**VAE Training Results**

We trained the VAE for 50 epochs due to resource constraints. Despite that the model was able to learn the MNIST handwritten digits dataset. The training and validation losses went down.

**Training**

The model started with a training loss of 0.3497 and validation loss of 0.2357. By the end of 50 epochs the training loss was 0.1825 and validation loss was 0.1856. Both losses went down which means the model was able to generate the input images.

**Loss**

The reconstruction loss went down from 0.3497 to 0.1825 which means the model got better at generating correct reconstructions of handwritten digits. The KL divergence loss was relatively stable which means the latent space was well structured and the model is good at generating new data points.

**Generalization**

The validation loss was close to the training loss which is good. The validation loss ended at 0.1856 which is just a little higher than the training loss (0.1825) which means the model didn’t overfit and was able to perform well on unseen data. This shows the strength of the learned representation.

**Conclusion**

In summary the 50 epoch VAE performed well in generating MNIST digits. Despite resource constraints the model was able to improve a lot in both training (0.3497 to 0.1825) and validation (0.2357 to 0.1856) losses. The final result shows the model is ready to generate new unseen digit images.