**Bresnham line**

#include<GL/glut.h>

#include<GL/glu.h>

#include<iostream>

#include<math.h>

#define h 700

#define w 700

using namespace std;

GLint xi,xii,yi,yii;

void setpixel(GLint x, GLint y)

{

glColor3f(0.0,0.0,1.0);

glBegin(GL\_POINTS);

glVertex2f(x,y);

glEnd();

glFlush();

}

void initialize()

{

glClearColor(0.6,0.6,0.6,0.0);

glClear(GL\_COLOR\_BUFFER\_BIT);

//glColor3f(1.0f,0.0f,0.0f);

//glPointSize(4.0);

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

gluOrtho2D(-w/2,w/2,-h/2,h/2);

}

void choice()

{

int i;

glPointSize(2.0);

for(i=-w; i<w; i++)

{

setpixel(0,i);

setpixel(i,0);

}

}

class line

{

public:

void bresenham(int item)

{

int dx,dy,P,tmp;

int i=1;

if(xii<xi && yii<yi)

{

tmp=xi;

xi=xii;

xii=tmp;

tmp=yi;

yi=yii;

yii=tmp;

}

dx=(xii-xi);

dy=(yii-yi);

if(dy<=dx&&dy>0)

{

dx=abs(dx);

dy=abs(dy);

P=(2\*dy)-dx;

setpixel(xi,yi);

int x=xi;

int y=yi;

while(x<=xii)

{

x++;

if(P<0)

{

P=P+(2\*dy);

}

else

{

y++;

P=P+(2\*dy)-(2\*dx);

}

if(item==1)

{

setpixel(x,y);

}

if(item==2 && i%10<5)

{

setpixel(x,y);

}

if(item==3 && (i%9>=2 && i%9!=7))

{

setpixel(x,y);

}

if(item==4)

{

glPointSize(4.0);

setpixel(x,y);

}

i++;

}

}

else if(dy>dx&&dy>0)

{

dx=abs(dx);

dy=abs(dy);

P=(2\*dx)-dy;

setpixel(xi,yi);

int x=xi;

int y=yi;

while(y<=yii)

{

y++;

if(P<0)

{

P=P+(2\*dx);

}

else

{

x++;

P=P+(2\*dx)-(2\*dy);

}

if(item==1)

{

setpixel(x,y);

}

if(item==2 && i%10<5)

{

setpixel(x,y);

}

if(item==3 && (i%9>=2 && i%9!=7))

{

setpixel(x,y);

}

if(item==4)

{

glPointSize(4.0);

setpixel(x,y);

}

i++;

}

}

else if(dy>=-dx)

{

dx=abs(dx);

dy=abs(dy);

P=(2\*dy)-dx;

setpixel(xi,yi);

int x=xi;

int y=yi;

while(x<=xii)

{

x++;

if(P<0)

{

P=P+(2\*dy);

}

else

{

y--;

P=P+(2\*dy)-(2\*dx);

}

if(item==1)

{

setpixel(x,y);

}

if(item==2 && i%10<5)

{

setpixel(x,y);

}

if(item==3 && (i%9>=2 && i%9!=7))

{

setpixel(x,y);

}

if(item==4)

{

glPointSize(4.0);

setpixel(x,y);

}

i++;

}

}

else if(dy<-dx)

{

dx=abs(dx);

dy=abs(dy);

P=(2\*dy)-dx;

setpixel(xi,yi);

int x=xi;

int y=yi;

while(y>=yii)

{

y--;

if(P<0)

{

P=P+(2\*dx);

}

else

{

x++;

P=P+(2\*dx)-(2\*dy);

}

if(item==1)

{

setpixel(x,y);

}

if(item==2 && i%10<5)

{

setpixel(x,y);

}

if(item==3 && (i%9>=2 && i%9!=7))

{

setpixel(x,y);

}

if(item==4)

{

glPointSize(4.0);

setpixel(x,y);

}

}

}

glFlush();

}

};

line l;

void keyboard(unsigned char key, int x, int y)

{

if(key==27)

exit(0);

else

cout<<"You entered the"<<key;

}

void menu(int item)

{

if(item==1)

{

l.bresenham(1);

}

if(item==2)

{

l.bresenham(2);

}

if(item==3)

{

l.bresenham(3);

}

if(item==4)

{

l.bresenham(4);

}

if(item==5)

{

exit(0);

}

}

void mouse( int button, int state, int x, int y )

{

if( state == GLUT\_DOWN )

{

if( button == GLUT\_LEFT\_BUTTON)

{

xi=x-350;

yi=350-y;

cout<<xi<<"\t";

cout<<yi<<"\n";

glPointSize(2.0);

glBegin(GL\_POINTS);

glVertex2i(xi,yi);

glEnd();

glFlush();

}

if( button == GLUT\_RIGHT\_BUTTON)

{

xii=x-350;

yii=350-y;

cout<<xii<<"\t";

cout<<yii<<"\n";

glPointSize(2.0);

glBegin(GL\_POINTS);

glVertex2i(xii,yii);

glEnd();

glFlush();

}

}

}

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

{

glutInit(&argc,argv);

glutInitWindowSize(h,w);

glutInitWindowPosition(100,0);

glutCreateWindow("Line Bresenham Here!!");

initialize();

glutDisplayFunc(choice);

glutMouseFunc(mouse);

glutKeyboardFunc(keyboard);

glutCreateMenu(menu);

glutAddMenuEntry("BRE\_SIMPLE",1);

glutAddMenuEntry("BRE\_DASH",2);

glutAddMenuEntry("BRE\_DASH DOT",3);

glutAddMenuEntry("BRE\_THICK",4);

glutAddMenuEntry("EXIT",5);

glutAttachMenu(GLUT\_MIDDLE\_BUTTON);

glutMainLoop();

return 0;

}