figure 8: ACGAN Fake image after 100 epochs

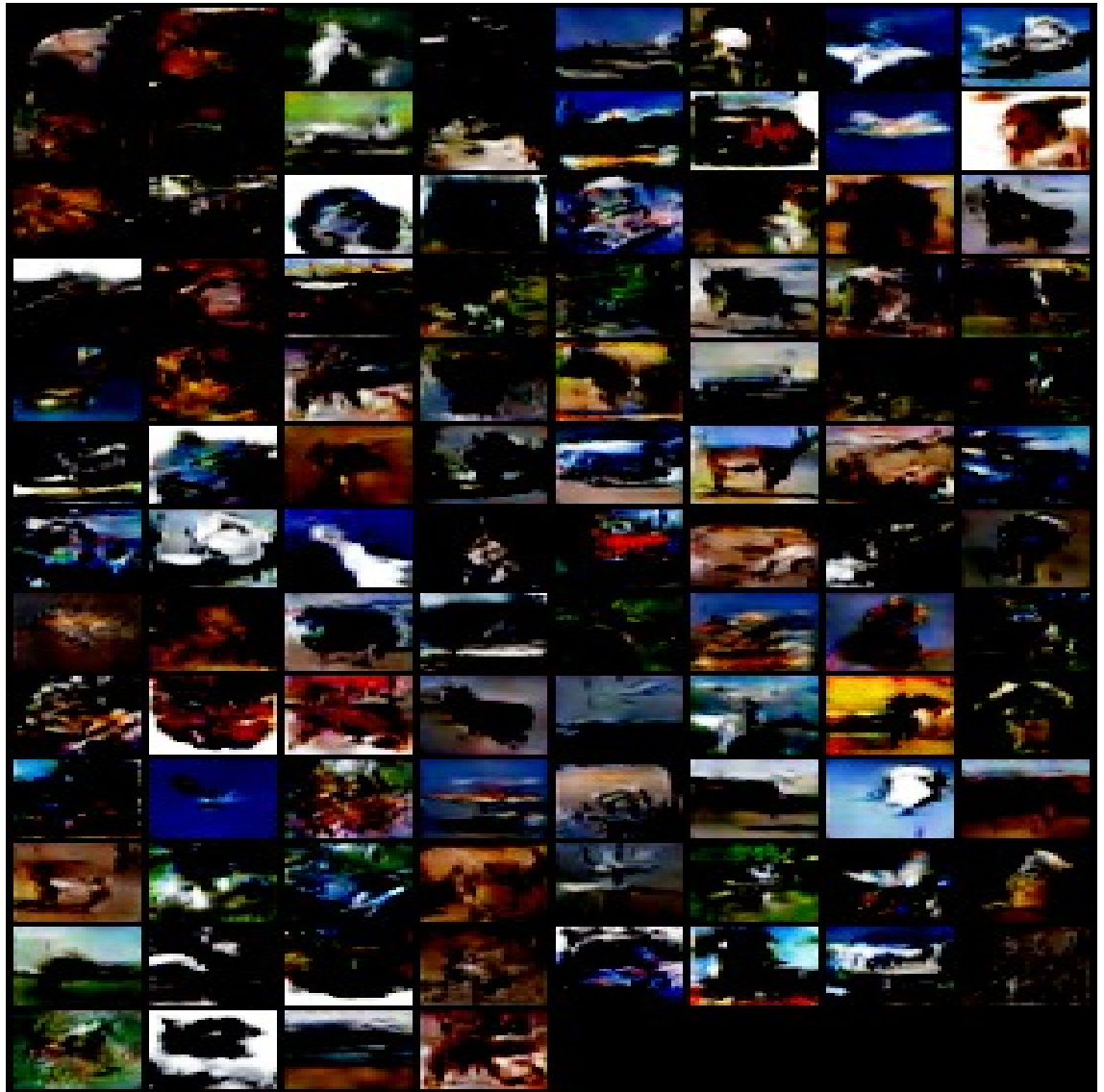Figure 9: ACGAN Fake image after 200 epochs

