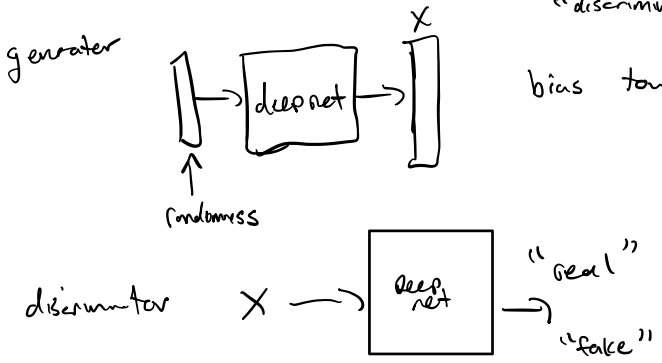
Generative models

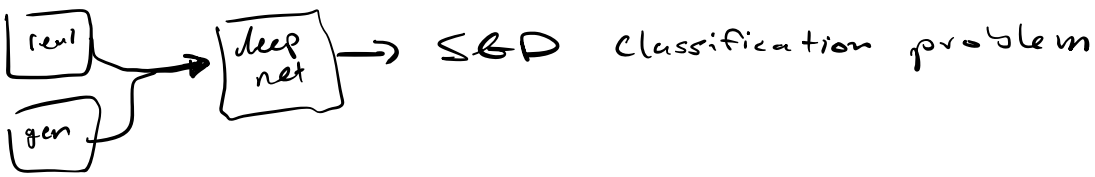
Last time: AR approach (like GPT)

→ think of objects of interest as a sequence
→ sample one at a time, condition on pasts

GANs → train a generator and classifier to classify real/fake
"discriminator"



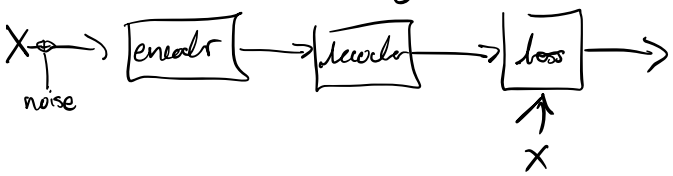
How to train discriminator given generator?



- GAN training tends to oscillate → unstable; hard to train
  - ↳ discriminator too good, tiny gradients
  - ↳ mode collapse: when generation lacks sufficient diversity

Diffusion Approach

- let's use a denoising autoencoder to do generation



- too hard in practice, doesn't work well

2nd attempt: Do many stages of denoising