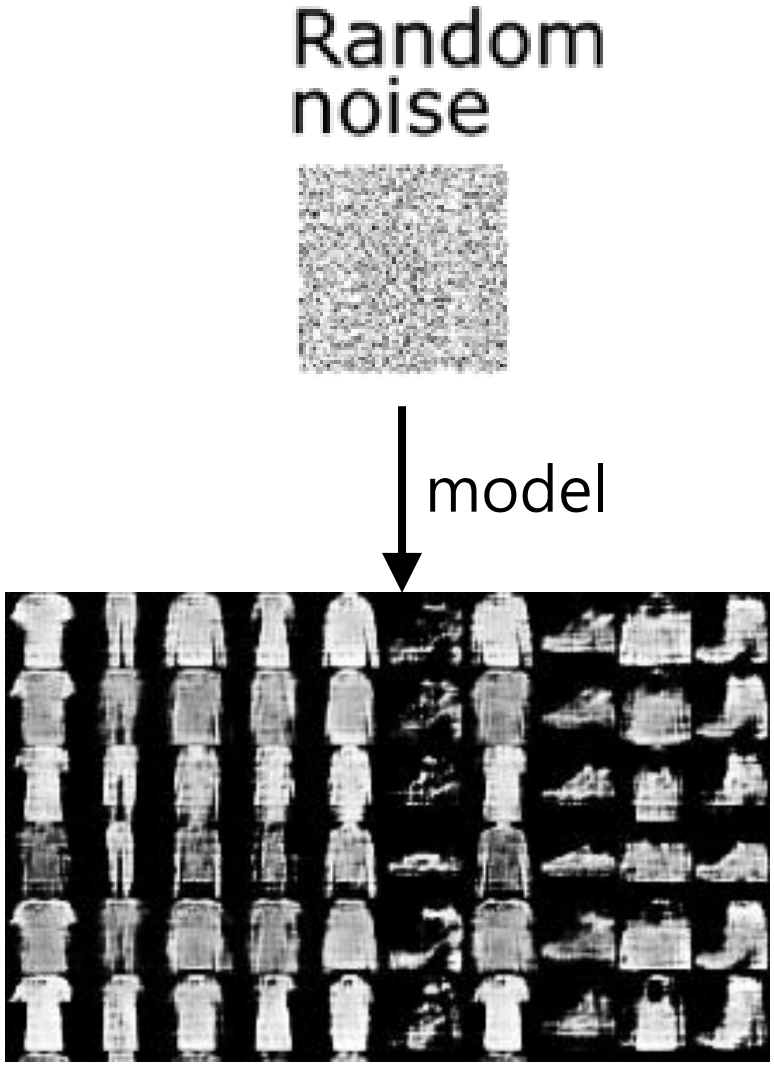
Assignment 5: CGAN

[Objective]

Your model should generate fashion MNIST images.

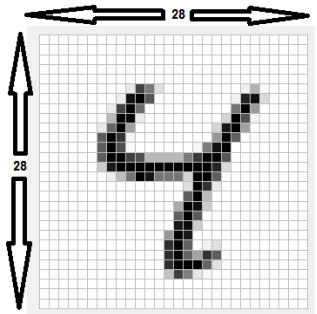
[Requirements]

