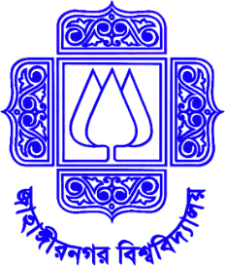
**Lab Report 02**

*Course title: Computer Graphics Laboratory*

*Course code: CSE-304*

*3rd Year 1st Semester 2022*

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###### **Submitted to-**

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| **Sl** | Class Roll | Exam Roll | Name |
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**Experiment No.: 1**

**Experiment Name:** Scan conversion of a circle using Midpoint algorithm.

**Source code in C:**

#include <stdio.h>

#include<math.h>

#include <graphics.h>

void drawMidPoint(int xc, int yc, int radius)

{

int x = 0;

int y = radius;

int p = 1 - radius;

while (x<=y)

{

putpixel(xc + x, yc + y, YELLOW);

putpixel(xc - x, yc + y, YELLOW);

putpixel(xc + x, yc - y, YELLOW);

putpixel(xc - x, yc - y, YELLOW);

putpixel(xc + y, yc + x, YELLOW);

putpixel(xc - y, yc + x, YELLOW);

putpixel(xc + y, yc - x, YELLOW);

putpixel(xc - y, yc - x, YELLOW);

if (p<0)

{

p = p+ 2\*x+ 3;

}

else

{

p =p+2\*(x-y)+5;

y--;

}

x++;

}

}

int main()

{

int xc, yc, radius;

printf("Enter the coordinates of the center of the circle: ");

scanf("%d %d", &xc, &yc);

printf("Enter the radius: ");

scanf("%d", &radius);

int gd = DETECT, gm;

initgraph(&gd, &gm, (char\*)"");

drawMidPoint(xc, yc, radius);

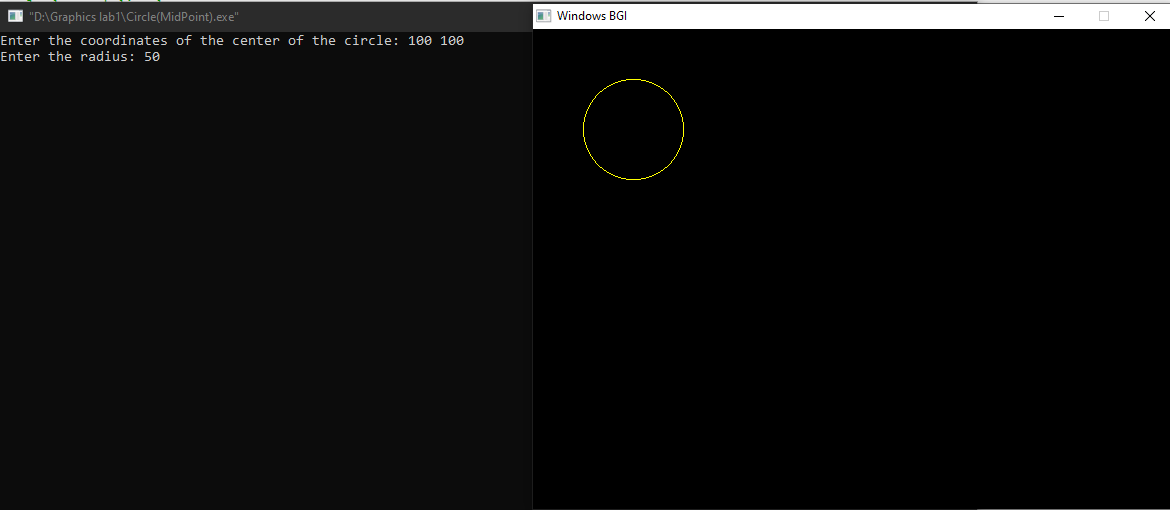
delay(5000);

closegraph();

return 0;

}

**Input and Output:**

****

**Experiment No.: 2**

**Experiment Name:** Scan conversion of an ellipse using Midpoint algorithm

**Source code in C:**

#include <stdio.h>

#include<math.h>

#include <graphics.h>

void drawEillpseMidPoint(int xc, int yc, int a, int b)

{

int x = 0;

int y = b;

int aa=a\*a, bb=b\*b;

int aa2=aa\*2, bb2=bb\*2;

int fx=0, fy=aa2\*y;

int p= bb - aa\*b +0.25\*aa;

while (fx<=fy)

{

putpixel(xc + x, yc + y, YELLOW);

putpixel(xc - x, yc + y, YELLOW);

putpixel(xc + x, yc - y, YELLOW);

putpixel(xc - x, yc - y, YELLOW);

x++;

fx=fx+bb2;

if (p<0)

{

p = p+ fx +bb;

}

else

{

y--;

fy=fy-aa2;

p = p+ fx +bb-fy;

}

}

putpixel(xc + x, yc + y, YELLOW);

putpixel(xc - x, yc + y, YELLOW);

putpixel(xc + x, yc - y, YELLOW);

putpixel(xc - x, yc - y, YELLOW);

p= bb\*(x+0.5)\*(x+0.5) + aa\*(y-1)\*(y-1) - bb\*aa;

while (y>=0)

{

y--;

fy=fy-aa2;

if (p>=0)

{

p = p- fy +aa;

}

else

{

x++;

fx=fx+bb2;

p = p+ fx -fy +aa;

}

putpixel(xc + x, yc + y, YELLOW);

putpixel(xc - x, yc + y, YELLOW);

putpixel(xc + x, yc - y, YELLOW);

putpixel(xc - x, yc - y, YELLOW);

}

return;

}

int main()

{

int xc, yc, radius,a,b;

printf("Enter the coordinates of the center of the ellipse: ");

scanf("%d %d", &xc, &yc);

printf("Enter the length of the major axis: ");

scanf("%d", &a);

printf("Enter the length of the minor axis: ");

scanf("%d", &b);

int gd = DETECT, gm;

initgraph(&gd, &gm, (char\*)"");

drawEillpseMidPoint(xc, yc, a, b);

delay(5000);

closegraph();

return 0;

}

**Input and Output:**

****