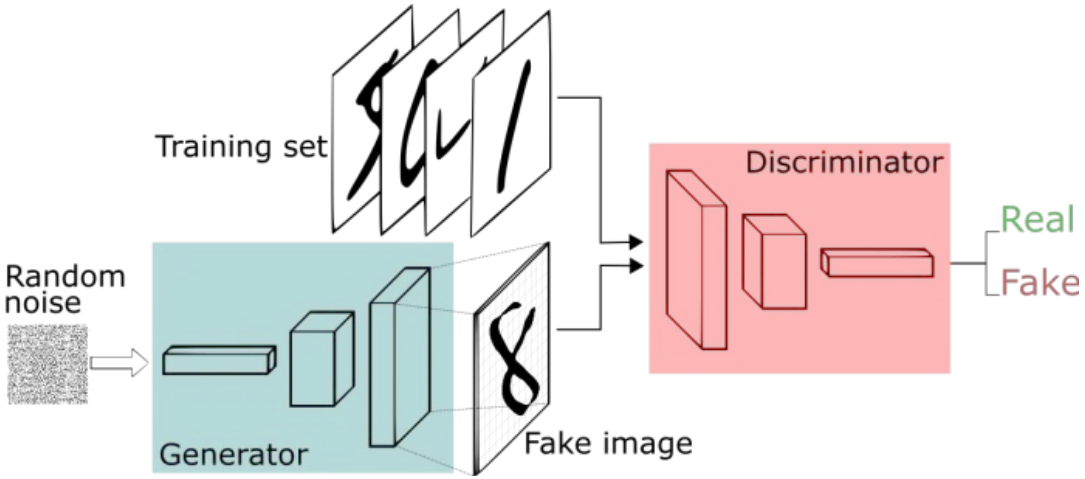
cGAN

Generator (criminal) and Discriminator (police)

The place where the fake is created is called the **generator**, and the place where the authenticity is determined is called the **discriminator**.



DCGAN

The DCGAN architecture utilizes random noise as its input to generate images. Nonetheless, it comes with a drawback: the generated output lacks controllability.

To illustrate, if a DCGAN model is trained on MNIST dataset and fed with noise, it lacks the ability to determine which specific digit image will be generated as output.

The outcome is a random selection from the range of numbers 0 to 9.

cGAN

The concept of Conditional Generative Adversarial Networks (cGANs) involves influencing the generated outcomes by introducing **both noise and conditional factors into the input**.

For instance, when working with MNIST dataset, feeding a specific number within the range of 0 to 9 as input influences the generation of an image depicting that particular digit as the output.

cGAN