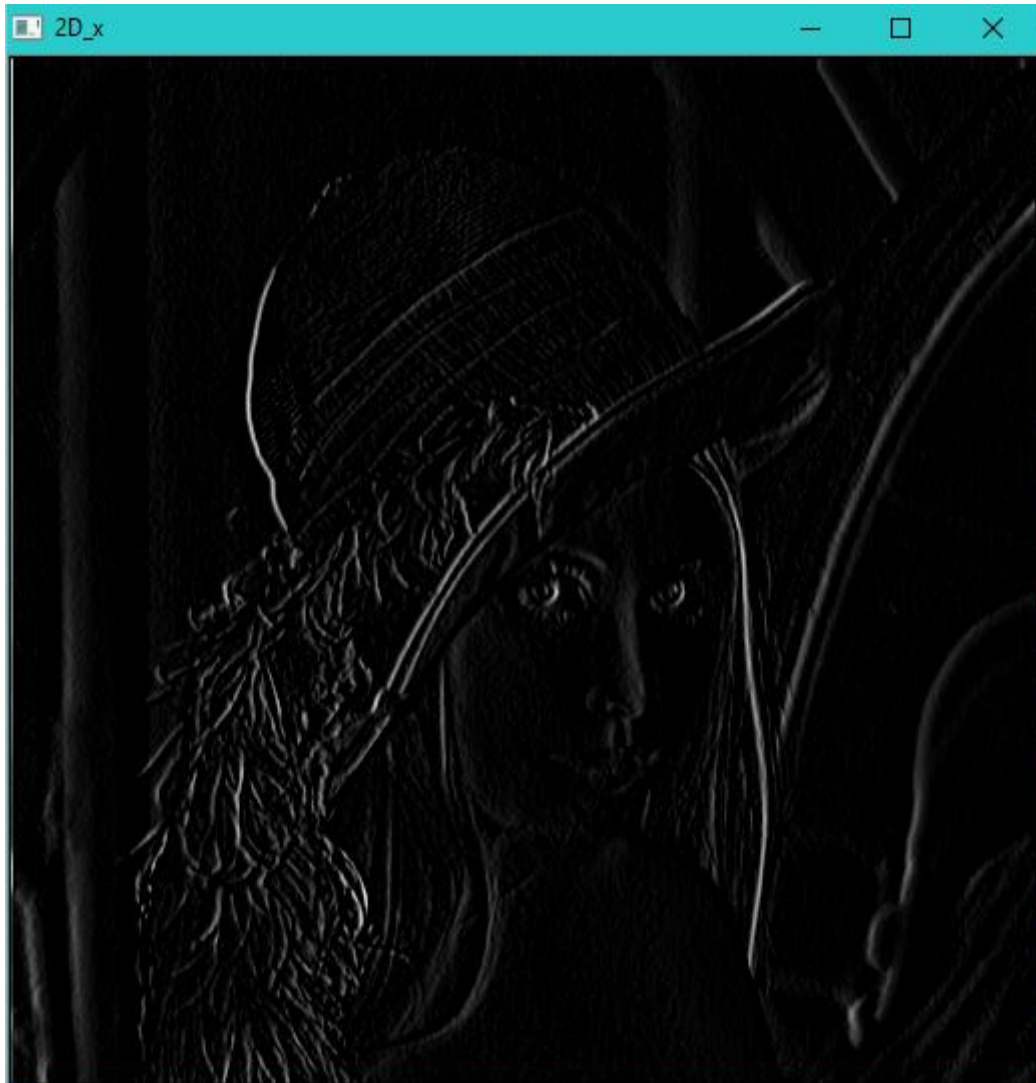


Name: Gaurav Korde

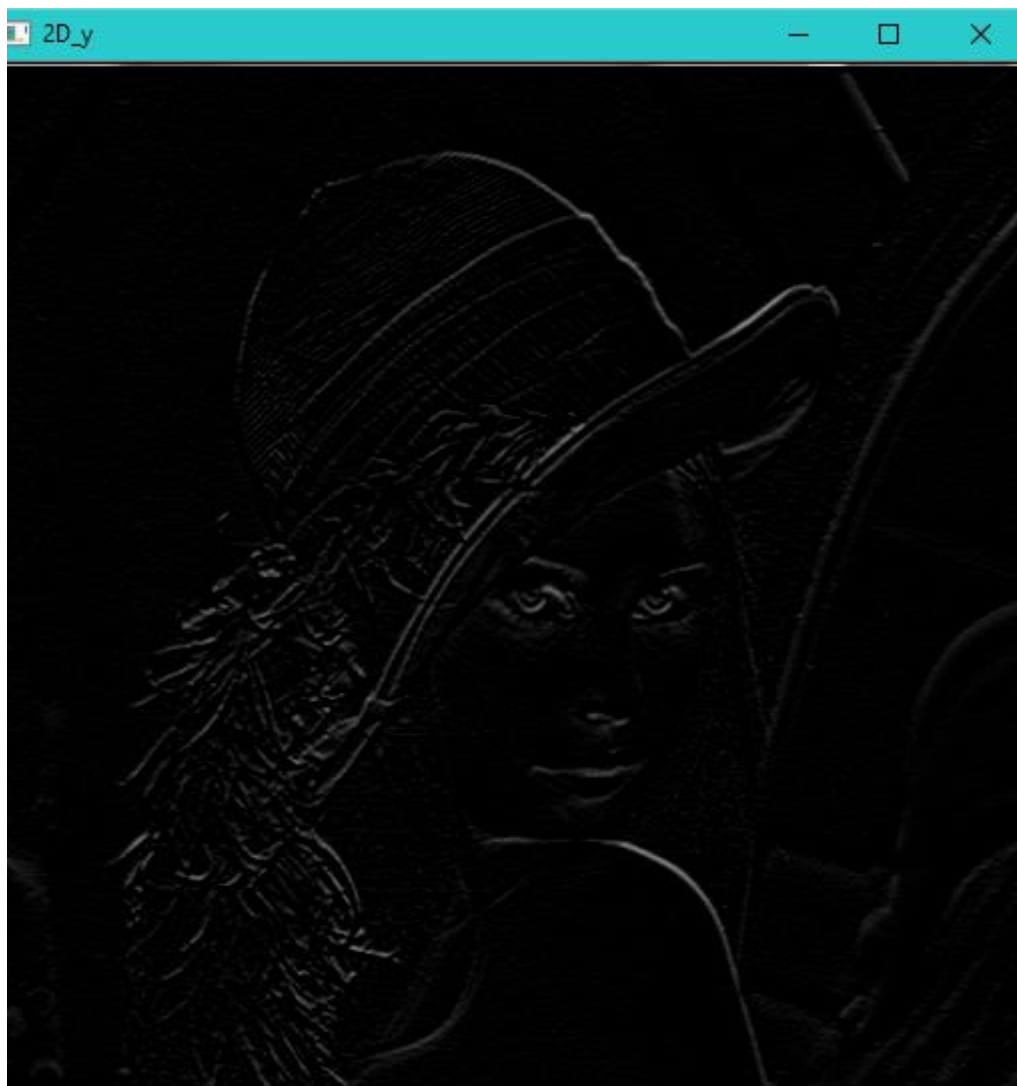
UBIT: 50169195

Problem 1:

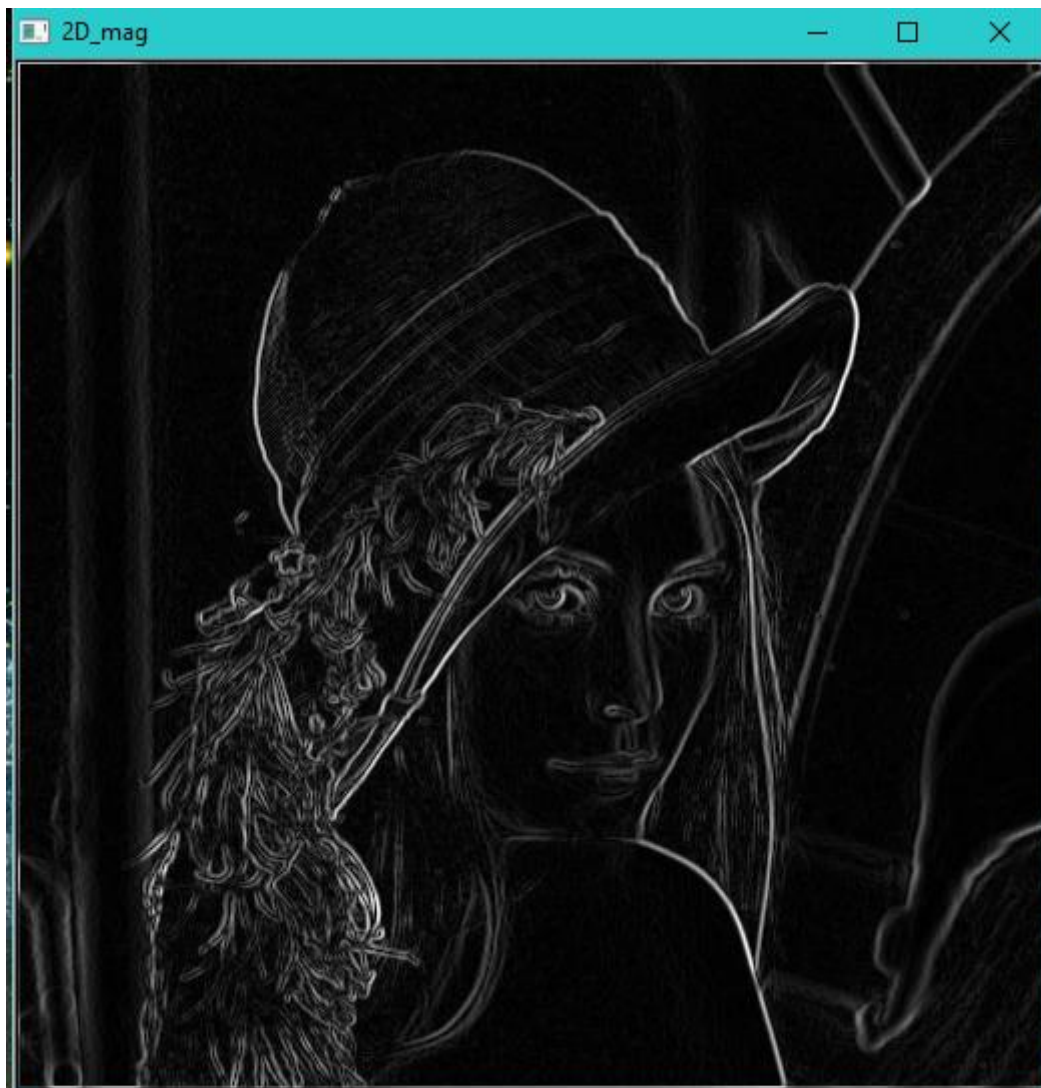
Part A: 2D convolution



2D_x

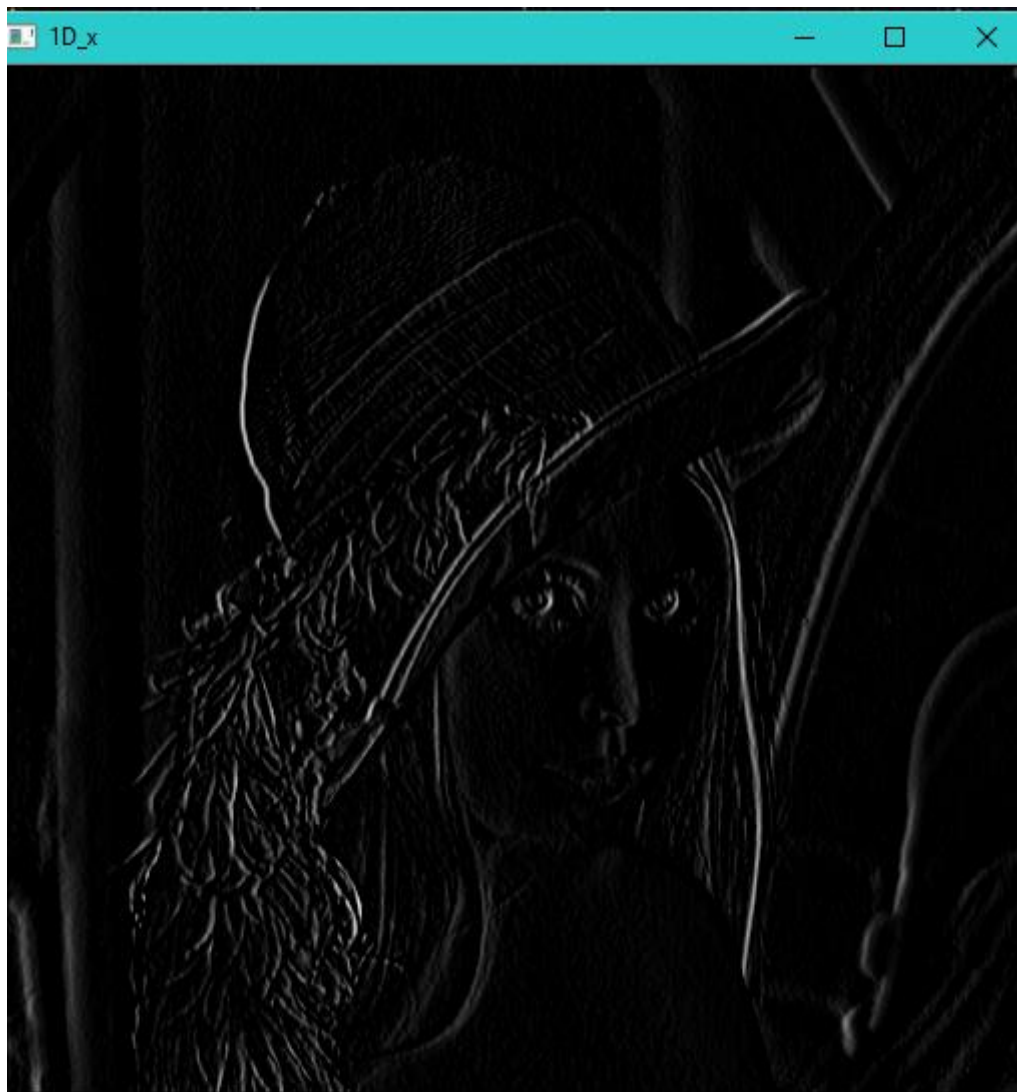


2D_y

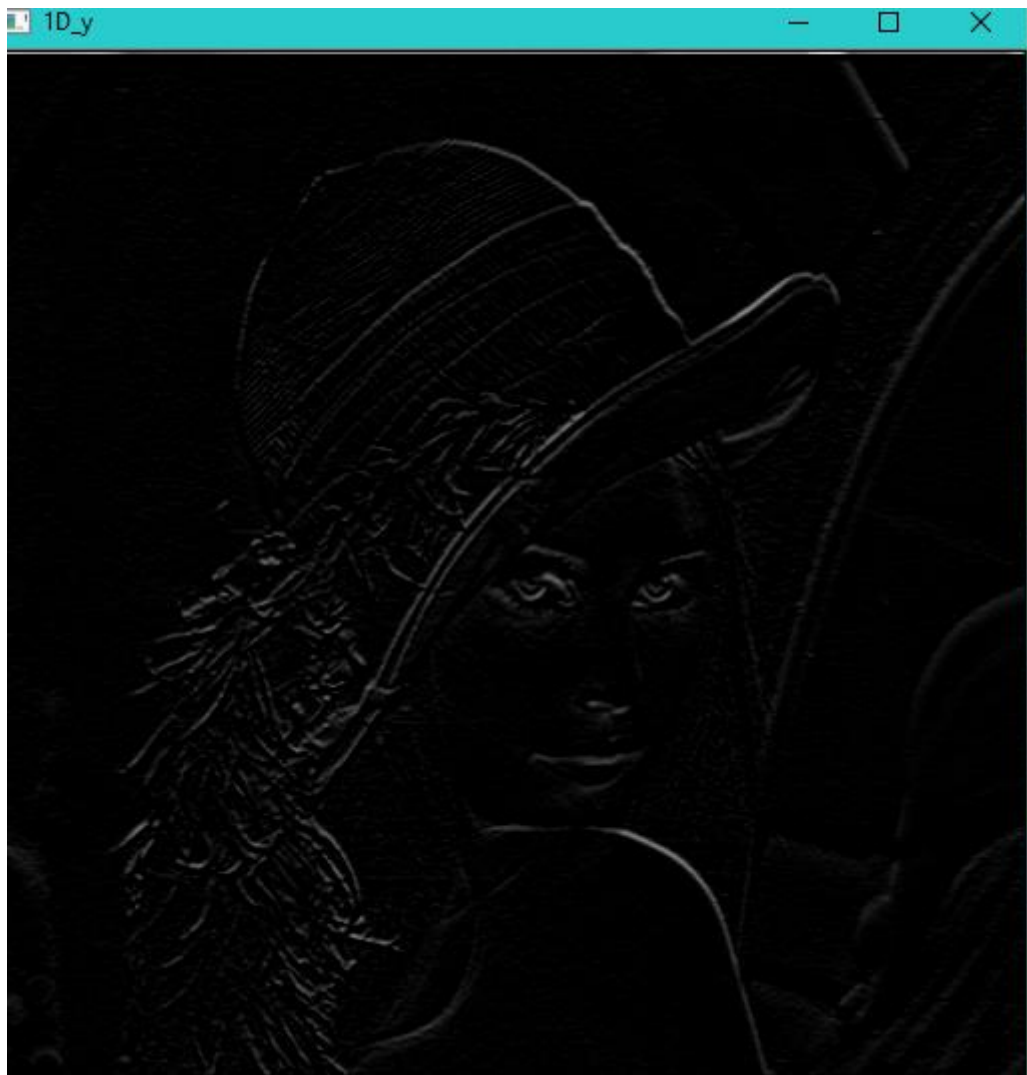


2D_mag

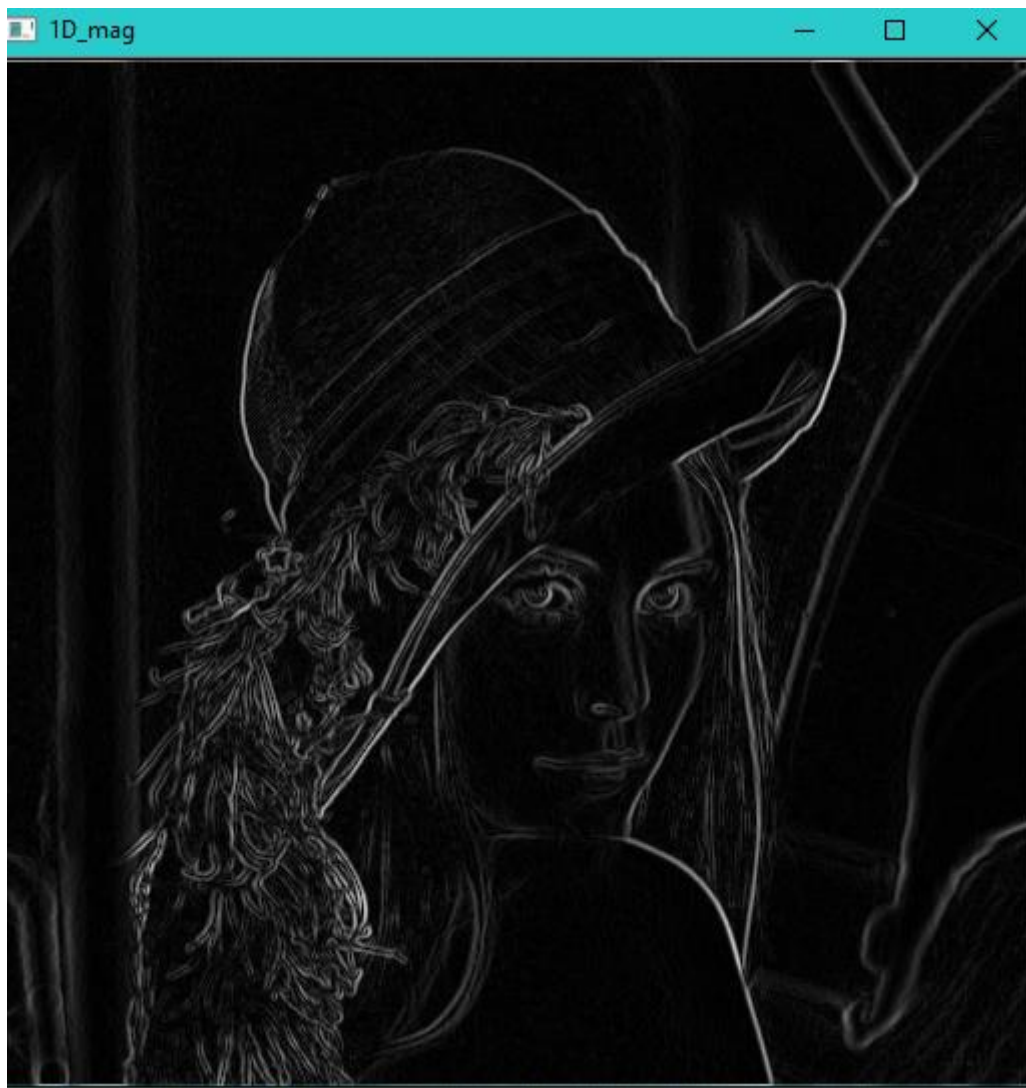
Part B: 1D convolution:



