Deep Learning Lab #5 (Fall 2021)

Lab Objective:

In this assignment, you will need to implement three different GAN model for Mnist.

Rules:

(1) This assignment should be done individually. Plagiarism is strictly prohibited.

(2) You can only use Numpy and other Python standard library. Only PyTorch are allowed in this lab.

(3) You should add comments throughout your implementation for easy understanding.

(4) Write a report in the end of the Jupyter Notebook to detail your procedures and discussions.

Submission:

(1) Please write your code on Jupyter notebook.

(2) Pack the .ipynb to .zip, and submit .zip to E3. Please name as "Lab5_YourStudentID.zip".

Deadline: 2022/1/10 (Mon.) 23:55

Requirements:

(1) Implement three different GAN model.

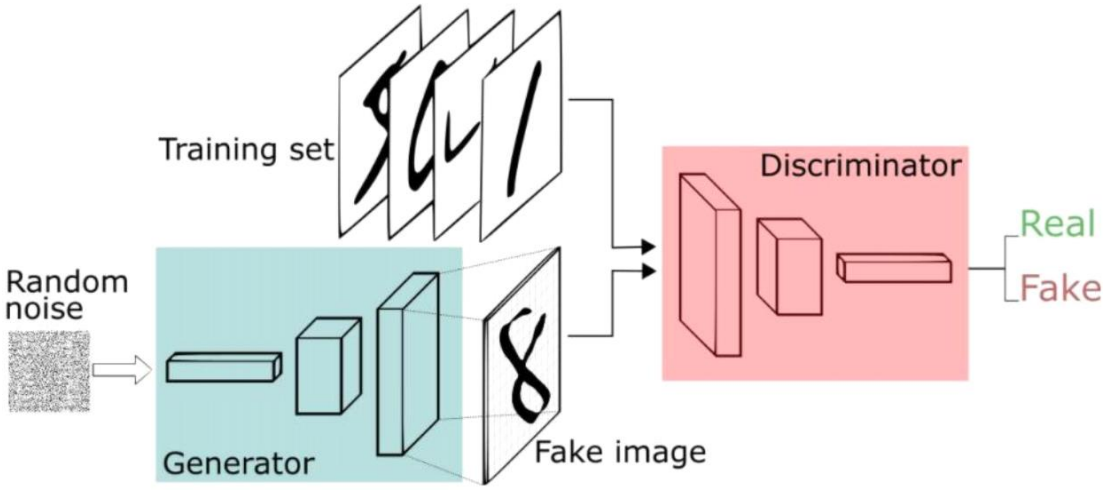
(2) Plot the training loss curves during training phase.

(3) Evaluate GAN model performance, find metric by yourself (ex. IS, FID)

(4) Generate Mnist datasets.

Descriptions:

(1) Model Architecture



(2) Dataset (Mnist)

PyTorch datasets: https://pytorch.org/vision/stable/datasets.html

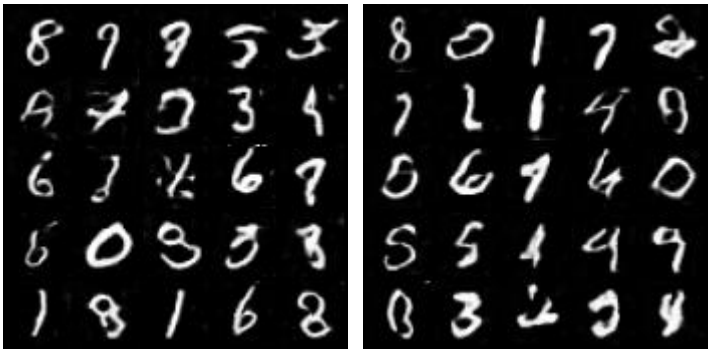
(3) Sample code

https://github.com/eriklindernoren/PyTorch-GAN/tree/master/implementations

aae	MNIST normalization. Black refactoring.	3 years ago
acgan	MNIST normalization. Black refactoring.	3 years ago
began	MNIST normalization. Black refactoring.	3 years ago
bgan	MNIST normalization. Black refactoring.	3 years ago
bicyclegan	BicycleGAN: Revert to edges2shoes as default dataset	3 years ago
ccgan	Keep patchGAN output shape in discriminators	3 years ago
cgan	Keep patchGAN output shape in discriminators	3 years ago
cluster_gan	Adds single clustergan script	3 years ago
cogan	MNIST normalization. Black refactoring.	3 years ago
context_encoder	Black reformatting	3 years ago
cyclegan	Keep patchGAN output shape in discriminators	3 years ago
dcgan	MNIST normalization. Black refactoring.	3 years ago
discogan	Keep patchGAN output shape in discriminators	3 years ago
dragan	MNIST normalization. Black refactoring.	3 years ago
dualgan	Black reformatting	3 years ago

(4) Output examples

Use DCGAN to generate mnist datasets.



Assignment Evaluation:

(1) Code & model performances (60%)

(2) Report (40%)

Please contact TA if you have any questions.