Jahangirnagar University

3rd Year 1st Semester Examination 2022

***Course title**: Computer Graphics Laboratory*

***Course code**: CSE-304*

Lab Report -2

Submitted to-

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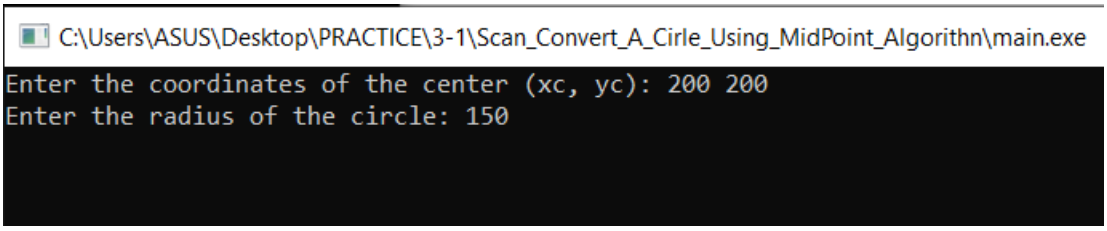
❖Experiment No-1: Scan Conversion of a Circle Using Midpoint Circle Algorithm:

Source Code:

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

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

    int xc, yc, radius;
    std::cout << "Enter the
coordinates of the center (xc, yc):
";
    std::cin >> xc >> yc;
    std::cout << "Enter the radius
of the circle: ";
    std::cin >> 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);

        if (p < 0) {
            p += 2 * x + 3;
        } else {
            p += 2 * (x - y) + 5;
            y--;

   }
        x++;
    }

    delay(5000*3600);
    closegraph();
    return 0;
}
```

Screenshot:


C:\Users\ASUS\Desktop\PRACTICE\3-1\Scan_Convert_A_Cirle_Using_MidPoint_Algorithn\main.exe
Enter the coordinates of the center (xc, yc): 200 200
Enter the radius of the circle: 150

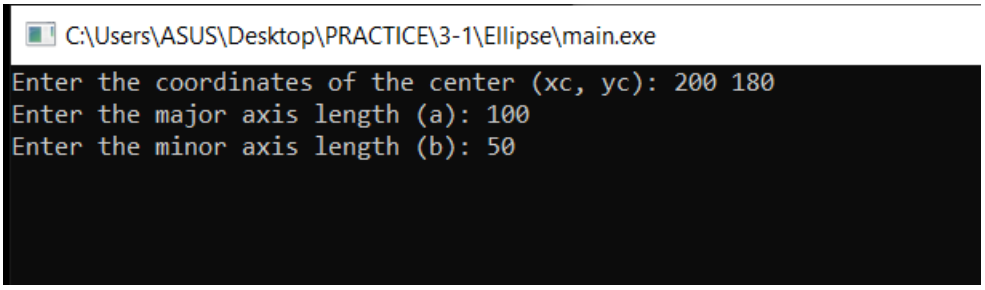

Windows BGI

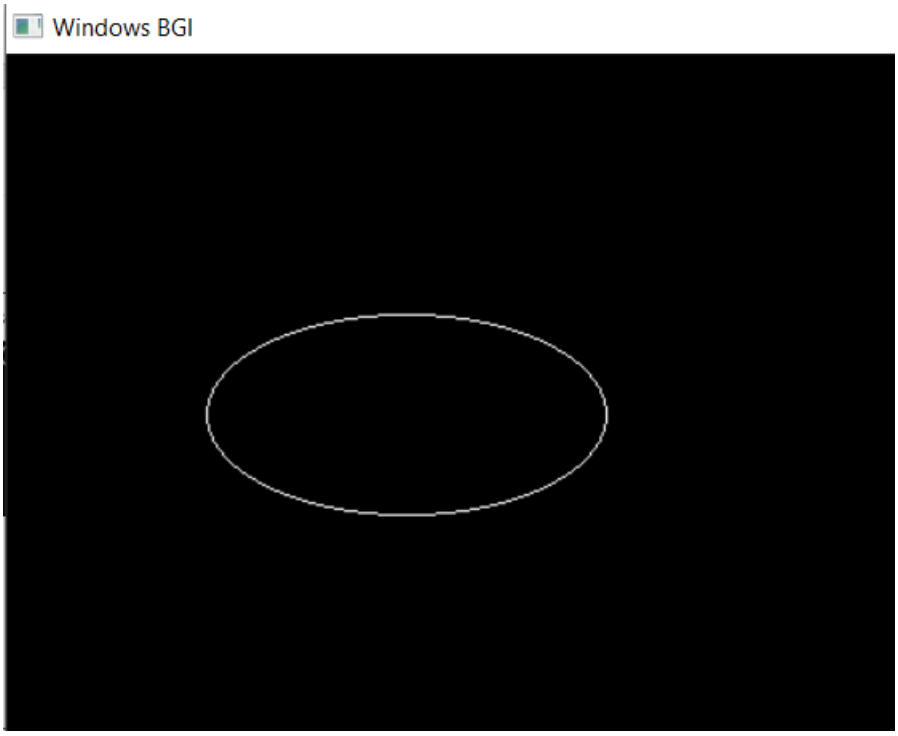
❖Experiment No-2: Scan Conversion of an Ellipse Using Midpoint Ellipse Algorithm:

Source Code:

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

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

    int xc, yc, radius;
    std::cout << "Enter the
coordinates of the center (xc, yc):
";
    std::cin >> xc >> yc;
    std::cout << "Enter the radius
of the circle: ";
    std::cin >> 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);

        if (p < 0) {
            p += 2 * x + 3;
        } else {
            p += 2 * (x - y) + 5;
            y--;

   }
        x++;
    }

    delay(5000*3600);
    closegraph();
    return 0;
}
```

Screenshot:


C:\Users\ASUS\Desktop\PRACTICE\3-1\Ellipse\main.exe
Enter the coordinates of the center (xc, yc): 200 180
Enter the major axis length (a): 100
Enter the minor axis length (b): 50


Windows BGI

THE END