**Assignment #4 Implementation of various Autoencoders**

You have learnt various Autoencoders Like: Vanilla Autoencoder(VAE), Sparse AE(SAE), Multilayer AE(MAE), Convolutional AE(Con AE) and Contractive AE(CAE).

**Problem statement: Implement VAE, SAE and CAE types of Autoencoders for Data Compression using MNIST dataset and analyse its variation and impact on the regenerated images.**

Implementation in MNIST dataset using Vanilla Autoencoder is shown here: <https://www.edureka.co/blog/autoencoders-tutorial/#demo>

Use this code, analyze it how it is regenerating the MNIST digits for **n= 20,40 and 60 epochs.**

Seeing VAE, generate code for Sparse AE and CAE, analyse them for n=20, 40 and 60 epochs.

Build your analysis report by varying the epochs and varying the autoencoders (hence making 9 combinations as shown in table below).

|  |  |  |  |
| --- | --- | --- | --- |
|  | 20 epochs | 40 epochs | 50 epochs |
| Vanilla Autoencoder |  |  |  |
| Sparse Autoencoder |  |  |  |
| Contractive Autoencoder |  |  |  |