**Coursework 9**

**Generative Adversarial Neural Networks**

In this coursework, you will investigate the impact of various loss functions on the performance of the generator using the facades dataset. To accomplish this, you can utilize the provided code example that implements a conditional generative adversarial network (cGAN) called pix2pix. This example can serve as a starting point for developing your own solutions. In the given example, the loss function for the generator uses both L1 and GAN losses. When we use only the L1 loss, the generator becomes equivalent to a conventional U-net trained to produce facades from sketches.

You can find the example code at the following link: <https://www.tensorflow.org/tutorials/generative/pix2pix>

Your tasks are as follows:

1. Implement an only L1 loss function to train the generator and provide the first 10 generated images from the test set.
2. Implement a loss function that uses both L1 and GAN losses to train the generator and provide the first 10 generated images from the test set.
3. Implement a loss function that uses both the Structural Similarity Index Measure (SSIM) and GAN losses to train the generator and provide the first 10 generated images from the test set.
4. Compare the generated results and interpret them.