CSC 331: Digital Image Processing

**FALL 2024**

Assignment # 2

**Deadline: October 27th, 2024 at 11:59pm**

**Instructions (To be followed very strictly):**

* Assignment will not be considered after the mentioned deadline.
* You are required to submit your assignment with inputs and outputs exactly as stated in the assignment description.
* In case of cheating, all involved will get a straight “ZERO”
* You are required to make a “ReadMe.txt” file that can be of maximum 2-3 lines.

This file should contain the exact command that can be used to run your assignment/code. If your code cannot be executed after doing what you mentioned in the readme file, it will be not marked.

* Comment your code generously.
* All the files should be zipped into a single directory before sending (note: only use \*.zip/rar format)
* Your code folder to be zipped, should be named as follows

Your\_Name\_ ROLL#\_Assign\_#

* Upload the assignment in response to Assignment in the google classroom

**Assignment Statement:**

***CLO: <2>; Bloom Taxonomy Level: <Analyzing>***

**Question # 1: 10 Marks**

Your MATLAB code written in the form of a MATLAB function, should be able to take any image (any size) as an input. Once the image has been read, apply unsharp masking on it. The size of averaging filter will be passed to the function at run time. Your code should be generic for any given input image. You are also required to display results at every stage of unsharp masking and finally display both original and sharpen images and save/write them in the current directory with the following names, “original\_image.jpeg” and “sharpened\_img.jpeg” respectively.

**Use your own code for averaging, no use of built in function for that.**

The **major** steps will be

(2 points) Reading in any input image file and taking filter\_size as input by your code (that is in form of a function)

(0 point) Converting image to gray scale

(6 points) Apply unsharp masking and **saving in current directory**

(1 points) Display images at every stage of unsharp masking filter(original, blur, edges, sharpened) and save outputs

(1 points) Commenting all your code

Note:

1. While making your code able to read any image, be aware of any hardcoded values, which will make that impossible. **Test your code on different images and filter size before emailing it.**
2. Your complete code will be written within a function named “mySecondAssignment()”, which is able to read any image file and filter\_size value which I provide to it at run time. So the function would be written as

function mySecondAssignment(filename, filter\_size)

1. When I will call your function, I will simply write the following on command prompt (for example)

mySecondAssignment('anyImage.png', 3); // In this anyImage.png is the input image file and 3 filter\_size means 3\*3 neighbors for averaging.