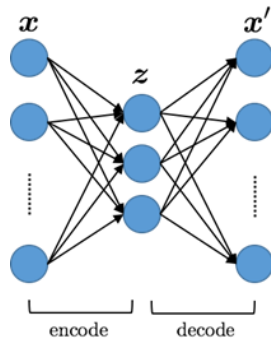
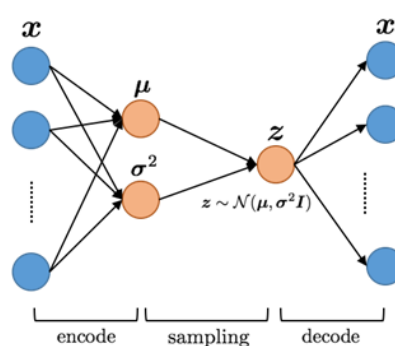


1. Choose a variation of autoencoder. Show an image of the model architecture. Then, list an advantage and a disadvantage comparing with vanilla autoencoder. Also, put on the paper link as reference. Eg, denoising autoencoder, variational autoencoder, etc.

REF: <https://arxiv.org/pdf/1906.02691.pdf>



vanilla autoencoder



variational autoencoder

advantage: can generate more data that have similar distribution with train data.

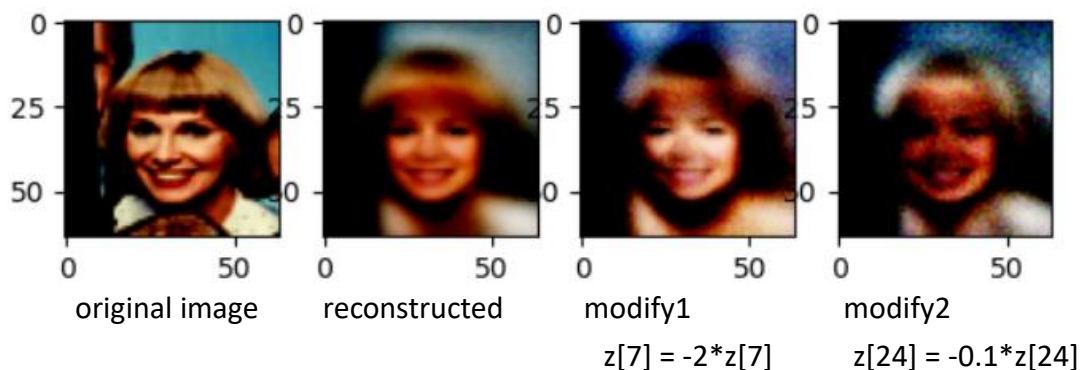
disadvantage: output might be blurry and not that similar to input.

2. Train a fully connected autoencoder and adjust at least two different element of the latent representation. Show your model architecture, plot out the original image, the reconstructed images for each adjustment and describe the differences.

```
class fcn_autoencoder(nn.Module):
    def __init__(self):
        super(fcn_autoencoder, self).__init__()
        self.encoder = nn.Sequential(
            nn.Linear(64 * 64 * 3, 256),
            nn.ReLU(),
            nn.Linear(256, 64),
        )
```

```
self.decoder = nn.Sequential(
    nn.Linear(64, 256),
    nn.ReLU(),
    nn.Linear(256, 64 * 64 * 3),
    nn.Tanh()
)
```

```
def forward(self, x):
    x = self.encoder(x)
    x = self.decoder(x)
    return x
```



modify1: face light than reconstructed.

modify2: face dark than reconstructed but luster on hair light than reconstructed