**CSC566 Image Processing**

**ASSIGNMENT 1**

**Spatial Transforms and Filtering**

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**INSTRUCTIONS**

1. This is an individual assessment/ assignment.
2. This task is composed of 3 questions which are Question 1, Question 2 and Question 3. Please complete all of the questions.
3. Input images are attached together. Use the given input images.
4. Paste the output image and the source code (or fragment of the code) in the ANSWER page as follows.
5. Use this document as your assignment template.
6. Submit your document on i-Discuss and make sure it is in **.pdf** format.
7. Deadline for this assignment is on 26th November 2024 (Tuesday), 6.00PM.
8. Shall you have any question, please reach me at 0132226698
9. Good Luck Students!

**QUESTION 1**

Implement the histogram equalization to the input images Q1\_1\_1 and Q1\_1\_2; submit your code and the output images.

**QUESTION 2**

Reduce the salt-and-pepper noise; submit your code and the output image. The input image is Q2\_1

**QUESTION 3**

Multiply an image by itself. Converts the class of image from unit8 to unit16 before the multiplication process. Submit your code and the output image. The input image is Q3\_1

**ANSWER**

**QUESTION 1**

|  |  |
| --- | --- |
| Input Image |  |
| Output Image |  |
| Source Code | Q1\_1\_1 = imread('Q1\_1\_1.tif');  if size(Q1\_1\_1, 3) == 3  Q1\_1\_1 = rgb2gray(Q1\_1\_1);  end  equalized\_1 = histeq(Q1\_1\_1);  imshow(equalized\_1); title('Equalized Q1\_1\_1'); |

|  |  |
| --- | --- |
| Input Image |  |
| Output Image |  |
| Source Code | Q1\_1\_2 = imread('Q1\_1\_2.tif');  if size(Q1\_1\_2, 3) == 3  Q1\_1\_2 = rgb2gray(Q1\_1\_2);  end  equalized\_2 = histeq(Q1\_1\_2);  imshow(equalized\_2); title('Equalized Q1\_1\_2'); |

**ANSWER**

**QUESTION 2**

|  |  |
| --- | --- |
| Input Image |  |
| Output Image |  |
| Source Code | Q2\_1 = imread('Q2\_1.tif');  filtered\_image = medfilt2(Q2\_1, [3 3]);  imshow(filtered\_image); title('Filtered Image'); |

**ANSWER**

**QUESTION 3**

|  |  |
| --- | --- |
| Input Image |  |
| Output Image |  |
| Source Code | Q3\_1 = imread('Q3\_1.png');  image\_uint16 = im2uint16(Q3\_1);  multiplied\_image = image\_uint16 .\* image\_uint16;  imshow(multiplied\_image, []); title('Multiplied Image'); |