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Código

Código general

```
#include <GL/glut.h>
#include <stdio.h>
#include <math.h>
#include "pixelheart.h"
void ajusta(int ancho, int alto){

	glClearColor(1.0,1.0,1.0,0.0);
	glMatrixMode(GL_PROJECTION);
	glLoadIdentity();
	gluOrtho2D(0,640,0,480);

}
void cuadros(){

	float negro[3]={0.0, 0.0, 0.0};

	glLineWidth(3);
	glColor3fv(negro);
	glBegin(GL_LINES);
	glVertex2i(210,0);
	glVertex2i(210,480);
	glVertex2i(420,0);
	glVertex2i(420,480);
	glVertex2i(0,240);
	glVertex2i(640,240);
	glEnd();

}

int polilinea(){

	float azul[3]={0.5,0.0,1.0};
	int x,y;
	int i,j;
	int nLineas,nVertices;

	FILE *fp;

	fp = fopen("Heart.dat", "r");
	if (fp == NULL){
```

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		puts("archivo error");
		return 1;
	}

	fscanf(fp, "%d", &nLineas);

	glColor3fv(azul);

	for (i=0; i<nLineas; i++){
			fscanf(fp, "%d", &nVertices);
			glBegin(GL_LINE_STRIP);
			for (j = 0; j<nVertices; j++){
					fscanf(fp,"%d", &x);
					fscanf(fp,"%d", &y);
					glVertex2f(x+5,y+270);
			}
			glEnd();
	}
	fclose(fp);

	char c[10]="Alvarez";
	glRasterPos2i(50,250);
	for(i=0; i< strlen(c); i++)
		glutBitmapCharacter(GLUT_BITMAP_HELVETICA_18, c[i]);

	return 0;

}
void circunferencia(int r){

	float morado[3]={1.0,0.0,1.0};
	int centro[2]={315, 360};
	int coord[15][2];

	int x, y, c, i, j, theta;
	float rad= M_PI/180;

	c=0;
	//Fijar puntos
//valor de r cambia para la circunferencia
	for(theta=0; theta<360; theta+=(360/15)){

		x= centro[0] + (r*(cos(theta*rad)));
		y= centro[1] + (r*(sin(theta*rad)));
		coord[c][0]= x;
		coord[c][1]= y;
		c++;
```

```
	}
		///Lineas
	glColor3fv(morado);
	glLineWidth(1);
	for(i=0;i<15;i++){
		///siguiente
		c=i+1;
		for(j=0;j<15;j++){

			if(c>=15){
				c=0;
			}
			glBegin(GL_LINES);
			glVertex2i(coord[i][0],coord[i][1]);
			glVertex2i(coord[c][0],coord[c][1]);
			glEnd();
			c++;
		}
	}

}
float coseno(int x){
	float rad= M_PI/180;

	return cos(x*rad*2);
}

void cosenoGrafica(){

	float negro[3]={0.0, 0.0, 0.0};
	float rojo[3]={1.0,0.0,0.0};
	int i,x,y;

	glLineWidth(2);
	glColor3fv(negro);
	glBegin(GL_LINES);
	glVertex2i(440,360);
	glVertex2i(620,360);
	glVertex2i(530,270);
	glVertex2i(530,450);
	glEnd();

	glLineWidth(3);
	glColor3fv(rojo);
	glBegin(GL_LINE_STRIP);
	//90 centro
	for(i=-90; i<=90; i++){
```

```
                x = i+530;
                //100 de largo, el 360 centro
                y = (coseno(i)*100)+360;
                glVertex2i(x,y);
        }
        glEnd();
}

void letra(){

        int i;
        int n=30;

        float rojo[3]={1.0,0.0,0.2};

        int mi_letra[30][2]=
{{50,50},{50,250},{50,250},{200,250},{200,250},{200,200},{200,200},{100,200},
{100,200},{100,150},{100,150},{150,150},{150,150},{150,135},{150,135},{100,135}
,{100,135},{100,100},{100,100},{200,100},{200,50}, {50,50},{200,100},{200,50}
};
;



        glColor3fv(rojo);
        glLineWidth(5);
        glBegin(GL_LINES);

        for(i=0; i<n; i++){
                glVertex2i(mi_letra[i][0], mi_letra[i][1]-20);
        }
        glEnd();

