**WEEK-9: IMAGE RECONSTRUCTION AND IMAGE DENOISING USING AUTOENCODERS**

Q1. Use the built-in CIFAR-10 dataset and perform the following tasks:

* 1. Preprocess the data, ensuring it is suitable for training an autoencoder.
  2. **Design Convolutional autoencoder architecture for image reconstruction.** Train the model on the preprocessed dataset and evaluate the model's performance in terms of image reconstruction.
  3. Visualize original images and their reconstructed counterparts to assess the quality of reconstruction.

Q2. Use the built-in CIFAR-10 dataset and perform the following tasks:

1. Preprocess the data, ensuring it is suitable for training an autoencoder.
2. **Introduce noise to the images to create a noisy dataset.**
3. **Train the Autoencoder model using the noisy images as input and the clean images as target output.**
4. Evaluate the model's performance in terms of noise reduction.
5. Visualize noisy images, their denoised counterparts, and the original clean images to observe the denoising effect of the model.