1D_x

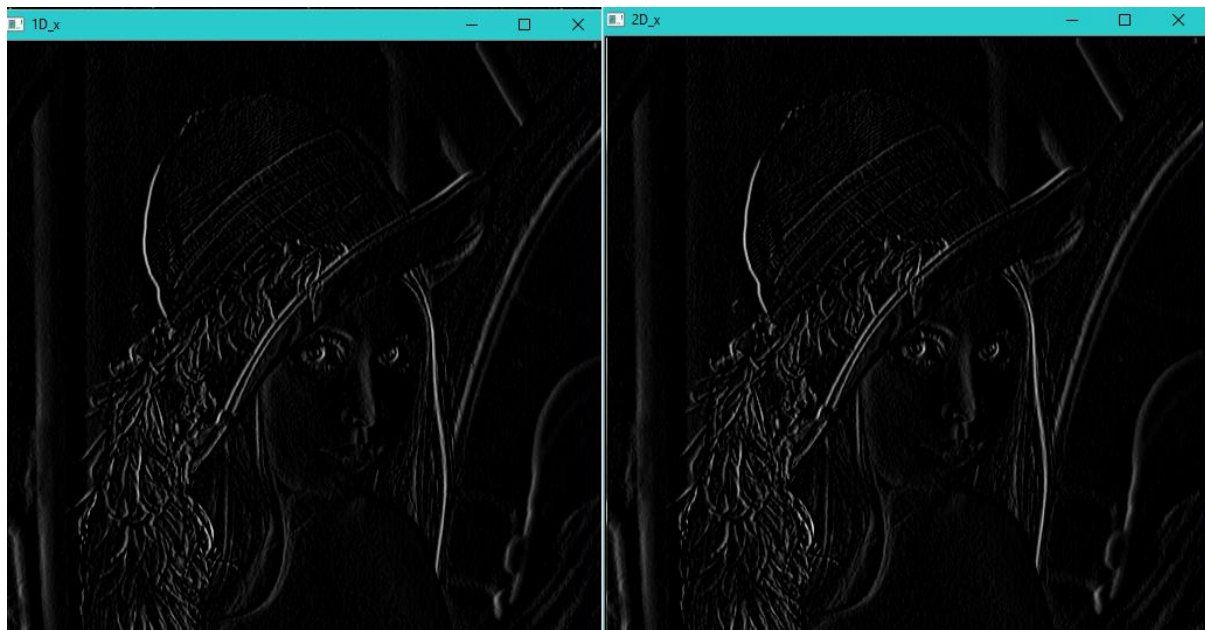


1D_y

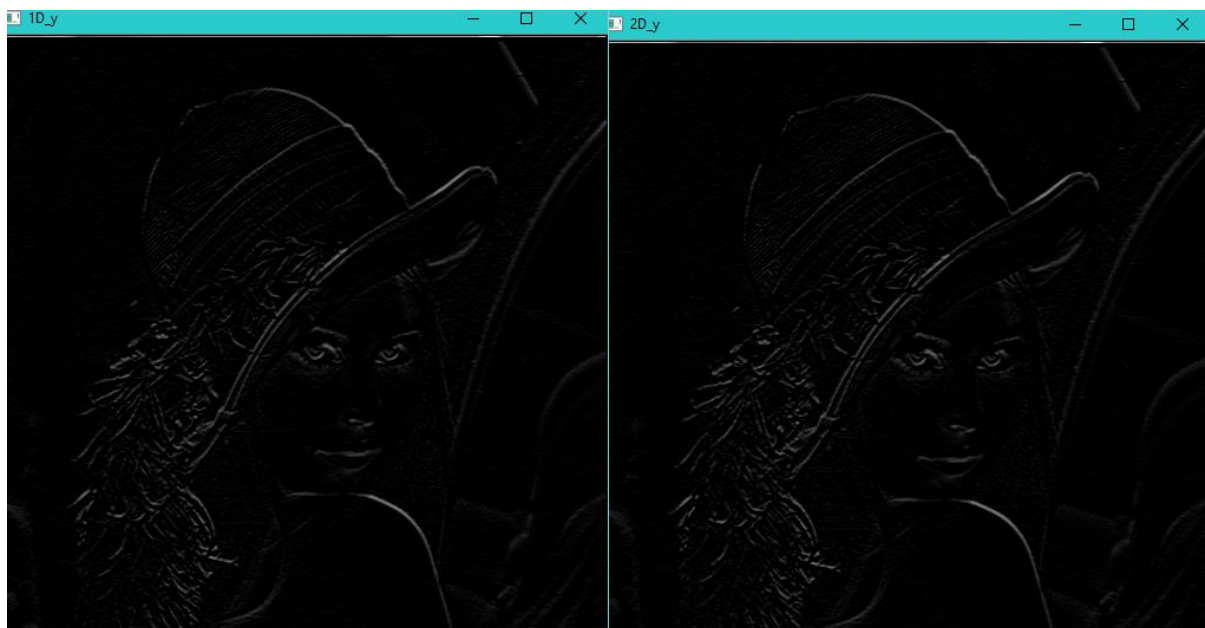


