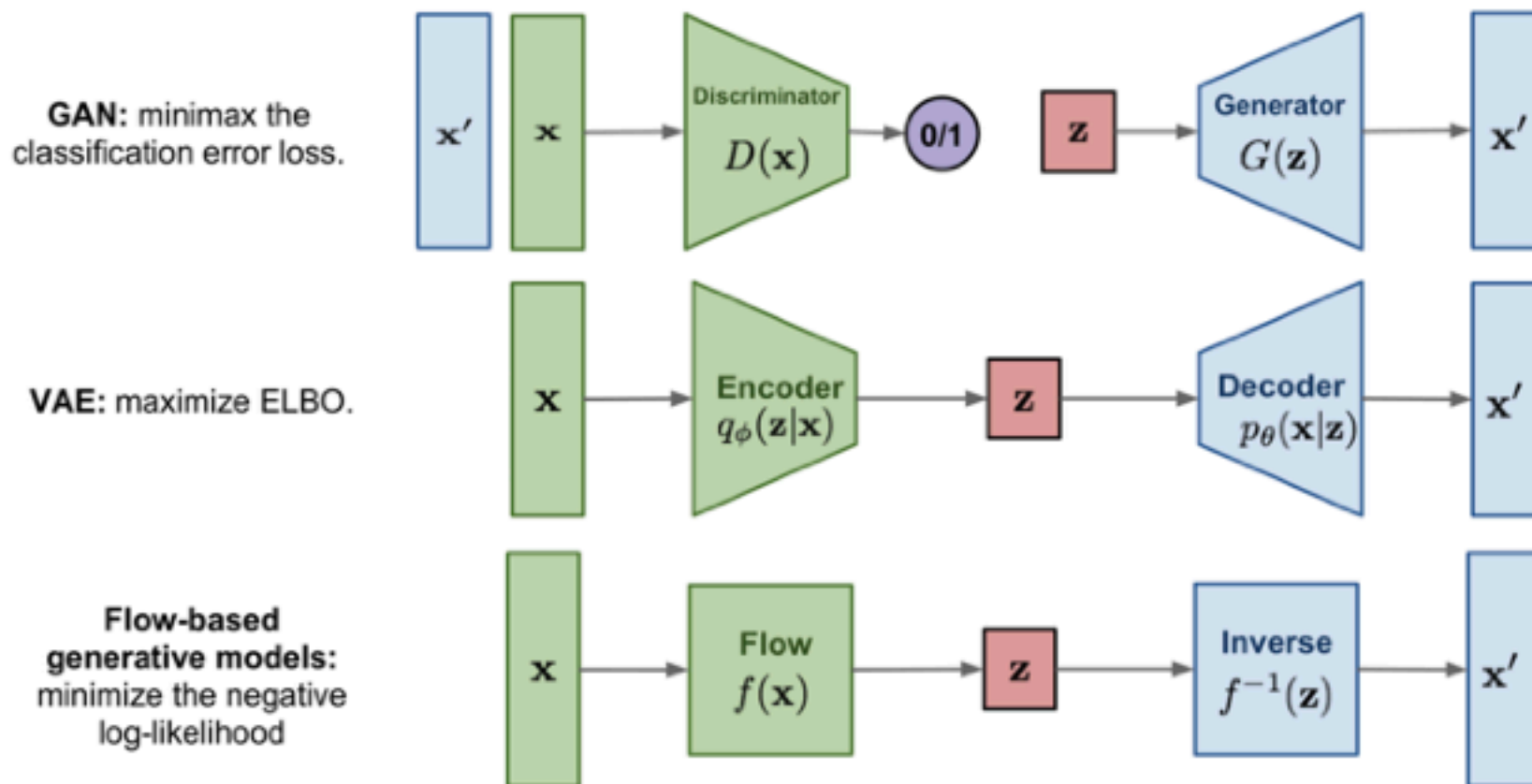


Generative models



Change of variable

- 먼저 single variable에 대해서

$$\int p(x)dx = \int \pi(z)dz = 1 \quad (1)$$

$$p(x) = \pi(z) \left| \frac{dz}{dx} \right| \quad (2)$$

$$= \pi(f^{-1}(x)) \left| \frac{df^{-1}}{dx} \right| \quad (3)$$

$$= \pi(f^{-1}(x)) |(f^{-1})'(x)| \quad (4)$$

- 이를 multivariable에 나타내면

$$p(\mathbf{X}) = \pi(\mathbf{Z}) \left| \det \frac{d\mathbf{Z}}{d\mathbf{X}} \right| = \pi(f^{-1}(\mathbf{X})) \left| \det \frac{df^{-1}}{d\mathbf{X}} \right|$$