VAE Architecture Diagram:-

input

output.

Latent Space

x

x

Reconstruction Loss

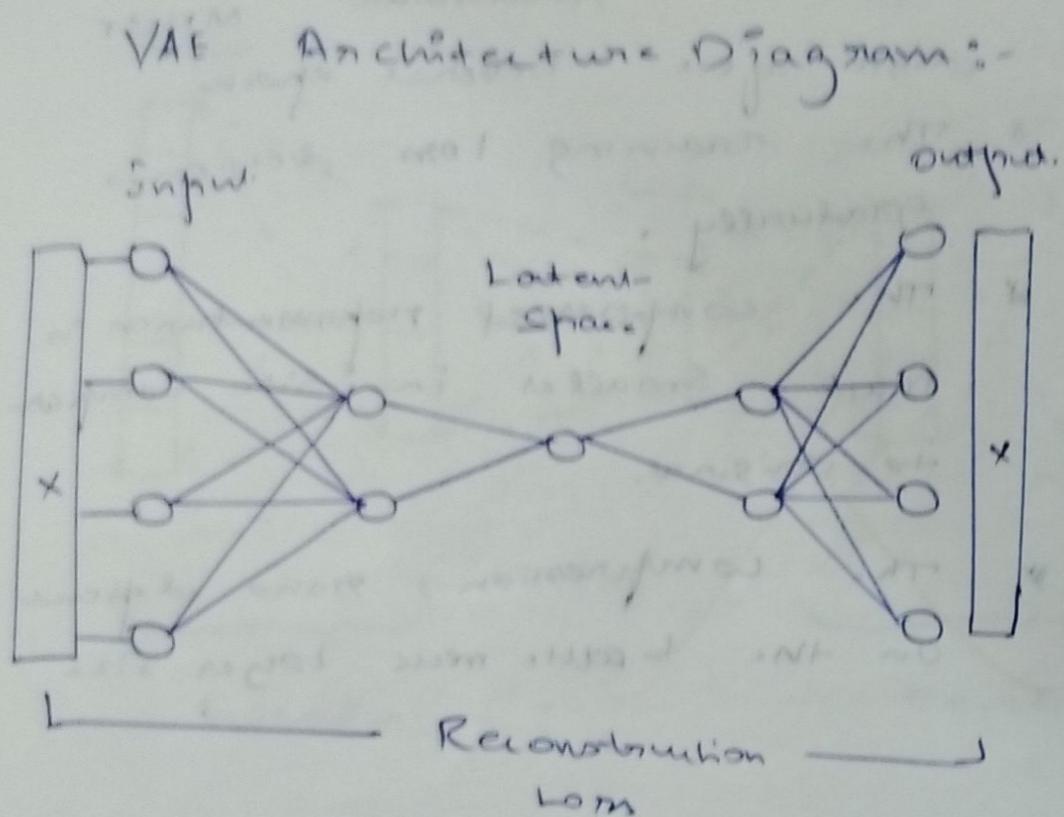Aim:- To build and train a Variational auto encoder on the MNIST dataset.

Pseudo code:-

* Load MNIST dataset.
* Define encoder for input layer.
* Define sampling layer Reparameterization trick
* Define decoder and loss function
* Train VAE
* Generate images.

Observation :-

* VAE should be able create the reconstructed image with some loss.
* image generated from latent space.
* VAE enables sampling from the latent space.

Output :-

Training VAE with latent dim = 2

Epoch [1/20], Train Loss: 188.14, Val : 170.33

Epoch [4/20], Train Loss: 160.17, Val : 159.96

Epoch [8/20], Train Loss: 155.69, Val : 154.97

Epoch [12/20], Train Loss: 153.18, Val : 153.62

Epoch [16/20], Train Loss: 151.12, Val : 152.41

Epoch [20/20], Train Loss: 150.79, Val : 152.50

Lab 12 : Implement Deep Convolutional GAN to generate complex color images.

Aim :-

To implement.

Result :-

Successfully builted and implemented Variational auto encoder on the MNIST dataset.