

IVP LAB ASSIGNMENT V

1. Perform Dilation operation using (3×3) square structuring element on given image [Download](#)

$$A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix} \text{ Use } (1,1) \text{ as centre [assuming 0 based indexing]}$$

2. Perform Erosion operation using disk shaped structuring element 11 pixels in diameter (11×11)
 - Use this image . [Download](#)
 - Example of a (7×7) disk shaped structuring element [View](#)
3. Perform Opening operation using (11×11) disk shaped structuring element on given image [Download](#)
4. Perform Closing operation using (22×22) disk shaped structuring element on given image [Download](#)
5. Perform Boundary Extraction using (3×3) square shaped structuring element on given image [Download](#)

Note : Use appropriate no of filter passes for each question

****You are only allowed to use matplotlib and numpy****