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#include<iostream>
#include<graphics.h>
using namespace std;

int main()
{
    int gd =DETECT,gm;
    float X1,Y1,X2,Y2,x1,y1,x2,y2;
    cout<<"Enter the co ordinates of diagonal vertices X1 | Y1 | X2 | Y2 \n ";
    cin>>X1>>Y1>>X2>>Y2;
    cout<<"\n Enter the coordinates of vertices of lines x1,y1,x2,y2\n";
    cin>>x1>>y1>>x2>>y2;
    int opcode[2][4] = {{0, 0, 0, 0}, {0, 0, 0, 0}};//[ABRL.0123]
    //point 1
    if(y1>Y2) opcode[0][0] = 1;//A
    if(y1<Y1) opcode[0][1] = 1;//B
    if(x1>X2) opcode[0][2] = 1;//R
    if(x1<X1) opcode[0][3] = 1;//L
    //point 2
    if(y2>Y2) opcode[1][0] = 1;//A
    if(y2<Y1) opcode[1][1] = 1;//B
    if(x2>X2) opcode[1][2] = 1;//R
    if(x2<X1) opcode[1][3] = 1;//L

    cout<<opcode[0][0]<<opcode[0][1]<<opcode[0][2]<<opcode[0][3];
    cout<<opcode[1][0]<<opcode[1][1]<<opcode[1][2]<<opcode[1][3];

    float m;
    if((x2 - x1 ==0))
    {
        m = 0;
    }
    else
    {
        m = (y2-y1)/(x2-x1);
    }

    initgraph(&gd,&gm,NULL);
    //before clipping

    outtextxy(100,100,"Before");
    rectangle(X1,Y1,X2,Y2);
    line(x1,y1,x2,y2);
    delay(3000);

    cleardevice();

    bool visible = true;

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for(int i = 0; i<2;i++)
{
if ((opcode[0][0] & opcode[1][0]) ||
(opcode[0][1] & opcode[1][1]) ||
(opcode[0][2] & opcode[1][2]) ||
(opcode[0][3] & opcode[1][3]))
{
visible = false;
break;
}

}

if(visible)
{
if(opcode[0][0] == 1)
{
x1 = x1 + (Y1 - y1)/m;
y1 = Y1;
}
if(opcode[0][1] == 1)
{
x1 = x1 + (Y2 - y1)/m;
y1 = Y2;
}
if(opcode[0][2] == 1)
{
y1 = y1 + m*(X2 - x1);
x1 = X2;
}
if(opcode[0][3] == 1)
{
y1 = y1 + m*(X1 - x1);
x1 = X1;
}

if(opcode[1][0] == 1)
{
x2 = x2 + (Y1 - y2)/m;
y2 = Y1;
}
if(opcode[1][1] == 1)
{
x2 = x2 + (Y2 - y2)/m;
y2 = Y2;
}
if(opcode[1][2] == 1)
{
y2 = y2 + (X2 - x2)*m;

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        x2 = X2;
    }
    if(opcode[1][3] == 1)
    {
        y2 = y2 + m*(X1 - x2);
        x2 = X1;
    }
}

else
{
    x1=x2=y1=y2=0;
}

outtextxy(100,100,"after");
rectangle(X1,Y1,X2,Y2);
line(x1,y1,x2,y2);

getch();
closegraph();
return 0;
}

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