1D_mag

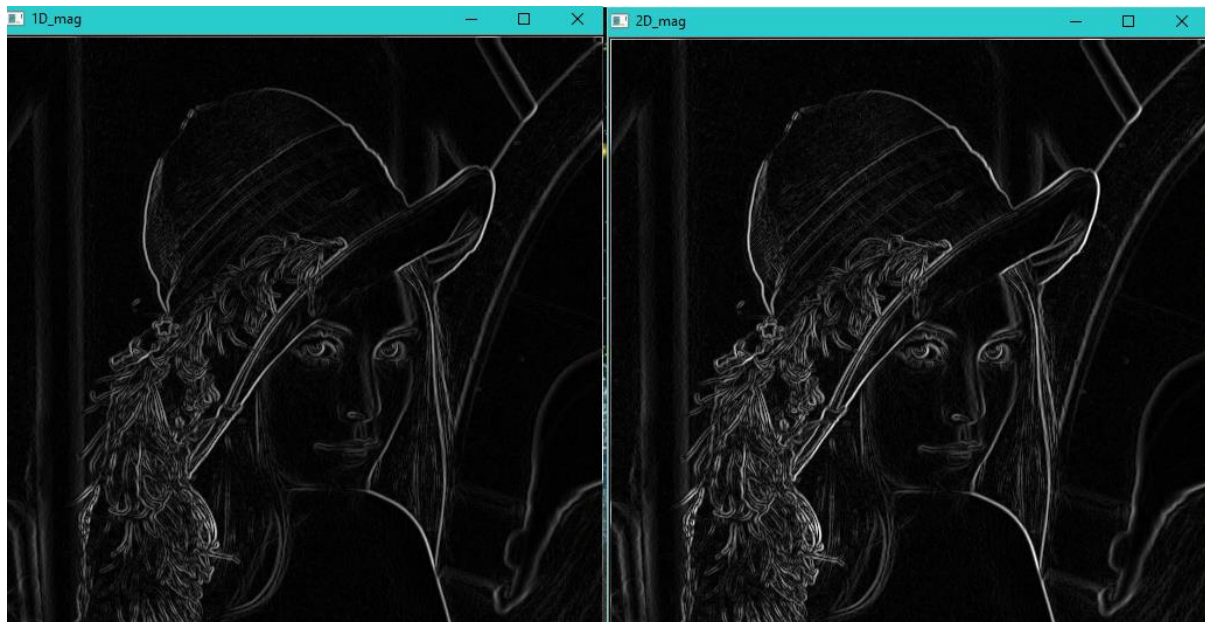
Comparison:



1D_x and 2D_x



1D_y and 2D_y



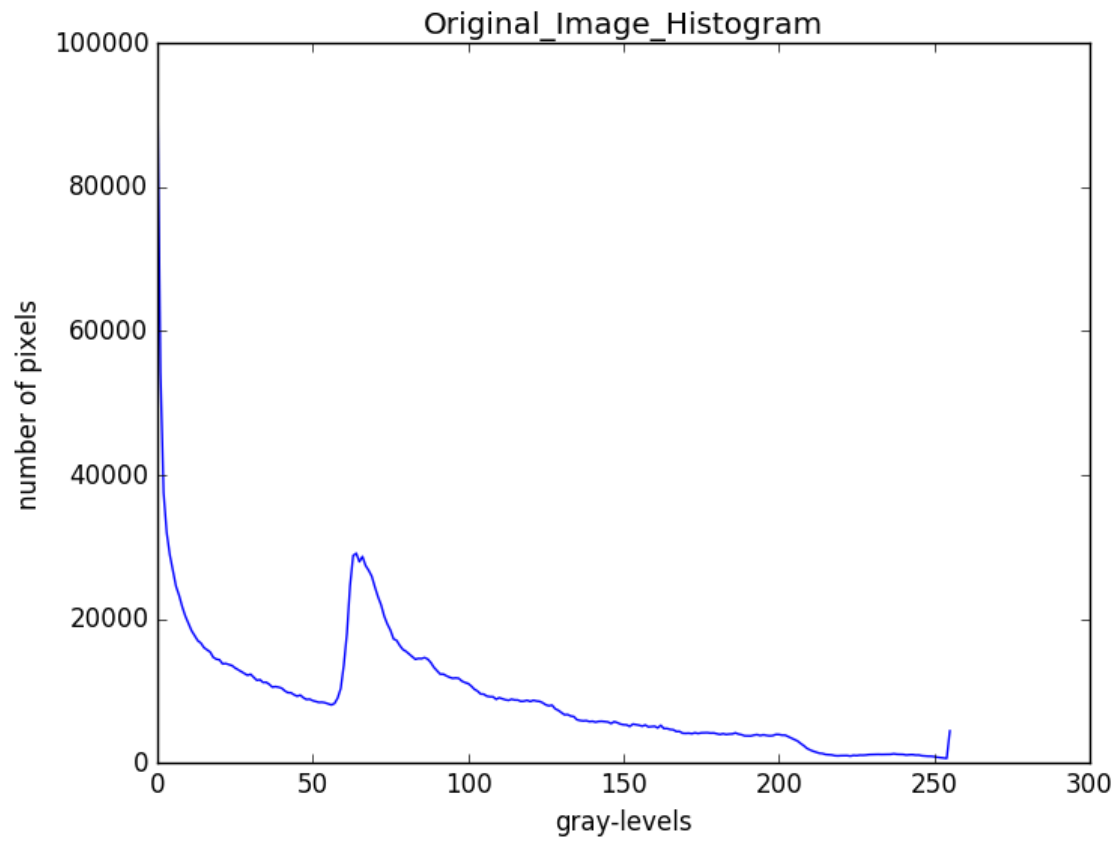
1D_mag and 2D_mag

Part C:

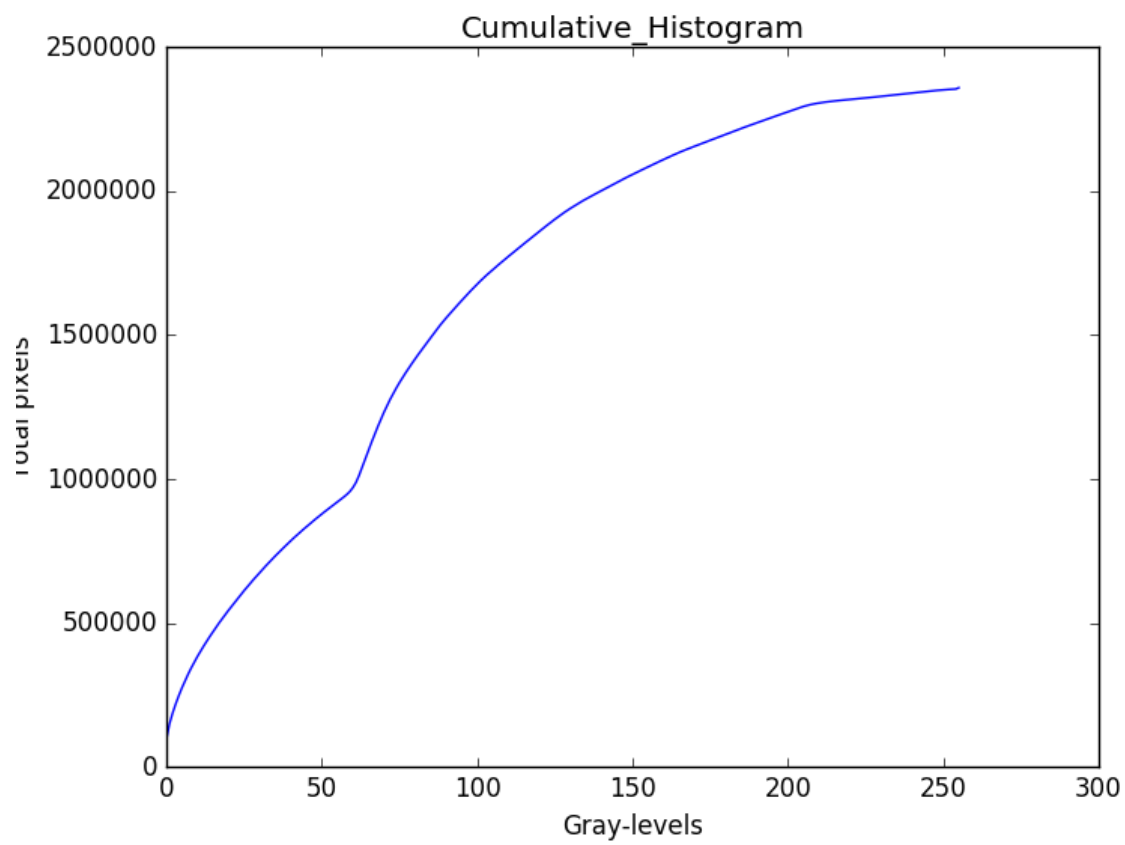
The execution times for both will be n^3 (n cubed) since there are nested for loops used in both functions will traverse the image twice and the np.sum calculation will take another n time to traverse the entire array and add.

Problem 2:

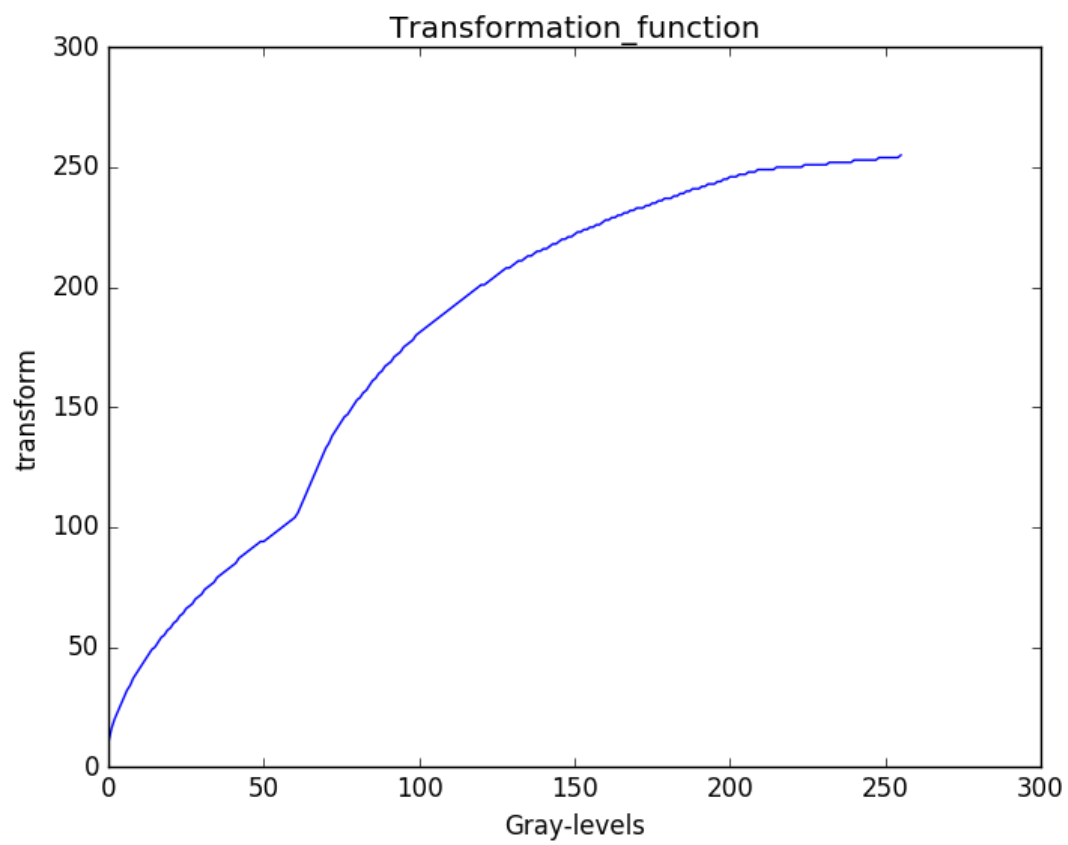
Original Histogram Image:



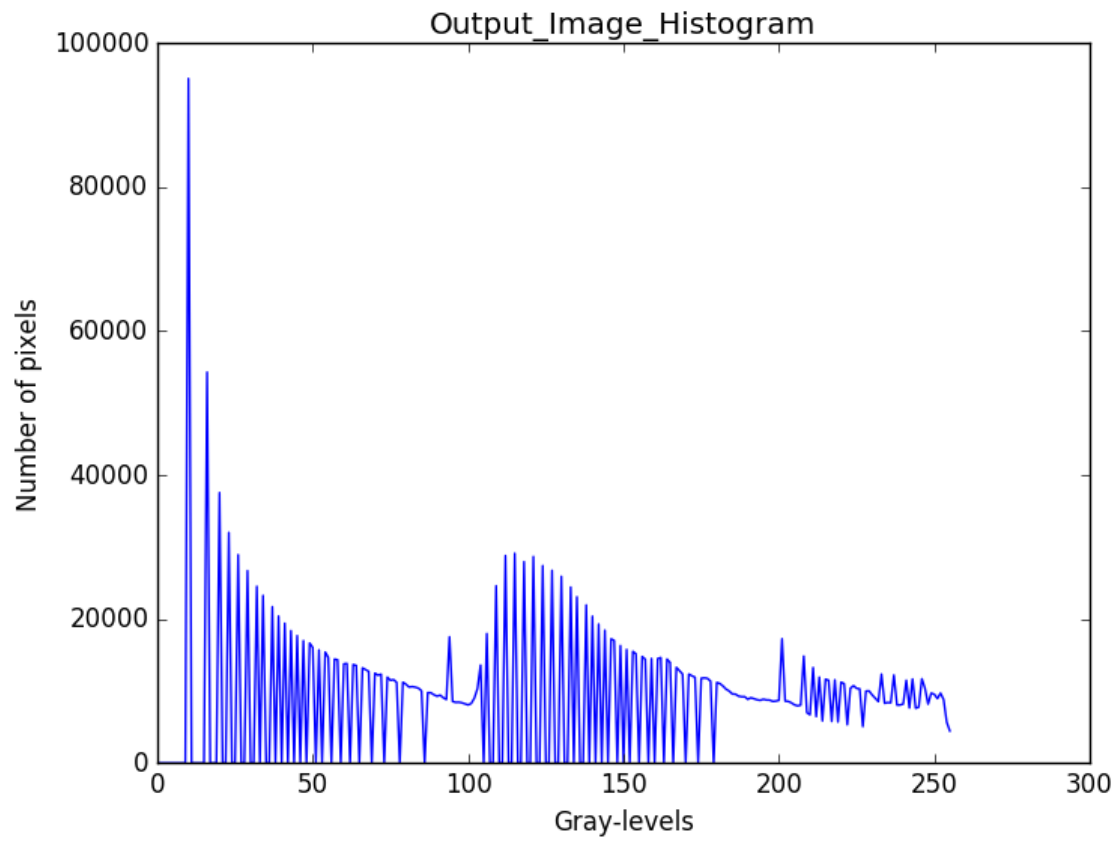
Cumulative Histogram:



Transformation Function:



Output Histogram:



Original and Enhanced image compared:

