Generative adversarial networks (GANs) provide the luxury of creating another type of MRI from the existing one. In this assignment, you will use a particular variant of GANs, called CycleGAN, to translate the style of one MRI image into another. This will help in gaining a better understanding and analysis of the scanned image. By using GANs, you will create T2 weighted images from T1 weighted MRI images and vice-versa.

There are some component types such as Water, Fat, Muscle and Tumors which establish contrast relationships between MRIs. Moreover some of the elements have different contrast levels whereas the Bone component in MRIs gets highlighted in the same way in both the MRIs. Hence we can see that it’s a partial contrast but not a complete contrast. As this is not a complete list of components that are highlighted in the MRIs, to learn more about T1 and T2 images, you may visit [here](https://www.radiologymasterclass.co.uk/tutorials/mri/t1_and_t2_images).

**Problem Statement:** Our goal in this assignment is to convert T1 type MRI images into T2 type MRI images.

**Dataset:** Please find attached dataset which contains images for both classes, T1 and T2

| **Stage** | **Meets expectations** | **Does not meet expectations** |
| --- | --- | --- |
| **Data preparation (10%)** | Dataset creation | Dataset is not created |
| **Data processing (15%)** | The dataset is processed properly including the crucial steps | The dataset has not been processed |
| **Model Building(35%)** | Generators and Discriminators has been properly built and initialised | Model building has not been performed and  initialised. |
| **Model Training(30%)** | The loss function is defined for both models and training is carried out successfully. | Poor choice of loss function and training steps are not carried out |
| **Code readability (10%)** | The code is well commented and the text is written in detail to explain the thought process.    Efficient, concise code is written. | The code is not commented well / text is not written in detail.    Inefficient/verbose code is written. |