

**Department of Computer Science & Engineering(CSE)**

**Lab -09**

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Course Code : CSE-4742

Course Title : Computer Graphics Lab

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1.- Cohen-Sutherland algorithm for line clipping.

Code:

#include <bits/stdc++.h>

#include <conio.h>

#include <graphics.h>

using namespace std;

int xmin, ymin, xmax, ymax;

int Visible\_or\_not(int x, int y)

{

int code = 0;

if (x < xmin) code |= 1;

else if (x > xmax) code |= 2;

if (y < ymin) code |= 4;

else if (y > ymax) code |= 8;

return code;

}

int main()

{

int gd = DETECT, gm;

initgraph(&gd, &gm, "");

xmin = 100;

ymin = 100;

xmax = 300;

ymax = 300;

rectangle(xmin, ymin, xmax, ymax);

int x0 = 20;

int y0 = 200;

int x1 = 400;

int y1 = 200;

line(x0, y0, x1, y1);

delay(1000);

int p1 = Visible\_or\_not(x0, y0);

int p2 = Visible\_or\_not(x1, y1);

if(p1!=0)

{

int codeOut=p1;

int x, y;

if (codeOut & 8){

x = x0 + (x1 - x0) \* (ymax - y0) / (y1 - y0);

y = ymax;

}

else if (codeOut & 4){

x = x0 + (x1 - x0) \* (ymin - y0) / (y1 - y0);

y = ymin;

}

else if (codeOut & 2) {

y = y0 + (y1 - y0) \* (xmax - x0) / (x1 - x0);

x = xmax;

}

else{

y = y0 + (y1 - y0) \* (xmin - x0) / (x1 - x0);

x = xmin;

}

setcolor(BLACK);

line(x0, y0, x, y);

putpixel(x,y,WHITE);

}

delay(1000);

if(p2!=0)

{

int codeOut=p2,x,y;

if (codeOut & 8)

{

x = x0 + (x1 - x0) \* (ymax - y0) / (y1 - y0);

y = ymax;

}

else if (codeOut &4 )

{

x = x0 + (x1 - x0) \* (ymin - y0) / (y1 - y0);

y = ymin;

}

else if (codeOut & 2)

{

y = y0 + (y1 - y0) \* (xmax - x0) / (x1 - x0);

x = xmax;

}

else

{

y = y0 + (y1 - y0) \* (xmin - x0) / (x1 - x0);

x = xmin; }

setcolor(BLACK);

line(x1, y1, x, y);

putpixel(x,y,WHITE);

}

getch();

closegraph();

return 0;

}



