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// PRESENTADO POR JOAN SEBASTIAN TIBAQUIRA COD 1202060
#include <iostream>
#include <GL/glut.h>
#include <math.h>
using namespace std;
int W = 800, H = 600;
int X1, X2, Y1, Y2;
double m, b, dx, dy, x, y;
int s, f, a;
float d, D;
void Display() {
	glClear(GL_COLOR_BUFFER_BIT);
}
void Start() {
	gluOrtho2D(0, W, H, 0);
	glClearColor(255, 255, 255, 0);
}
void Pixel(int X, int Y,float R,float G,float B)
{
	glPointSize(1);//ADECUA EL TAMAÑO DEL PIXEL
	glColor3f(R, G, B);
	glBegin(GL_POINTS);
	glVertex2f(X, Y);
	glEnd();
}
void Line(int x1, int y1, int x2, int y2) {
	dx = x2 - x1;
	dy = y2 - y1;
	m = dy / dx;
	b = y1 - (m * x1);
	if (dx == 0) {
		if (y1 >= y2) {
			s = y2;
			f = y1;
		}
		else {
			s = y1;
			f = y2;
		}
		for (int i = s; i <= f; i++) {
			Pixel(x1, i, 0, 0, 0);
		}
	}
	else
	{
		if (m == 0) {
			if (x1 >= x2) {
				s = x2;
				f = x1;
			}
			else {
				s = x1;
				f = x2;
			}
			for (int i = s; i <= f; i++) {
				Pixel(i, y1, 0, 0, 0);
			}
		}
		else {
			if (abs(dx) >= abs(dy)) {
				if (x1 >= x2) {
					s = x2;
					f = x1;
				}
				else {
					s = x1;
					f = x2;
				}
				for (int j = s; j <= f; j++) {
					y = (m * j) + b;
					Pixel(j, y, 0, 0, 0);
					a = j - b;
					d = a / m;
					D = y - d;
					D = fabs(D);
					Pixel(j, y - 1, D, D, D);
					Pixel(j, y + 1, 1 - D, 1 - D, 1 - D);
				}
			}
			else {
				if (y1 >= y2) {
					s = y2;
					f = y1;
				}
				else {
					s = y1;
					f = y2;
				}
				for (int i = s; i <= f; i++) {
					a = i - b;
					x = a / m;
					Pixel(x, i, 0, 0, 0);
					d = (m * i) + b;
					D = x - d;
					Pixel(x - 1, i, D, D, D);
					Pixel(x + 1, i, 1 - D, 1 - D, 1 - D);
				}
			}
		}
	}
}

void Mouse(int B, int S, int X, int Y) {

	if ((S == GLUT_DOWN) && (B == GLUT_LEFT_BUTTON)) {
		X1 = X;
		Y1 = Y;
		Pixel(X1, Y1, 0, 0, 0);
	}
	if ((S == GLUT_DOWN) && (B == GLUT_RIGHT_BUTTON)) {
		X2 = X;
		Y2 = Y;
		Pixel(X2, Y2, 0, 0, 0);
		Line(X1, Y1, X2, Y2);
	}
	glFlush();
}
int main(int argc, char* argv[]) {
	glutInit(&argc, argv);
	glutInitDisplayMode(GLUT_RGBA | GLUT_SINGLE);
	glutInitWindowPosition(650, 50);
	glutInitWindowSize(W, H);
	glutCreateWindow("LINE SUAVE");
	Start();
	glutDisplayFunc(Display);
	glutMouseFunc(Mouse);
	glutMainLoop();
}
```