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***INSTITUTE OF INFORMATION TECHNOLOGY***

***JAHANGIRNAGAR UNIVERSITY***

**Number of Assignment :** 01

**Submission Date :** 31/01/2024

**Course Tittle :** Digital Image Processing

**Course Code :** ICT - 4201

**Submitted To Submitted By**

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**Python Code:**

import cv2

import numpy as np

# Load the image as grayscale

img = cv2.imread('black&white.png', cv2.IMREAD\_GRAYSCALE)

# Define the kernels for 3x3, 7x7, and 9x9 filters

kernel\_3x3 = np.ones((3, 3), np.float32) / 9

kernel\_7x7 = np.ones((7, 7), np.float32) / 49

kernel\_9x9 = np.ones((9, 9), np.float32) / 81

# Apply the filters using cv2.filter2D function

img\_3x3 = cv2.filter2D(img, -1, kernel\_3x3)

img\_7x7 = cv2.filter2D(img, -1, kernel\_7x7)

img\_9x9 = cv2.filter2D(img, -1, kernel\_9x9)

# Display the original and filtered images

cv2.imshow('Original', img)

cv2.imshow('3x3 filter', img\_3x3)

cv2.imshow('7x7 filter', img\_7x7)

cv2.imshow('9x9 filter', img\_9x9)

cv2.waitKey(0)

cv2.destroyAllWindows()

**Output:**





