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**CG ASSIGNMENT – 3**

**CODE:**

#include <GL/freeglut.h>

#include <iostream>

int r, xc, yc, x, y;

float p;

void putPixel(int px, int py)

{

glBegin(GL\_POINTS);

glVertex2f((float)px, (float)py);

glEnd();

}

void plotPoints(int px, int py)

{

putPixel(xc + px, yc + py);

putPixel(xc + py, yc + px);

putPixel(xc + py, yc - px);

putPixel(xc + px, yc - py);

putPixel(xc - px, yc - py);

putPixel(xc - py, yc - px);

putPixel(xc - px, yc + py);

putPixel(xc + py, yc - px);

putPixel(xc - py, yc + px);

}

void drawCircle()

{

glBegin(GL\_LINES);

glVertex2f(-640.0F, 0);

glVertex2f(640.0F, 0);

glVertex2f(0, -480.0F);

glVertex2f(0, 480.0F);

glEnd();

p = 1.25F - (float)r;

x = 0, y = r;

while (x < y) {

plotPoints(x, y);

if (p < 0) {

p += 2.0F \* (float)x + 1.0F;

}

else if (p >= 0) {

--y;

p += 2.0F \* (float)(x - y) + 1.0F;

}

++x;

}

glFlush();

}

void init()

{

glOrtho(-640.0, 640.0, -480.0, 480.0, -1.0, 1.0);

glClearColor(0.0F, 0.0F, 0.0F, 1.0F);

glClear(GL\_COLOR\_BUFFER\_BIT);

glColor3f(1.0F, 1.0F, 1.0F);

}

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

{

std::cout << "Enter radius: ";

std::cin >> r;

std::cout << "Enter X coordinate of center: ";

std::cin >> xc;

std::cout << "Enter Y coordinate of center: ";

std::cin >> yc;

r = r \* 16;

xc = xc \* 16;

yc = yc \* 16;

glutInit(&argc, argv);

glutInitDisplayMode(GLUT\_SINGLE);

glutInitWindowSize(640, 480);

glutInitWindowPosition(400, 150);

glutCreateWindow("Bresenham's Circle Drawing Algorithm");

init();

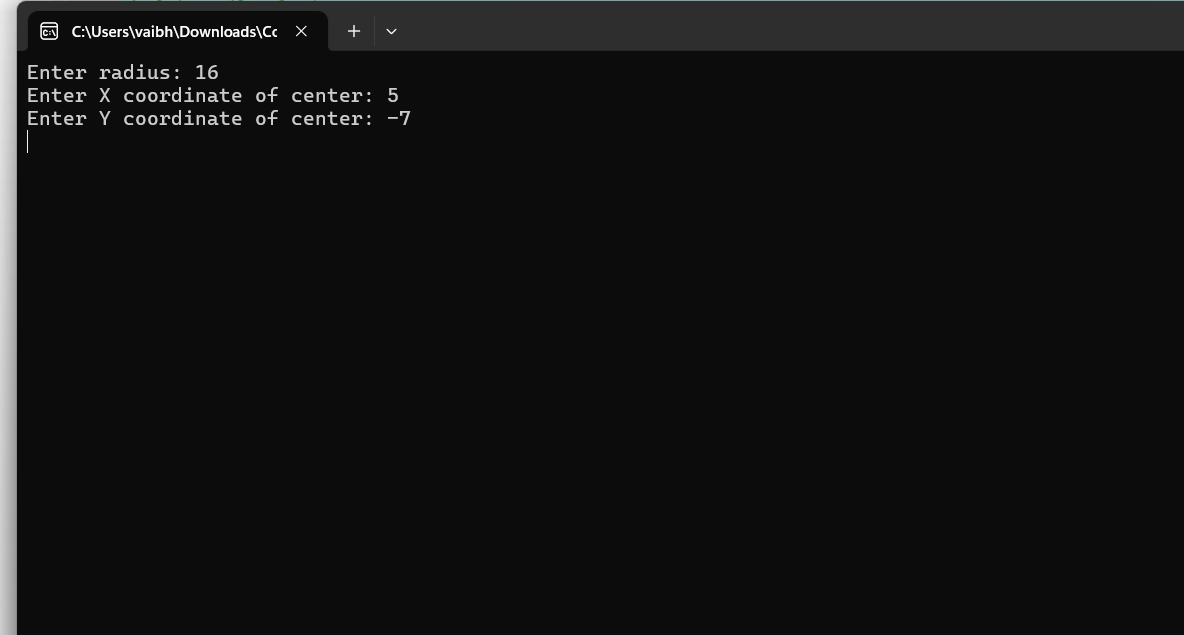
glutDisplayFunc(drawCircle);

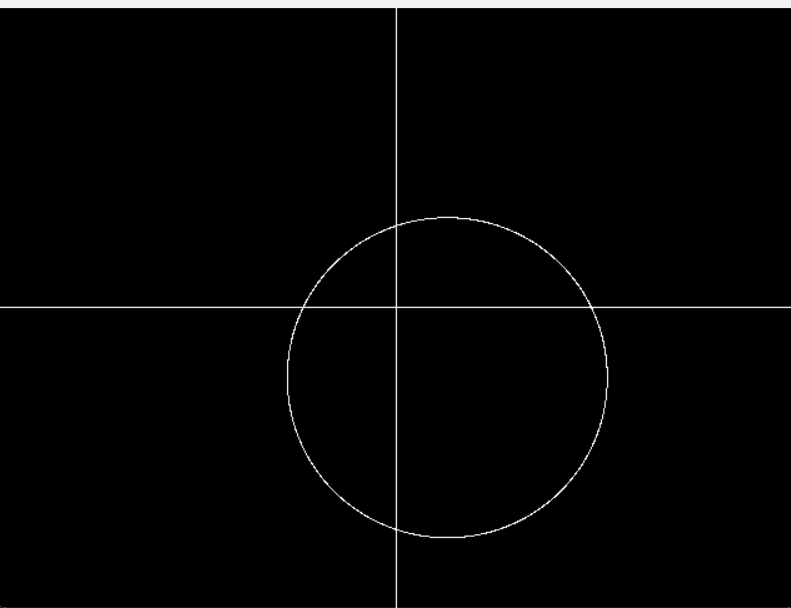
glutMainLoop();

return 0;

}

**OUTPUT:**

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