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| **Part A** | | |
| **Experiment 09:** | | |
| **Aim:**  Implementation of frequency domain filtering technique (High pass filter)   1. Ideal High Pass filter 2. Butterworth High Pass filter 3. Gaussian High Pass filter | | |
| **Prerequisite:**   1. Basic image Processing command 2. MATLAB | | |
| **Objective:**   1. Image Enhancement in frequency domain   **Outcome:**   1. Compute and analyse effects of various image transformation techniques of frequency domain. | | |
| **Theory:**  **Ideal High pass Filter:**  **Butterworth High Pass filter**      **Gaussian High Pass Filter:** | | |
| **Procedure:**  **Ideal High pass filter:**   1. Read grey scale image in one variable 2. Convert data type to double 3. Extract the values of rows & columns of any first image 4. Input the cut-off frequency. 5. Apply the filter on image 6. Display result.   **Butterworth High pass filter:**   1. Read grey scale image in one variable 2. Convert data type to double 3. Extract the values of rows & columns of any first image 4. Input the cut-off frequency. 5. Input the degree of filter. 6. Design Butterworth High Pass filter 7. Apply the filter on image 8. Display result.   **Gaussian High pass filter:**   1. Read grey scale image in one variable 2. Convert data type to double 3. Extract the values of rows & columns of any first image 4. Input the cut-off frequency. 5. Design Gaussian High Pass filter 6. Apply the filter on image 7. Display result. | | |
| **Part B** | | |
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| **Code:**  **IDEAL HIGH PASS FILTER**    **BUTTERWORTH HIGH PASS FILTER**    **GAUSSIAN HIGH PASS FILTER** | | |
| **Input & Output:**  **INPUT:**    **OUTPUTS:** | | |
| **Observations & Learning:** From the above experiment, we observed and learned about various frequency domain image processing techniques, namely: Ideal, Butterworth and Gaussian high pass filter. We implemented the same on an image choice of our own. | | |
| **Conclusion:** Thus, the aim of implementation of frequency domain image filtering processes (High pass filters) is completed. | | |
| **Questions:**   1. **What are the application of frequency domain filtering?**   Frequency Domain Filters are used for smoothing and sharpening of image by removal of high or low frequency components. Sometimes it is possible of removal of very high and very low frequency. Frequency domain filters are different from spatial domain filters as it basically focuses on the frequency of the images. | | |