

Assignment - 02

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For input image, probabilities of intensities:

$$p(0) = \frac{4}{16}$$

$$p(1) = \frac{4}{16}$$

$$p(2) = \frac{4}{16}$$

$$p(3) = \frac{4}{16}$$

For target image, probabilities of intensity intensities:

$$p(0) = \frac{7}{16}$$

$$p(1) = \frac{3}{16}$$

$$p(2) = \frac{2}{16}$$

$$p(3) = \frac{4}{16}$$

getting $F(x)$ and $G(s)$

x	$F(x)$	s	$G(s)$
0	$1/4$	0	$7/16$
1	$2/4$	1	$10/16$
2	$3/4$	2	$12/16$
3	1	3	1

$\frac{1}{4}$ is the most similar to $\frac{7}{16}$

$\frac{2}{4}$ is the most similar to $\frac{10}{16}$

$\frac{3}{4}$ is the most similar to $\frac{12}{16}$

1 is the most similar to 1

28 Sunday

so the mapping is as follows -

x	s
0	0
1	0
2	2
3	3

MARCH

03

Wednesday

Ans

9 Answer - 2 :)

10 Image -

11
$$\begin{bmatrix} -1 & 2 & -1 \\ 3 & 0 & 1 \\ -2 & 1 & 2 \end{bmatrix}$$

12

Filter

$$\begin{bmatrix} -1 \\ 0 \\ 1 \end{bmatrix}$$

1 turning filter by 180°

2
$$\begin{bmatrix} 1 \\ 0 \\ -1 \end{bmatrix}$$

3

Padded Matrix will be -

4

5

6 for first iteration

7
$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ -1 & 2 & -1 \\ 3 & 0 & 1 \\ -2 & 1 & 2 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \end{matrix}$$

or

the elements in the output matrix will be -

$$a_{11} = 1(0) + 0(0) + (-1)(-1) = 1$$

$$a_{12} = 1(0) + 0(0) + -1(-2) = -2$$

$$a_{13} = 1(0) + 0(0) + (-1)(-1) = 1$$

$$\begin{bmatrix} 1 & -2 & 1 \\ -3 & 0 & -1 \\ 1 & 1 & -3 \\ 3 & 0 & 1 \\ -2 & 1 & 2 \end{bmatrix}$$