}

void lineas(int sz){

        float rosa[3]={1.0, 0.0, 0.5};
        ///x y inf xy superior
        int x1= 400;
        int y1= 200;
        int x0= 250;
        int y0= 50;
        int i;

        int rango= x1-x0;

        glColor3fv(rosa);
```

```
	glLineWidth(2);
	glBegin(GL_LINES);

	for(i=0; i<=rango; i+=sz){
		glVertex2i(x0,y0+i);
		glVertex2i(x0+i,y1);

		glVertex2i(x1,y0+i);
		glVertex2i(x1-i,y1);
	}
	for(i=0; i<=rango; i+=sz){
		glVertex2i(x0,y1-i);
		glVertex2i(x0+i,y0);

		glVertex2i(x1,y1-i);
		glVertex2i(x1-i,y0);
	}
	glEnd();
}

void pixelart(){
	int i,j;
	///punto
	int tam=5;
	glPointSize(tam);
	glBegin(GL_POINTS);

	for(i=0 ; i< ALTO; i++){
		for(j=0 ; j< ANCHO; j++){
			glColor3ubv(paleta[pixelheart[i][j]]);
			glVertex2i(500+j*tam,180-i*tam);
		}
	}
	glEnd();
}

void dibuja(){

	glClearColor(1.0, 1.0, 1.0, 0.0);
	glClear(GL_COLOR_BUFFER_BIT);
	cuadros();
	polilinea();
	circunferencia(100);
	cosenoGrafica();
	letra();
	lineas(10);
	pixelart();
```

```
	glFlush();