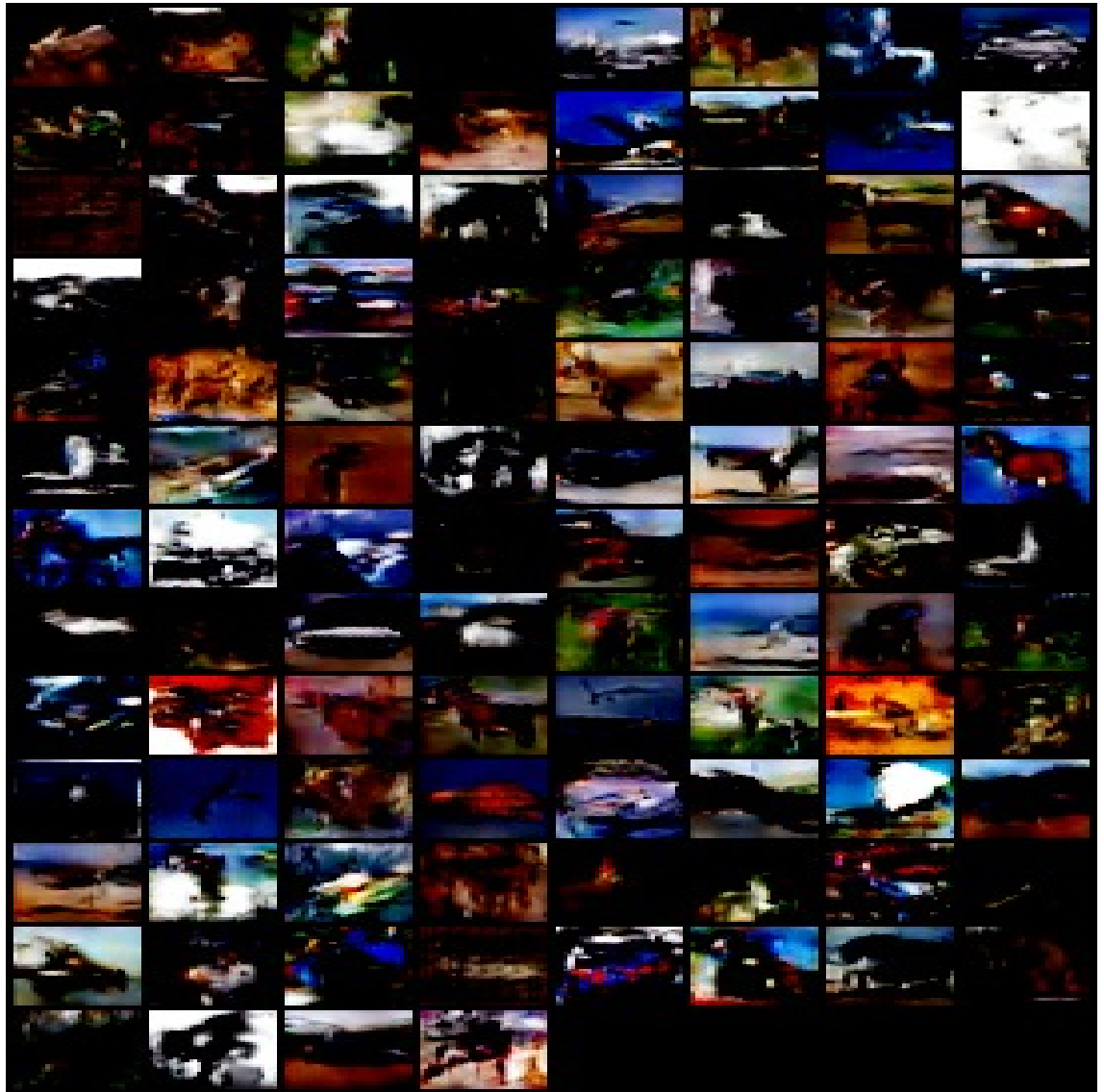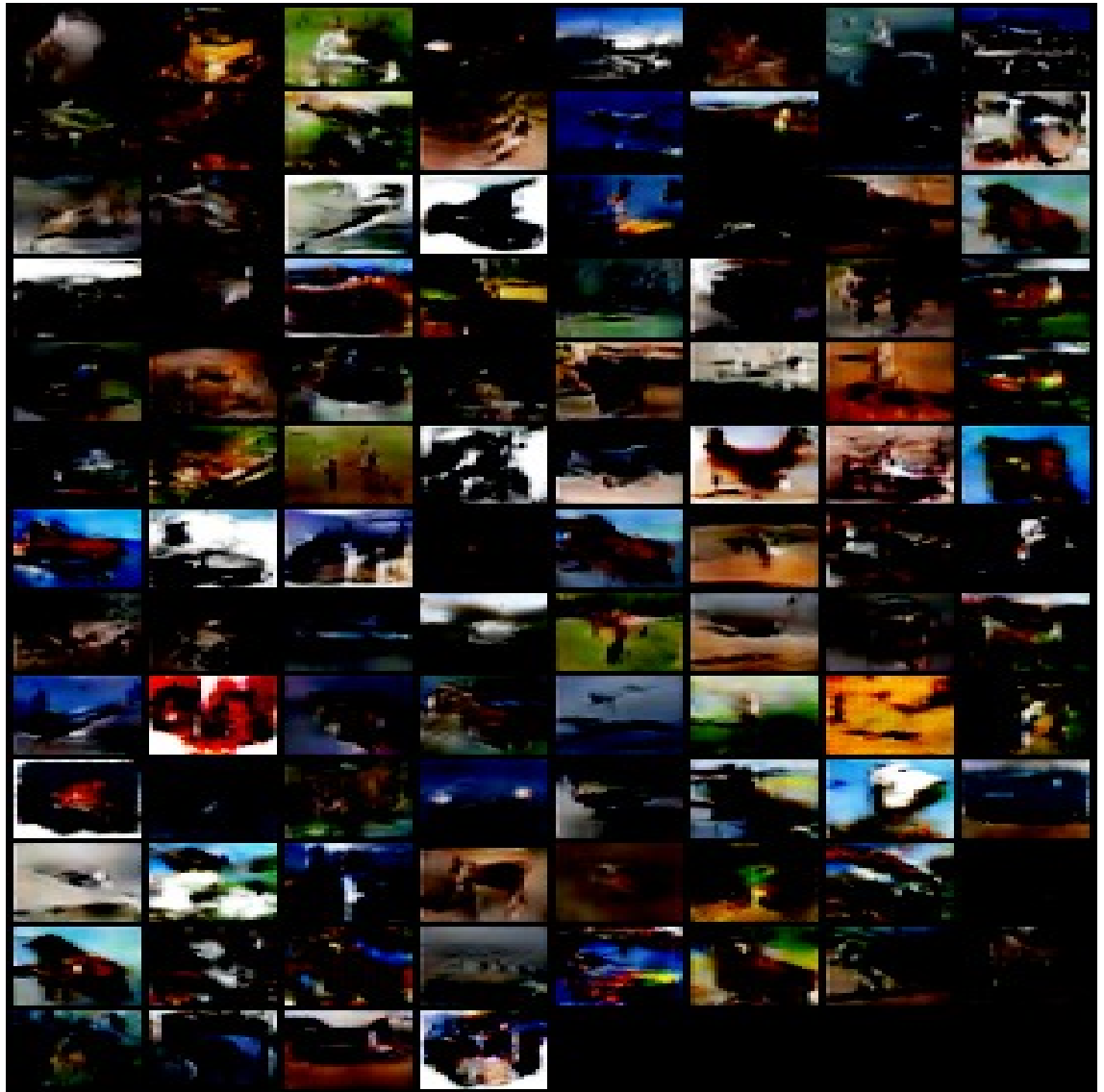Figure 10: ACGAN Fake image after 300 epochs

Figure 11: ACGAN Fake image after 400 epochs

Figure 12: ACGAN Fake image after 500 epochs