International Institute of Information Technology, Hyderabad
CS7.404: Digital Image Processing
Assignment 0

Last date of Submission: *Tuesday, 12 Aug, 2025; 11pm*

The goal of this assignment is to get you familiarised with reading, writing and basic manipulation of images and videos. You are expected NOT to use any image libraries for this assignment, except for reading and writing from a file.

Upload should contain a pdf file describing how you implemented each function, any interesting learnings, and output images if any. In addition, you should also upload a zip file containing your complete code.

Implement the following functions:

1. Read an image file into an array

2. Write an array into an image file
   Note: Make sure you can handle colour and grayscale images

3. Change brightness of the image.

4. Change contrast of the image

5. Change a colour image to grayscale.
   Qn: Are there different ways of doing this? What is the visual effect of each?

6. Convert a grayscale image to colour using a pseudo colour mapping.

7. Read in an image with green screen for background and a second one for background. The function should replace the green screen with the corresponding pixels from the background image.

8. Read a video file and convert into an sequence (array) of images, and also to write it back as a video.

9. Create a 1 second transition video (fade, slide, any other) from one image to another.