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1. Diketahui titik awal P (1,1) dan titik akhir di Q (10,10), dengan area *clipping* xmin = 1, ymin=1, xmax= 7 dan ymax=7. Selesaikan masalah ini dengan *clipping Cohen-Sutherland*.
2. Berdasarkan soal no 1 lakukan *clipping* menggunakan algoritma Liang-Barsky dimana xl=1, xr= 7, yb = 1 dan yt = 7.

### JAWAB

1. Titik P (1,1)

L : 0 ,  $X = X_{min}$  atau  $1 = 1$

R : 0,  $X < X_{max}$  atau  $1 < 7$

B : 0,  $Y = Y_{min}$  atau  $1 = 1$

T : 0,  $Y < Y_{max}$  atau  $1 < 7$

❖ P = 0000

Titik Q (10,10)

L : 0 ,  $X > X_{min}$  atau  $10 > 1$

R : 1,  $X > X_{max}$  atau  $10 > 7$

B : 0,  $Y > Y_{min}$  atau  $10 > 1$

T : 1,  $Y > Y_{max}$  atau  $10 > 7$

❖ Q = 0101

P karena 0000 tidak perlu dipotong, Q karena belum 0000 maka perlu dipotong.

LRBT Q = 0101  $\rightarrow$  R = 1, T = 1.

- R=1 maka mencari yP2  
 $yP2 = y1 + M * (X_{max} - X1)$   
 $= 1 + 1 (7-1)$   
 $= 1 + 6$   
 $= 7$

Titik potong = (1,7)

- T=1 maka mencari xP2  
 $xP2 = X1 + \frac{Y_{max}-Y1}{M}$   
 $= 1 + \frac{7-1}{1}$   
 $= 7$

Titik potong = (7,1)

$$\begin{aligned} 2. \quad D_x &= X_2 - X_1 \\ &= 10 - 1 = 9 \end{aligned}$$

$$\begin{aligned} D_y &= Y_2 - Y_1 \\ &= 10 - 1 = 9 \end{aligned}$$

$$\begin{aligned} P_1 &= -dx \\ &= -9 \end{aligned} \quad , q_1 = X_1 - X_L = 1 - 1 = 0$$

$$\rightarrow q_1/P_1 = 0$$

$$\begin{aligned} P_2 &= dx \\ &= 9 \end{aligned} \quad , q_2 = X_R - X_1 = 7 - 1 = 6$$

$$\rightarrow q_2/P_2 = 2/3$$

$$\begin{aligned} P_3 &= -dy \\ &= -9 \end{aligned} \quad , q_3 = Y_1 - Y_B = 1 - 1 = 0$$

$$\rightarrow q_3/P_3 = 0$$

$$\begin{aligned} P_4 &= dy \\ &= 9 \end{aligned} \quad , q_4 = Y_t - Y_1 = 7 - 1 = 6$$

$$\rightarrow q_4/P_4 = 2/3$$

$$(P_i < 0) \quad T_1 = \text{“Max”} = 0$$

$$(P_i > 0) \quad T_2 = \text{“Min”} = 2/3$$

$$T_1 < T_2$$

$$T_1 = 0$$

$$\begin{aligned} X_1' &= X_1 + dx * t_1 \\ &= 1 + 9 * 0 \\ &= 1 \end{aligned}$$

$$\begin{aligned} Y_1' &= Y_1 + dy * t_1 \\ &= 1 + 9 * 0 \\ &= 1 \end{aligned}$$

$$(X_1', Y_1') = (1, 1)$$

$$T_2 = 2/3$$

$$\begin{aligned} X_2' &= X_1 + dx * t_2 \\ &= 1 + 9 * 2/3 \\ &= 7 \end{aligned}$$

$$\begin{aligned} Y_2' &= Y_1 + dy * t_2 \\ &= 1 + 9 * 2/3 \\ &= 7 \end{aligned}$$

$$(X_2', Y_2') = (7, 7)$$