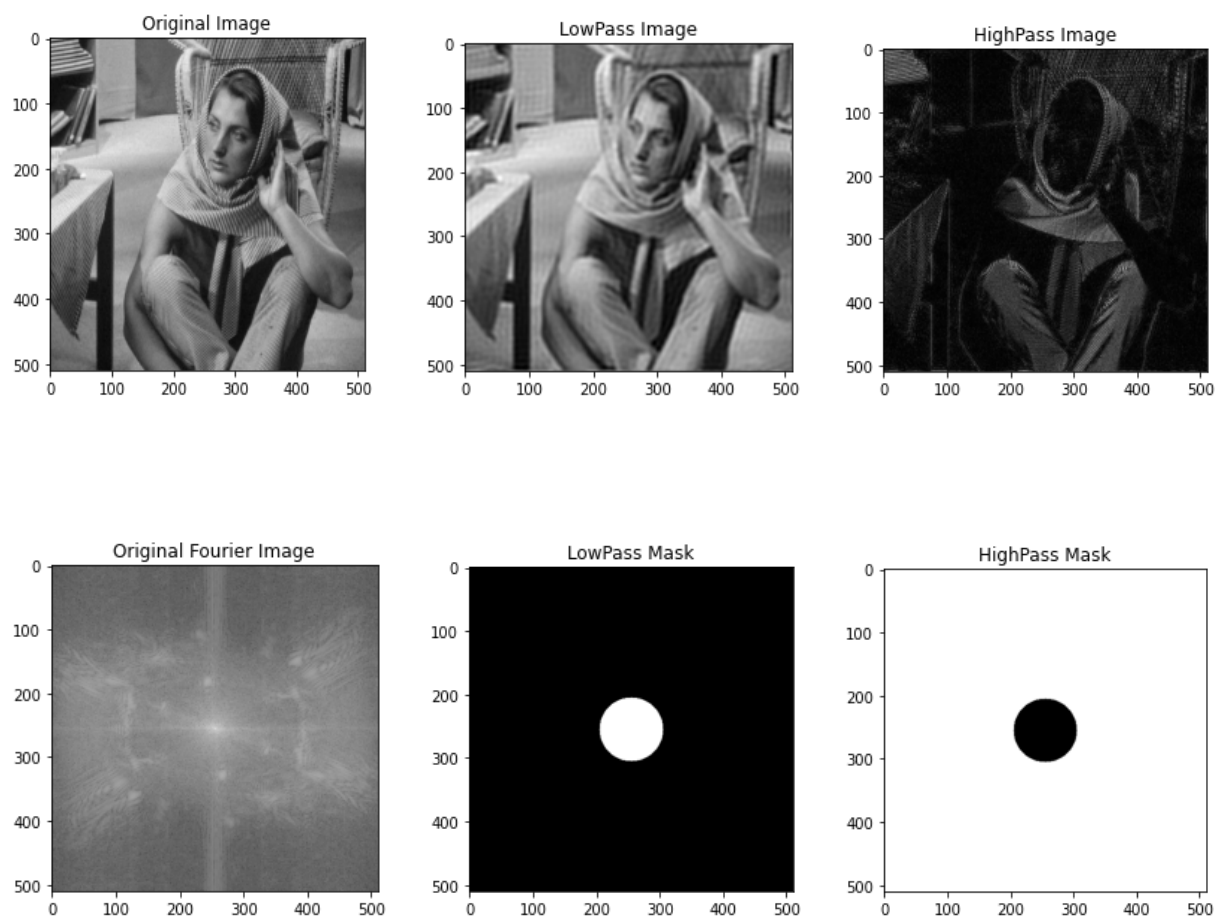