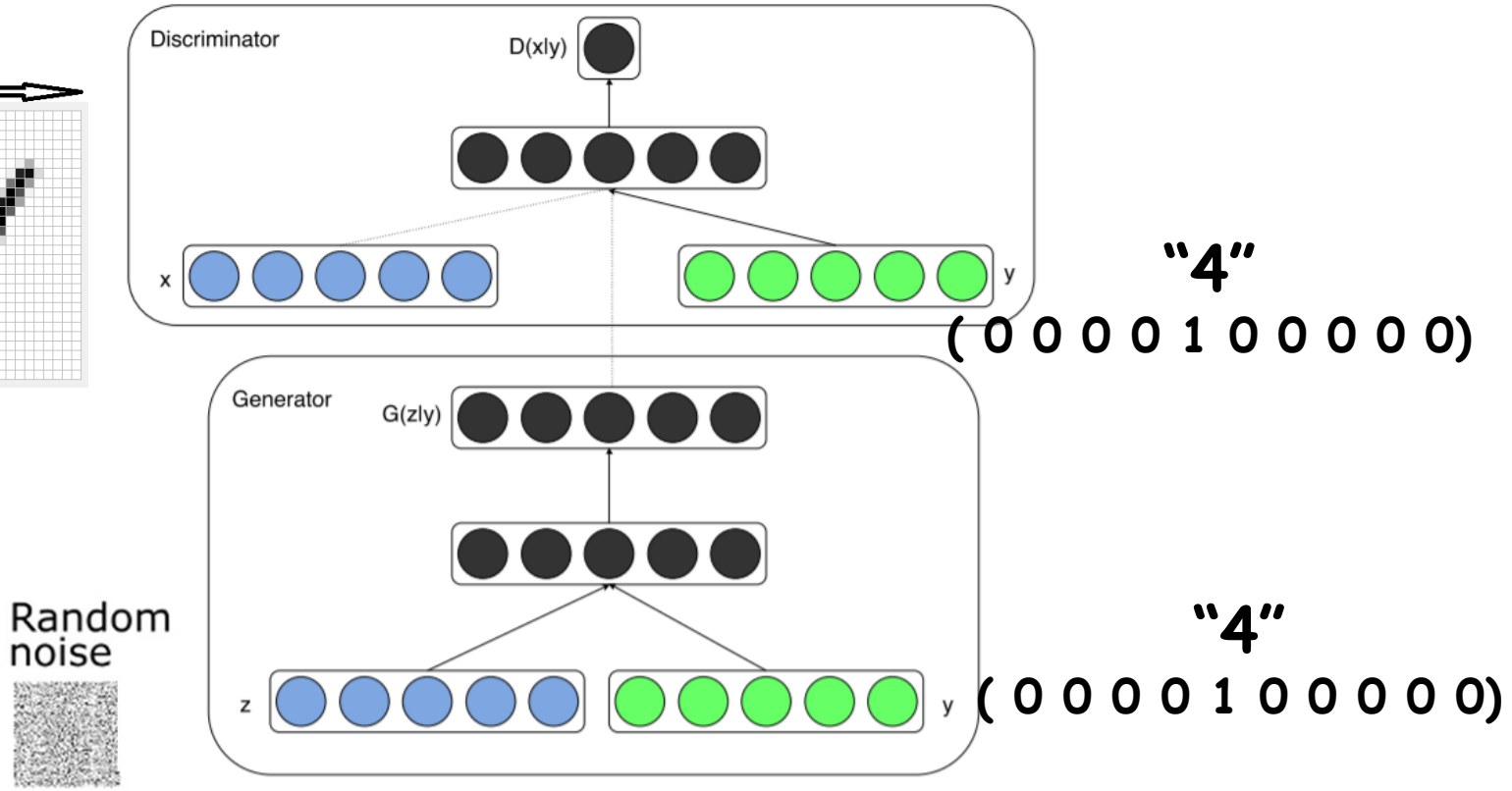
1. Implement CGAN model with Pytorch or Tensorflow.
(Basic code is provided)
2. You should attach the generated images.



CGAN (Conditional GAN)

- Vanilla (original) GAN에서는 어떤 이미지를 만들지 제어할 수 없음
- Conditional GAN에서는 G와 D에 특정 condition을 나타내는 정보y 추가





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$$\min_G \max_D V(D,G) = \mathbb{E}_{\boldsymbol{x}\sim p_{\text{data}}(\boldsymbol{x})}[\log D(\boldsymbol{x})] + \mathbb{E}_{\boldsymbol{z}\sim p_z(\boldsymbol{z})}[\log(1 - D(G(\boldsymbol{z})))]$$

$$\min_G \max_D V(D,G) = \mathbb{E}_{\boldsymbol{x}\sim p_{\text{data}}(\boldsymbol{x})}[\log D(\boldsymbol{x}|\boldsymbol{y})] + \mathbb{E}_{\boldsymbol{z}\sim p_z(\boldsymbol{z})}[\log(1 - D(G(\boldsymbol{z}|\boldsymbol{y})))]$$

Code review

[Objective]

Your model should generate fashion MNIST images.

[Classes]

classes = ('T-shirt/top', 'Trouser', 'Pullover', 'Dress', 'Coat', 'Sandal', 'Shirt', 'Sneaker', 'Bag', 'Ankle boot')

[PyTorch Code structure]

- **CGAN_model.py**
- **CGAN_train.py**

- **GAN_model.py**
- **GAN_train.py**

[TensorFLow Code structure]

- **cgan.py**
- **cgan_train.py**

- **vanilla.py**
- **gan_train.py**

Assignment 5: CGAN

- **Evaluation Criteria**

Simplicity	How concisely did you write the code? - 배점 7점
Performance	How well did the results of the code perform? - 배점 3점

Assignment 5: CGAN

- Due to : **~ 10.11(Sun)**

- Submission : Online submission on blackboard

- Your submission should contain
  1) The whole code of your implementation
  2) The generated images

- You must implement the components yourself!
- File name : StudentID_Name.zip