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

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Professor

IIT – JU

Submitted By

Group – 23

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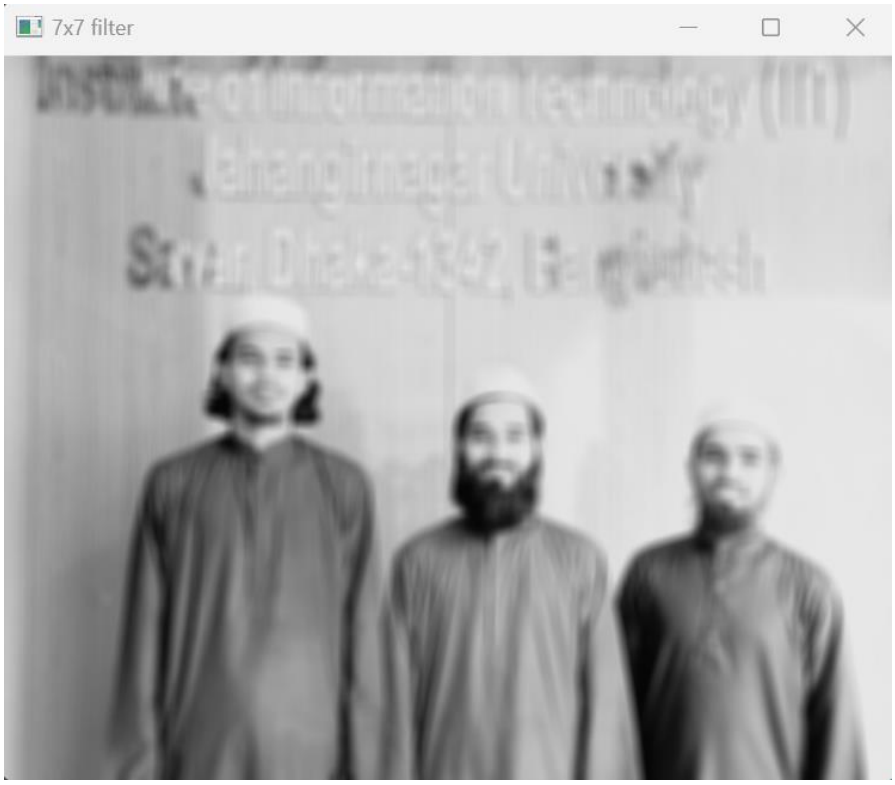
Python Code:

```
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:


Original
Institute of Information Technology (IIT)
Jahangirnagar University
Savar, Dhaka-1342, Bangladesh


3x3 filter
Institute of Information Technology (IIT)
Jahangirnagar University
Savar, Dhaka-1342, Bangladesh


7x7 filter


9x9 filter