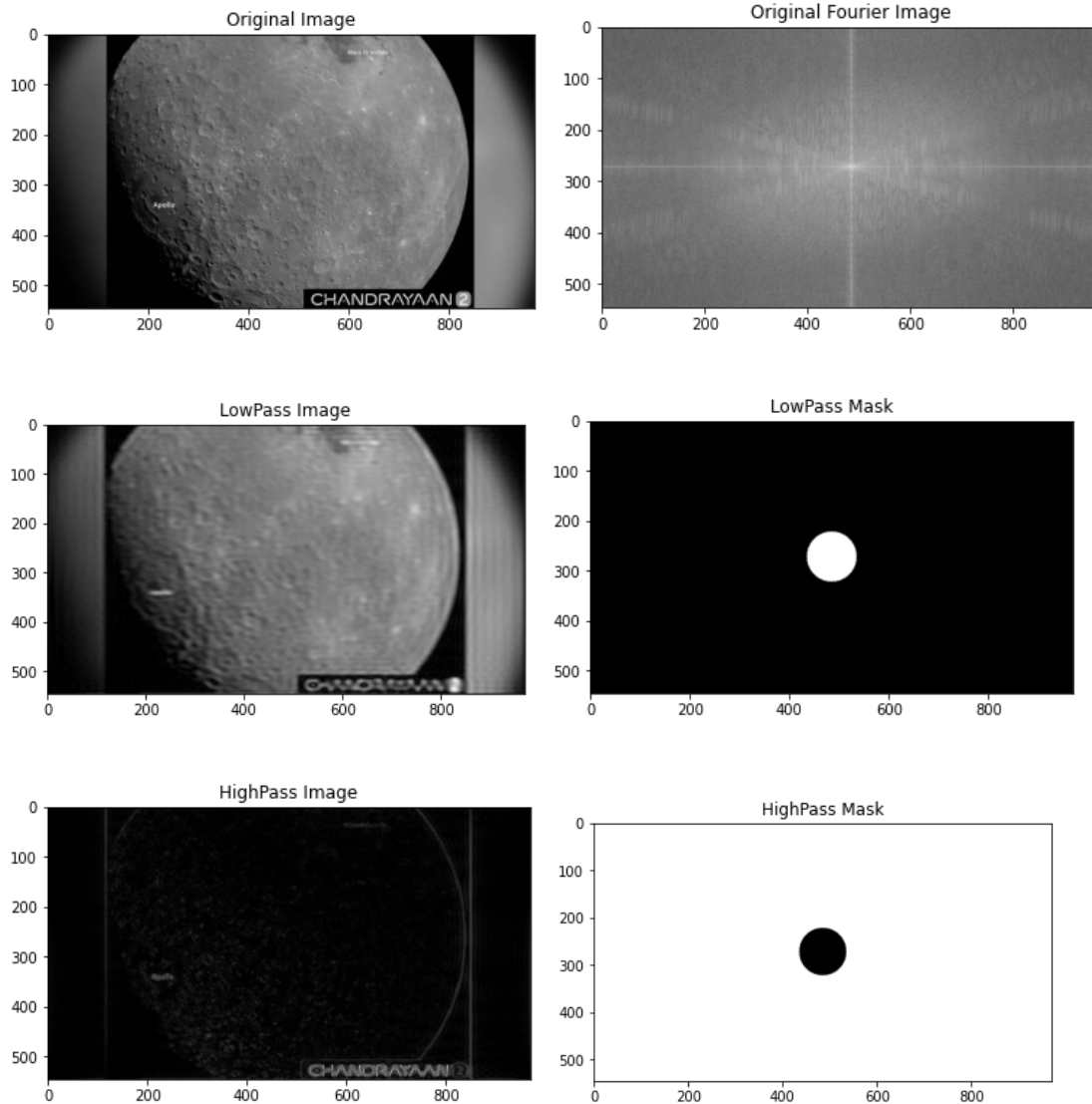