}

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

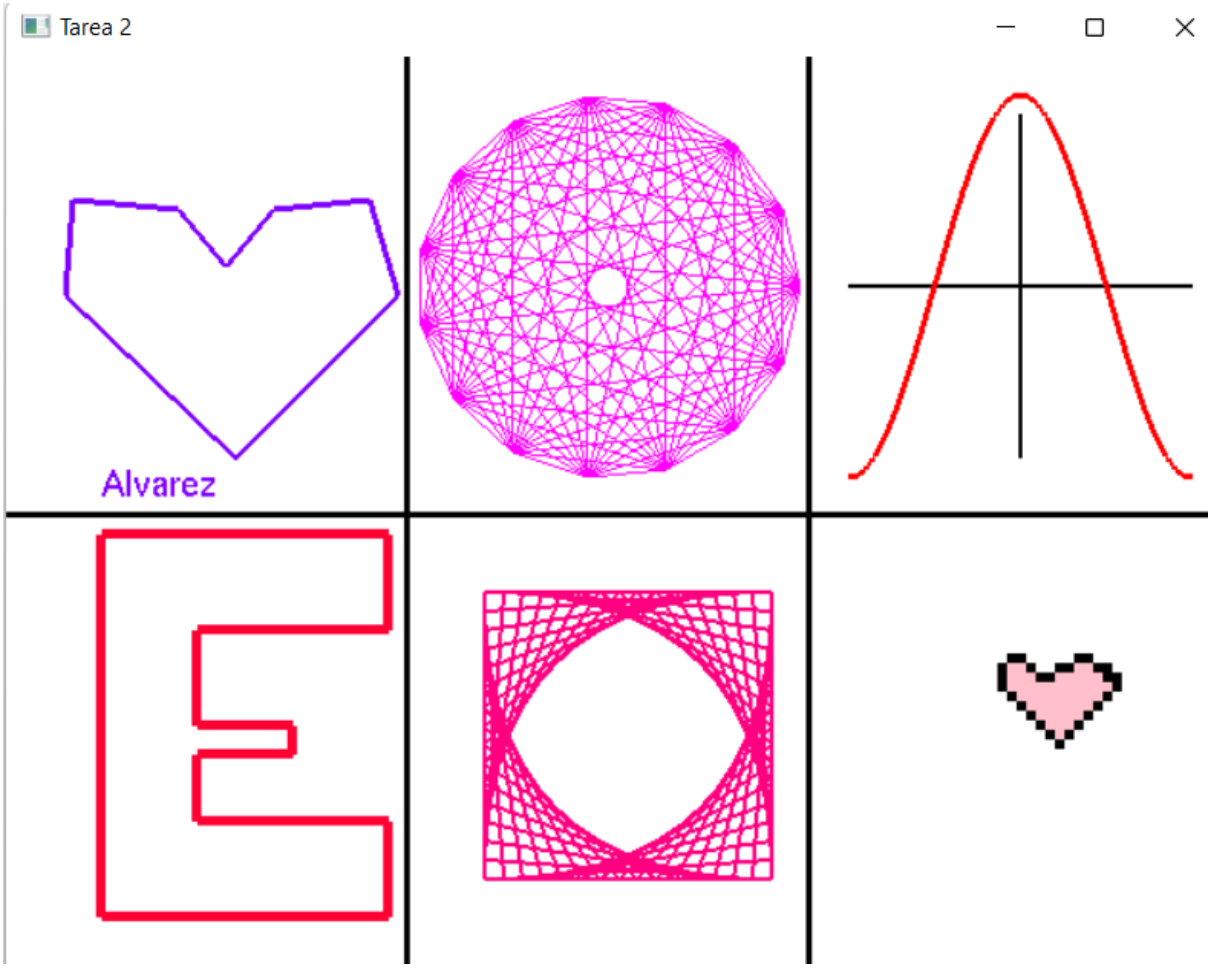
	glutInit(&argc, argv);
	glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
	glutInitWindowSize(640,480);
	glutInitWindowPosition(100, 150);
	glutCreateWindow("Tarea 2");
	glutReshapeFunc(ajusta);
	glutDisplayFunc(dibuja);
	glutMainLoop();
	return 0;

}
```

Código pixel heart

```
#ifndef PIXELHEART_H_INCLUDED
#define PIXELHEART_H_INCLUDED
#define ALTO 15
#define ANCHO 21
//blanco  rosa negro
GLubyte paleta[3][3] = {{255,255,255},{255,192,203},{0,0,0}};


GLubyte pixelheart[ALTO][ANCHO]= {{0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0},
                                  {0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0},
                                  {0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0},
                                  {0,0,0,0,0,2,2,0,0,0,0,0,2,2,0,0,0,0,0,0,0},
                                  {0,0,0,0,2,1,1,2,0,0,2,2,1,1,2,2,0,0,0,0,0},
                                  {0,0,0,0,2,1,1,1,2,2,1,1,1,1,1,2,2,0,0,0,0},
                                  {0,0,0,0,2,1,1,1,1,1,1,1,1,1,1,2,0,0,0,0,0},
                                  {0,0,0,0,0,2,1,1,1,1,1,1,1,1,1,2,0,0,0,0,0},
                                  {0,0,0,0,0,0,2,1,1,1,1,1,1,1,2,0,0,0,0,0,0},
                                  {0,0,0,0,0,0,0,2,1,1,1,1,1,2,0,0,0,0,0,0,0},
                                  {0,0,0,0,0,0,0,0,2,1,1,1,2,0,0,0,0,0,0,0,0},
                                  {0,0,0,0,0,0,0,0,0,2,1,2,0,0,0,0,0,0,0,0,0},
                                  {0,0,0,0,0,0,0,0,0,0,2,0,0,0,0,0,0,0,0,0,0},
                                  {0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0},};
#endif
```



Heart.dat - Notepad

File Edit View

```
5
9
110 100
85 130
30 135
26 85
115 0
200 85
185 135
135 130
110 100
135 130
```