//including header files

#include<GL/freeglut.h>

#include<GL/gl.h>

#include<math.h>

//to set(draw) a pixel

void SetPixel(int x, int y){

glColor3f(0,0,0);

glBegin(GL\_POINTS);

glVertex2i(x,y);

glEnd();

}

//implementing logic to draw a circle

void drawCircle(int xshift, int yshift, int r){

int x, y, p;

y=r;

x=0;

p=3-(2\*r);

//p=1-r;

while(x<=y){

//plotting for all coordinates

SetPixel(x+xshift,y+yshift);

SetPixel(x+xshift,-y+yshift);

SetPixel(-x+xshift,y+yshift);

SetPixel(-x+xshift,-y+yshift);

SetPixel(y+xshift,x+yshift);

SetPixel(y+xshift,-x+yshift);

SetPixel(-y+xshift,x+yshift);

SetPixel(-y+xshift,-x+yshift);

//checking decision parameter

if(p>=0){

y=y-1;

//y=y+1;

x=x+1;

//x=x-1;

//p= p+(2\*(x-y))+1;

p=p+(4\*(x-y))+10;

}else{

x=x+1;

p=p+(4\*x)+6;

//p=p+(2\*x)+1;

}

}

}

//render function

void renderfunction(){

glClearColor(1,1,1,0);

gluOrtho2D(-700,700,-500,500);

glColor3f(0,0,0);

glClear(GL\_COLOR\_BUFFER\_BIT);

//draw desired pattern

drawCircle(0,0,50);

//drawCircle(20,0,70);

//drawCircle(0,20,80);

drawCircle(40,40,100);

//drawCircle(250,0,250);

//drawCircle(-250,0,250);

//drawCircle(177,177,250);

//drawCircle(177,-177,250);

//drawCircle(-177,177,250);

//drawCircle(-177,-177,250);

glFlush();

}

//main function

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

glutInit(&argc, argv);

glutInitDisplayMode(GLUT\_SINGLE);

glutInitWindowSize(1400, 1000);

glutInitWindowPosition(100,100);

glutCreateWindow("Circle pattern2");

glutDisplayFunc(renderfunction);

glutMainLoop();

return 0;

}