Question1:

Results for Barabara Image



Results for Moon Image



Steps:

1. Converting original image/given image to frequency domain.
2. Shifting frequency values in such a way that center region contains the low frequency information and high frequency information is away from the center.
3. Created masks to obtain low pass and high pass information. Since Low pass information is in the center so gave white pixel to the center of the mask

and rest as black pixels. similarly , reversed this mask concept to obtain high pass information.

4. Multiplied low-pass mask with frequency image (FFT image) to obtain low pass information then did inverse FFT to get low pass filtering results in spatial domain.
5. Multiplied high-pass mask with frequency image (FFT image) to obtain high pass information then did inverse FFT to get high pass filtering results in spatial domain.

Observations from above Results:

We can visualize from above results that there is blurriness/smoothing in the low pass image. Also observed that as the radius of center circle of low pass mask decrease the amount of blurriness increase. Similarly if high pass mask if the black center circle the more sharp edges will be seen/ high pass information will be preserved.

Question2:

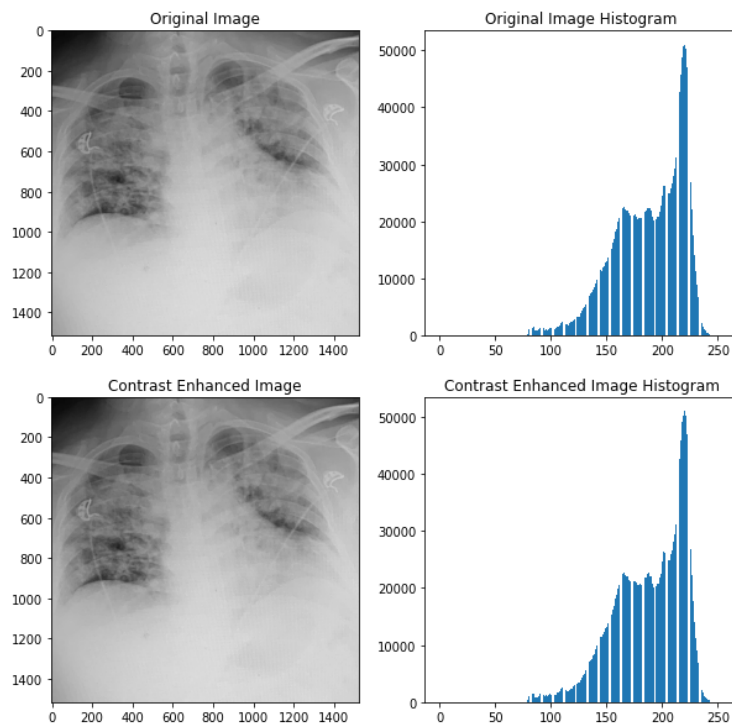


Figure1

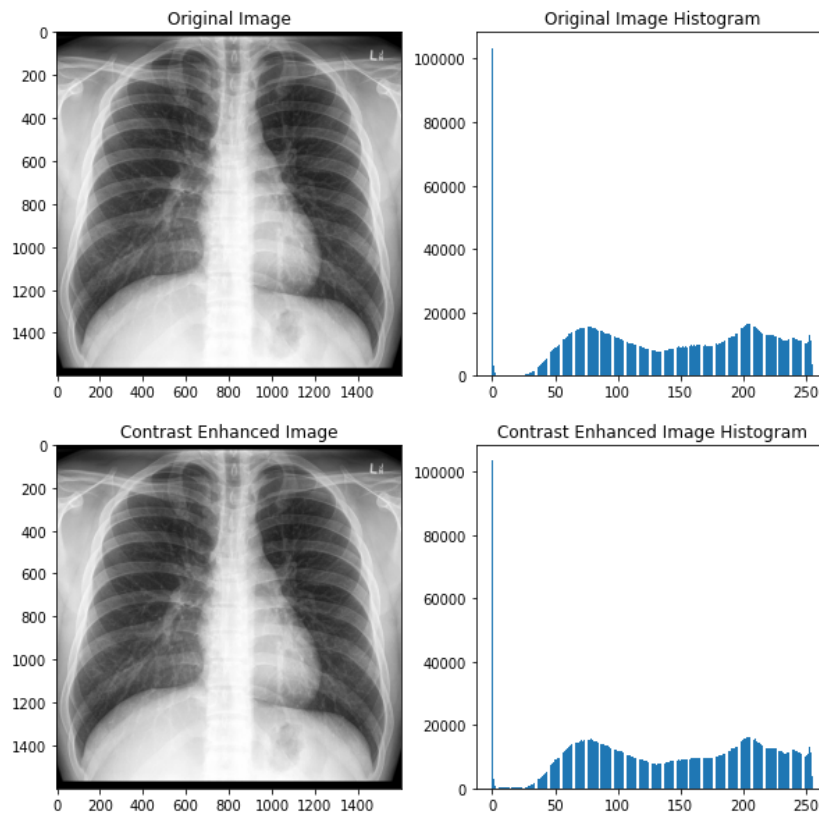


Figure2

Observations from above Results:

We can observe that there is some what of contrast enhancement as we can see this through the histograms generated above. Also we can visuaize that the **“spine”** in Figure2 is more clearly visible as the contrast is enhanced and enhanced **“rib”** region in Figure1.

Question3:

Original Image



Inpainted image using Erosion Dilation Technique



Inpainted image using Median Blur filter Technique

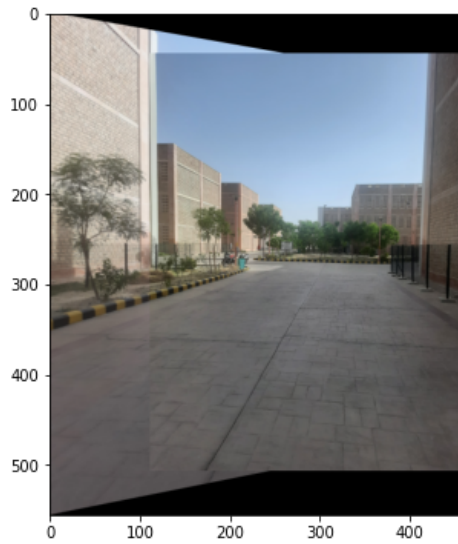


Observations:

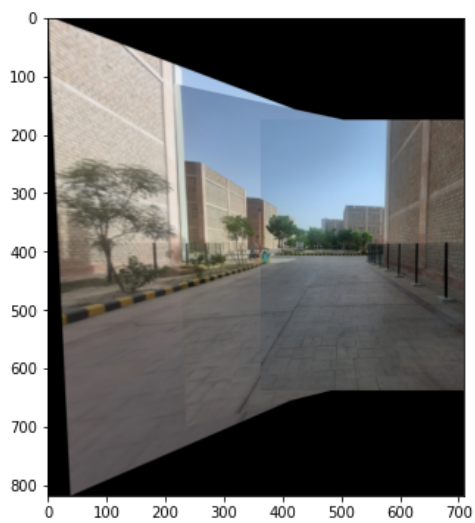
The results of dilation-erosion inpainting are visually better than the results for median-filter inpainting. Because in first scenario, the technique tries to preserve the nearby colors as it can be seen in all the three inpainted regions i.e. carpet, faces and door. However the facial region couldn't be restored due to the fact that there is high frequency information in that region and depending on neighbours is not a good approach.

Question4:

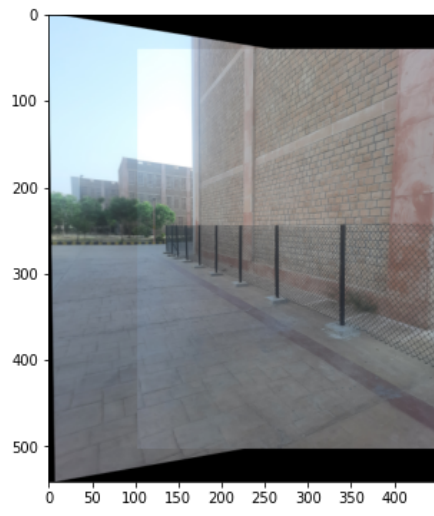
Step1:



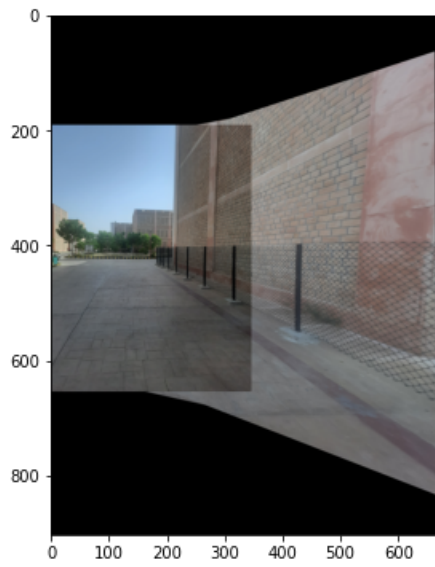
Step2:



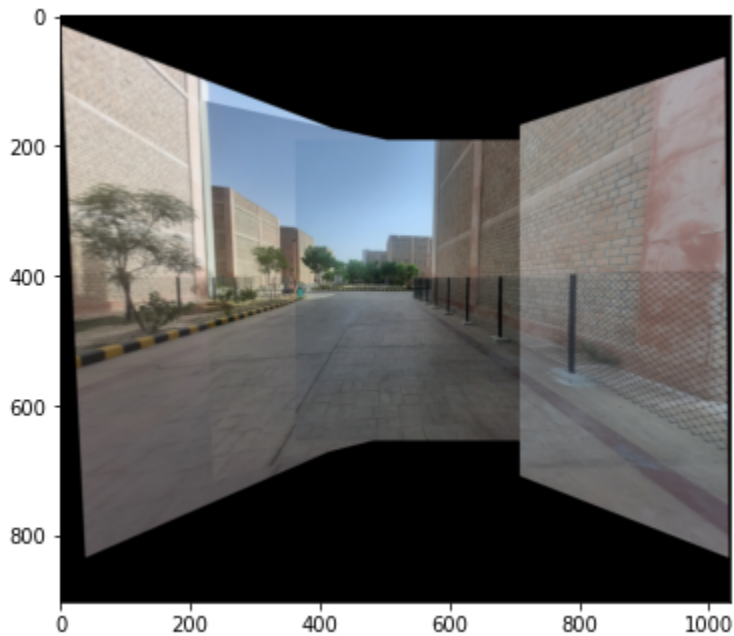
Step3:



Step4:



Step5: Panorama



Observations:

From the resultant panorama image, it can be observed that the image are perfectly aligned with each other. There is no discrepancy even in the minute details like the divider for green lane are in sync. This suggest that the Sift features used to generate feature mapping correctly matched the corresponding feature points.