HW04_Shah_Niyati

a. **What was the over all purpose of this homework.**

   Solution:

   The overall purpose of this homework was to understand how filters work. 2 different filters were used to perform filtering on the images, the Gaussian and circular averaging filter.
   We also used the smear routine to see how a local averaging filter works.

b. **Any problems you had writing the various functions and how you solved them.**
   How did you handle edges on the image?
   Did you need to learn the mod( ) function in Matlab?
   Where there any other issues?

   Solution:

   a. The local smear function had issues while showing the output image. → The error got was that imagesc cannot display the file got from the function directly, it needs an image to display. So I read the image and then passed it to imagesc function
   b. In the local weight function instead of using the output image sir has used the input image, so the new image formed.
   c. In both the functions sir has interchanged the row and column which created an overlapped image.
   d. Instead of using the output image to calculate the sum, sir had used the input image which created an overwritten image.
   e. No, I did not need to learn the mod function in matlab for this homework but I did see how it works.
   f. The edges were used to compute the values but were not altered like the other pixels which were not part of the edges of the image.

c. **A general discussion of what you learned here, including anything else you needed to learn along the way, such as**
   modular arithmetic. What did you get out of this exercise, even if it is a review for you?

Solution:

I learnt how to create different filters and after changing a few values in the fspecial function, how each of them affect the image. Tried the different filters like the laplacian, prewitt, sobel etc.

I learnt how to use a small matrix of filter which can then be moved across the image to process the image.

Learnt to interpret a few errors that we can face in matlab, like index going out of bound, trying to show an image file before the image is read etc.

Learnt a new sum function that performs a summation of values in the matrix. In a MxN, where N is more than 1, it sums all the values in the columns so we need to perform that operation twice to get the sum of all rows too and then get the correct summation of the whole matrix.

Learnt how to use the ceiling and floor operations.