#include<GL/freeglut.h>

#include<GL/gl.h>

//#include<math.h>

#include<iostream>

int ymax=300;

int ymin=100;

int xmax=500;

int xmin=100;

int x1=90, y1=150, x2=300, y2=350 ;

//tbrl

const int RIGHT=2;

const int LEFT=1;

const int TOP=8;

const int BOTTOM=4;

int calculatecode(int x, int y)

{

int code=0;

if(x<xmin)

{

code|=LEFT;

}

else if(x>xmax)

{

code|=RIGHT;

}

if(y<ymin)

{

code|=BOTTOM;

}

else if(y>ymax)

{

code|=TOP;

}

return code;

}

void before()

{

glColor3f(0,0,0);

glBegin(GL\_LINES);

glVertex2i(x1,y1);

glVertex2i(x2,y2);

glEnd();

glFlush();

}

void afterclipping()

{

bool accept = false, done = false;

int code1 = calculatecode(x1, y1);

int code2 = calculatecode(x2, y2);

float m = (x2 != x1) ? (y2 - y1) / (float)(x2 - x1) : 6000;

do {

std::cout << code1 << ", " << code2 << std::endl;

if ((code1 | code2) == 0) {

std::cout << "changed1" << std::endl;

accept = true;

done = true;

} else if ((code1 & code2) != 0) {

std::cout << "changed2" << std::endl;

done = true;

} else {

std::cout << "changed3" << std::endl;

int x, y;

int finalcode = code1 ? code1 : code2;

if (finalcode & TOP) {

x = x2 + (1 / m) \* (ymax - y2);

y = ymax;

} else if (finalcode & BOTTOM) {

x = x2 + (1 / m) \* (ymin - y2);

y = ymin;

} else if (finalcode & LEFT) {

x = xmin;

y = y2 + m \* (xmin - x2);

} else if (finalcode & RIGHT) {

x = xmax;

y = y2 + m \* (xmax - x2);

}

if (finalcode == code1) {

x1 = x;

y1 = y;

code1 = calculatecode(x1, y1);

} else {

x2 = x;

y2 = y;

code2 = calculatecode(x2, y2);

}

}

} while (!done);

if (accept) {

// Display clipped line

glColor3f(0, 0, 0);

glBegin(GL\_LINES);

std::cout << "x1: " << x1 << ", y1: " << y1 << ", x2: " << x2 << ", y2: " << y2 << std::endl;

glVertex2i(x1, y1);

glVertex2i(x2, y2);

glEnd();

glFlush();

}

}

void renderfunction()

{

glClearColor(1,1,1,0);

glClear(GL\_COLOR\_BUFFER\_BIT);

gluOrtho2D(0,700,0,500);

//clipping windoe

glColor3f(0,0,0);

glBegin(GL\_LINES);

glVertex2i(100,100);

glVertex2i(500,100);

glVertex2i(100,100);

glVertex2i(100,300);

glVertex2i(500,100);

glVertex2i(500,300);

glVertex2i(100,300);

glVertex2i(500,300);

glEnd();

glFlush();

int choice=2;

if(choice==1)

{

before();

}

else if(choice==2)

{

afterclipping();

}

}

int main(int argc, char\*\* argv)

{

glutInit(&argc, argv);

glutInitDisplayMode(GLUT\_SINGLE);

glutInitWindowSize(700,500);

glutInitWindowPosition(100,100);

glutCreateWindow("cohen sutherland");

glutDisplayFunc(renderfunction);

glutMainLoop();

return 1;

}