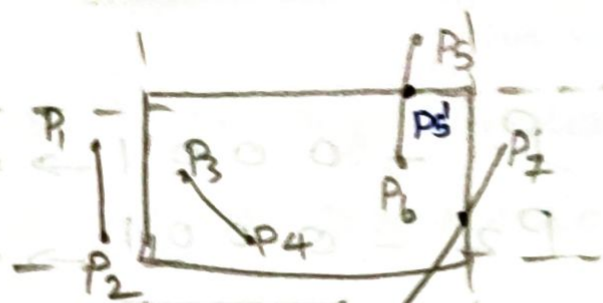


Line Clipping:



Cohen-Sutherland

Line Clipping Algorithm.

$P_1 P_2 \rightarrow$ Reject

$P_3 P_4 \rightarrow$ Accept

$P_5 P_6 \rightarrow$ clipping is Required.

$P_7 P_8 \rightarrow$ Clipping is Required.

Line clipping algm;

- Cohen-Sutherland Algern.

- It is run based on Region code.

- Region code is 4 bit code.

- Identify the neighbour.

- ABRL - To fill the bits.

Above ↓ Below ↓

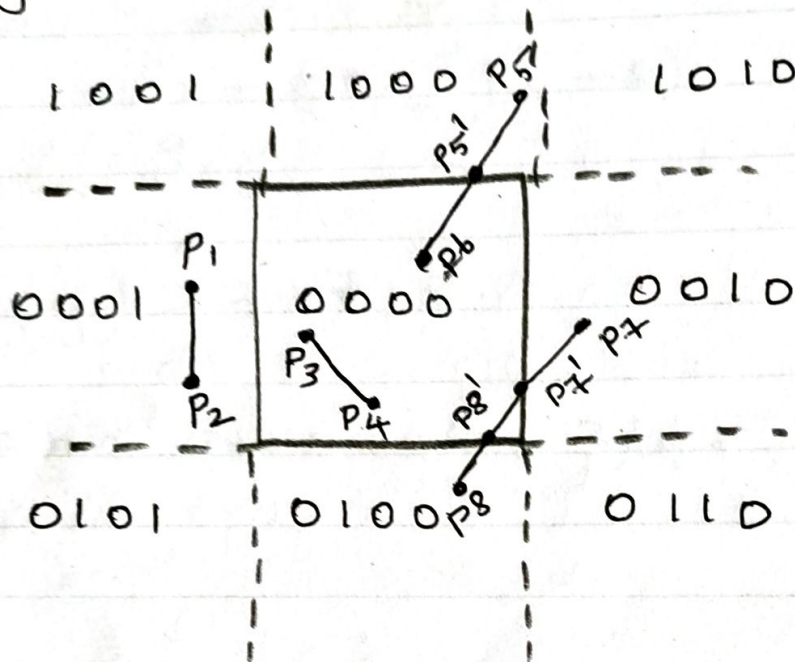
1001	1000	1010
0001	0000	0010
0101	0100	0110

* Identify the Region code.

Example :

✓ Cohen-Sutherland Line Clipping

Algorithm :



1. P1 & P2 :

P1 → 0001 Non Zero

P2 → 0001 non zero

AND 0001 Non Zero.

Reject.

if we get non zero, the Line is completely outside the window.

2. P₃ & P₄:

P₃ → 0 0 0 0 (Zero)

P₄ → 0 0 0 0 (Zero)

AND → 0 0 0 0 (Zero).

if both points are zero the points lies inside the window.

* No clipping is required.

* Accept.

3. P₅ & P₆:

P₅ → 1 0 0 0 Non Zero

P₆ → 0 0 0 0 Zero.

AND 0 0 0 0 Zero.

* Some portion of the points ~~window~~ lies inside the window and some portion of the points lies outside the window.

* Clipping is Required.

* Partial.

* Need to find intersection point.

P_5' & P_6

$$P_5' = 0000 \text{ Zero}$$

$$P_6 = \underline{0000} \text{ Zero}$$

$$\text{AND } 0000 \text{ Zero}$$

P_5' & P_6 Line lies inside the window.

$P_5 \in P_5'$ is clipped.

P_7 & P_8 :

$$P_8 - 0100 \text{ Non Zero}$$

$$P_7 - \underline{0010} \text{ Non Zero.}$$

$$\text{AND } 0000 \text{ Zero.}$$

Some portion inside the window and outside the window.

Find the Intersection point.

P_7' and P_7 .

$$\begin{array}{r}
 \cancel{P_7} \quad P_7' \quad - \quad 0 \quad 0 \quad 0 \quad 0 \\
 P_7 \quad - \quad 0 \quad 0 \quad 1 \quad 0 \\
 \hline
 \text{And} \quad - \quad 0 \quad 0 \quad 0 \quad 0
 \end{array}$$

P_8 & P_8'

$$\begin{array}{r}
 0 \quad 1 \quad 0 \quad 0 \\
 0 \quad 0 \quad 0 \quad 0 \\
 \hline
 0 \quad 0 \quad 0 \quad 0
 \end{array}$$

$$\begin{array}{r}
 P_8' \quad - \quad 0 \quad 0 \quad 0 \quad 0 \\
 P_7' \quad - \quad 0 \quad 0 \quad 0 \quad 0 \\
 \hline
 0 \quad 0 \quad 0 \quad 0
 \end{array}$$

Clipped $P_8' \& P_7'$

$P_3 \& P_4, \quad P_5' \& P_6, \quad P_8', \quad P_7'$