National Institute of Technology Calicut
Department of Computer Science and Engineering
CS4046D Computer Vision
Monsoon 2021
Assignment 1

Date of Submission : On or before 28-08-2021
Maximum Marks : 5

Instructions to the students:

- *Any submitted work should be your own. Academic dishonesty in any form can lead to zero marks for the assignment.*
- *Any work submitted after the submission deadline will not be considered for evaluation (exception may be given only for genuine reasons).*
- *Students are free to use the language/tool of their choice.(Preferably Python or Java Matlab/Octave/Javaetc.)*
- *Prepare a document that contains the question, your code and output. Save it with file name as Your Name_Rollno and upload it in the submission link given in eduserver on or before the deadline.*

1. Take a real image(Your own color photograph of size 256x256) and do the following
   - a) Read it to memory from the file
   - b) Display it
   - c) Read a portion of it to memory
   - d) display it
   - e) add a constant to this portion and then display it
   - f) display the whole image after adding a constant to a portion of it. Take care of overflow while adding. (on overflow, take the pixel vale as the maximum possible)
   - g) multiply a portion of the image by a constant ranging from 0.1 to 2.0, truncating to maximum value on over flow. Display the resulting image   for each value of the constant multiplier.
   - h) Create a second image which contains only your name and date of doing the assignment, and embed this to to your photograph as a visible watermark.
   - i) Embed the second image(name &date) as an invisible watermark in your photograph. (also write code for extracting the watermark)
   - j) Embed a text message in the image.(Text message should be your name and roll no.)
   - k) Convert the RGB image into XYZ Color Space and Display the luminance and chrominance images separately.
   - l) Convert the Color image into a grayscale image.
   - m)Apply thresholding on the grayscale using 4 different threshold values(e.g, 50, 128, 175, & 220) and display the 4 output images.