Lab Report. 02
Title: Lab Report

Course title: Computer Graphics Lab

Course code: CSE-304

3rd Year 1st Semester 2022

Date of Submission: 04/06/2023

Submitted to-

Dr. Mohammad Shorif Uddin

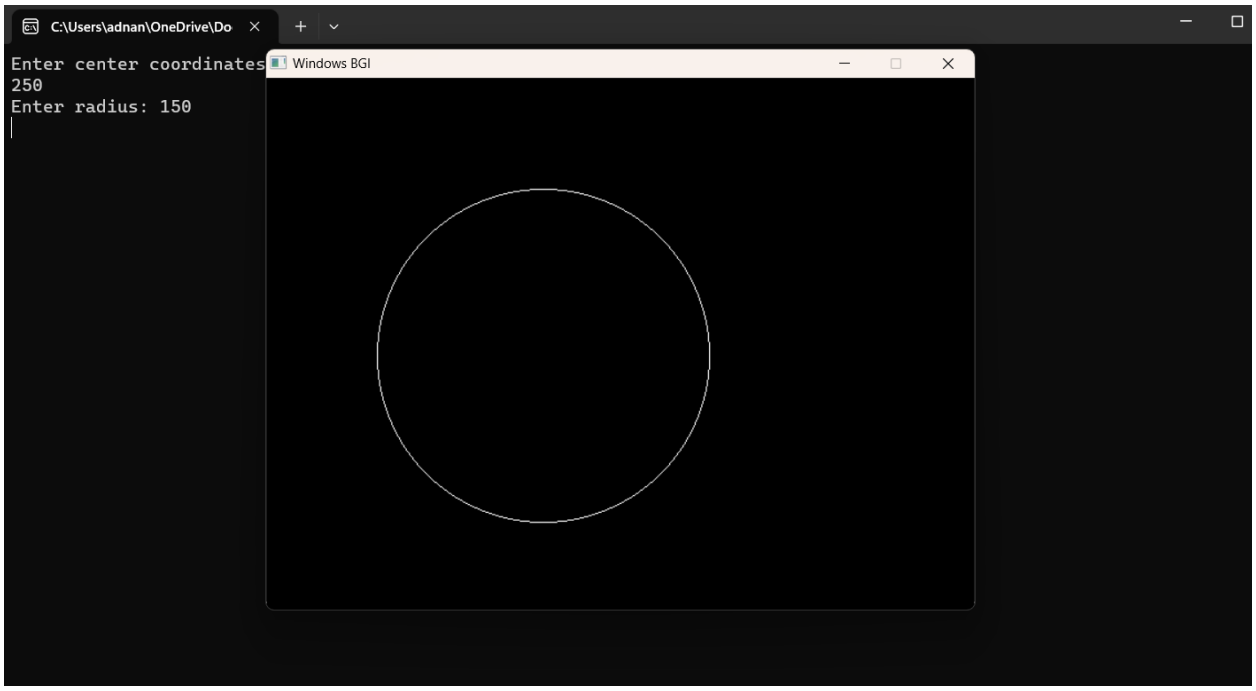
Dr. Morium Akter

Sl	Class Roll	Exam Roll	Name
01	378		S.I.M. ADNAN

Experiment 1:

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

void drawCircle(int xc, int yc, int radius) {
    int x = 0;
    int y = radius;
    int p = 1 - radius;

    while (x <= y) {
        putpixel(xc + x, yc + y, WHITE);
        putpixel(xc + y, yc + x, WHITE);
        putpixel(xc - x, yc + y, WHITE);
        putpixel(xc - y, yc + x, WHITE);
        putpixel(xc + x, yc - y, WHITE);
        putpixel(xc + y, yc - x, WHITE);
        putpixel(xc - x, yc - y, WHITE);
        putpixel(xc - y, yc - x, WHITE);

        x++;
        if (p < 0) {
            p += 2 * x + 1;
        } else {
            y--;
            p += 2 * (x - y) + 1;
        }}}
int main() {

    int xc, yc, radius;
    cout << "Enter center coordinates (xc and yc): ";
    cin >> xc >> yc;
    cout << "Enter radius: ";
   cin >> radius;
int gd = DETECT, gm;
    initgraph(&gd, &gm, "");

    drawCircle(xc, yc, radius);

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

Output:


C:\Users\adnan\OneDrive\Do
Enter center coordinates
250
Enter radius: 150
Windows BGI

Experiment 2:

Code:

```
#include <iostream>
#include <graphics.h>


void plotEllipsePoints(int xc, int yc, int x, int y)
{
   putpixel(xc + x, yc + y, WHITE);
   putpixel(xc - x, yc + y, WHITE);
   putpixel(xc + x, yc - y, WHITE);
   putpixel(xc - x, yc - y, WHITE);
}

void drawEllipse(int xc, int yc, int rx, int ry)
{
   int x = 0;
   int y = ry;


   int rxSq = rx * rx;
   int rySq = ry * ry;
   int twoRxSq = 2 * rxSq;
   int twoRySq = 2 * rySq;
   int p;
   int px = 0;
   int py = twoRxSq * y;


   plotEllipsePoints(xc, yc, x, y);


   p = rySq - (rxSq * ry) + (0.25 * rxSq);
   while (px < py)
   {
      x++;
      px += twoRySq;

      if (p < 0)
      {
         p += rySq + px;
      }
```

```
        else
        {
            y--;
            py -= twoRxSq;
            p += rySq + px - py;
        }

        plotEllipsePoints(xc, yc, x, y);
    }


    p = rySq * (x + 0.5) * (x + 0.5) + rxSq * (y - 1) * (y - 1) - rxSq * rySq;
    while (y > 0)
    {
        y--;
        py -= twoRxSq;

        if (p > 0)
        {
            p += rxSq - py;
        }
        else
        {
            x++;
            px += twoRySq;
            p += rxSq - py + px;
        }

        plotEllipsePoints(xc, yc, x, y);
    }
}

int main()
{
    int gd = DETECT, gm;
    initgraph(&gd, &gm, "");

    int xc = 250;
    int yc = 250;
    int rx = 150;
    int ry = 100;

    drawEllipse(xc, yc, rx, ry);
```

```
    getch();
    closegraph();

    return 0;
}
```

Output: