// prog6.cpp : Defines the entry point for the console application.

//

#include "stdafx.h"

#include<stdio.h>

#include<GL/glut.h>

float xmin=50,ymin=50,xmax=100,ymax=100;

float xvmin=200,yvmin=200,xvmax=400,yvmax=400;

int RIGHT=8,LEFT=2,TOP=4,BOTTOM=1;

float sx,sy,vx1,vy1,vx2,vy2;

float x1,y1,x2,y2;

int compute(float x,float y)

{

int code=0;

if(y>ymax)

code=TOP;

else if(y<ymin)

code=BOTTOM;

if(x>xmax)

code=RIGHT;

else if(x<xmin)

code=LEFT;

return code;

}

void cohen (float x1,float y1,float x2,float y2)

{

float x,y;

int accept=0,done=0,code\_p,code\_q,code;

code\_p=compute(x1,y1,);

code\_q=compute(x2,y2);s

do

{

if(!(code\_p | code\_q))

{

accept=1;

done=1;

}

else if(code\_p & code\_q)

done=1;

else

{

code=code\_p ? code\_p : code\_q;

if(code & TOP)

{

x=x-1+(x4-x3)\*(ymax-y3)/(y4-y3);

y=ymax;

}

else if(code & BOTTOM)

{

x=x3+(x4-x3)\*(ymin-y3)/(y4-y3);

y=ymin;

}

else if(code & RIGHT)

{

y=y3+(y4-y3)\*(xmax-x3)/(x4-x3);

x=xmax;

}

else

{

y=y3+(y4-y3)\*(xmin-x3)/(x4-x3);

x=xmin;

}

if(code==code\_p)

{

x3=x;

y3=y;

code\_p=compute(x3,y3);

}

else

{

x4=x;

y4=y;

code\_q=compute(x4,y4);

}

if(code & TOP)

{

x=x-1+(x4-x3)\*(ymax-y3)/(y4-y3);

y=ymax;

}

else if(code & BOTTOM)

{

x=x3+(x4-x3)\*(ymin-y3)/(y4-y3);

y=ymin;

}

else if(code & RIGHT)

{

y=y3+(y4-y3)\*(xmax-x3)/(x4-x3);

x=xmax;

}

else

{

y=y3+(y4-y3)\*(xmin-x3)/(x4-x3);

x=xmin;

}

if(code==code\_p)

{

x3=x;

y3=y;

code\_p=compute(x3,y3);

}

else

{

x4=x;

y4=y;

code\_q=compute(x4,y4);

}

}

}

while(!done);

if(accept)

{

sx=(xvmax-xvmin)/(xmax-xmin);

sy=(yvmax-yvmin)/(ymax-ymin);

vx1=xvmin+(x1-xmin)\*sx;

vy1=xvmin+(y1-xmin)\*sy;

vx2=xvmin+(x2-xmin)\*sx;

vy2=xvmin+(y2-xmin)\*sy;

}

}

void display()

{

glClear(GL\_COLOR\_BUFFER\_BIT);

glColor3f(1,1,1);

glLineWidth(2);

glBegin(GL\_LINES);

glVertex2d(x1,y1);

glVertex2d(x2,y2);

glEnd();

glColor3f(1,1,1);

glLineWidth(2);

glBegin(GL\_LINES);

glVertex2d(x3,y3);

glVertex2d(x4,y4);

glEnd();

glColor3f(1,1,1);

glBegin(GL\_LINE\_LOOP);

glVertex2f(xmin,ymin);

glVertex2f(xmax,ymin);

glVertex2f(xmax,ymax);

glVertex2f(xmin,ymax);

glEnd();

cohen(x1,y1,x2,y2);

glColor3f(1,1,1);

glBegin(GL\_LINE\_LOOP);

glVertex2f(xvmin,yvmin);

glVertex2f(xvmax,yvmin);

glVertex2f(xvmax,yvmax);

glVertex2f(xvmin,yvmax);

glEnd();

glColor3f(1,1,1);

glBegin(GL\_LINES);

glVertex2d(vx1,vy1);

glVertex2d(vx2,vy2);

glEnd();

cohen(x3,y3,x4,y4);

glColor3f(1,1,1);

glBegin(GL\_LINES);

glVertex2d(vx3,vy3);

glVertex2d(vx4,vy4);

glFlush();

}

void myinit()

{

glClearColor(0,0,0,1);

gluOrtho2D(0,500,0,500);

}

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

{

printf("\n enter the points: \n");

scanf("%f%f%f%f%f%f%f",&x1,&y1,&x2,&y2,&x3,&y3,&x4,&y4);

glutInit(&argc,argv);

glutInitDisplayMode(GLUT\_SINGLE|GLUT\_RGB);

glutInitWindowSize(500,500);

glutCreateWindow("cohen sutherland");

glutDisplayFunc(display);

myinit();

glutMainLoop();

}