

2018ICSE0621

Part-C.

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## 2] Geometric Properties:-

### ① Connectivity:-

- A pixel  $P_0$  at  $(i_0, j_0)$  is connected to another  $P_n$  at  $(i_n, j_n)$
- If and only if there exists a path  $P_0$  to  $P_n$   $(i_0, j_0) \dots (i_n, j_n)$ ,  $(i_k, j_k)$  is a neighbouring pixel at  $(i_{k+1}, j_{k+1})$ .

### ② Projection:

- The projection of a binary image provides information.
- It is computed around horizontal, vertical and diagonal lines.

### ③ Area:

- The area of a binary object is given by

$$A = \sum_i \sum_j O[i, j]$$

where  $O[i, j]$  represents pixels & area is computed by total no. of pixels in the object.

### ④ Perimeter:

- To compute perimeter we identify the boundary object pixels covering the area.
- Perimeter is defined as the sum of these boundary object pixels.



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→. Process of conversion of Gray level image to Binary is called thresholding.

• Obtained from gray level image  $g(x, y)$  by thresholding.

• Characteristic function:-

$$b(x, y) = \begin{cases} 1 & \text{if } g(x, y) > T \\ 0 & \text{if } g(x, y) \leq T \end{cases}$$