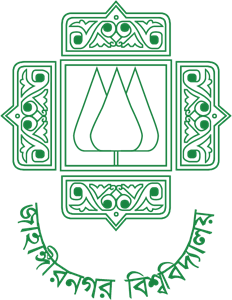
Lab Work-2

*Course title: Computer Graphics Lab*

*Course code: CSE-304*

*3rd  Year 1st Semester Examination 2022*

Date of Submission: 4/6/2023



**Submitted to-**

***Prof. Mohammad Shorif Uddin***

***and***

***Dr. Morium Akter***

***Assistant Professor***

| **Sl** | Class Roll | Exam Roll | Name |
| --- | --- | --- | --- |
| 01 | 348 | 202160 | Samia Alam |

*Department of Computer Science and Engineering*

*Jahangirnagar University*

*Savar, Dhaka*

**Work -1:Midpoint Algorithm**

**Source Code**

#include<bits/stdc++.h>

#include<conio.h>

#include<graphics.h>

#include<math.h>

using namespace std;

//void display();

float x,y;

int xc,yc;

void display()

{

putpixel(xc+x,yc+y,8);

putpixel(xc-x,yc+y,8);

putpixel(xc+x,yc-y,8);

putpixel(xc+x,yc-y,8);

}

int main()

{

int gd=DETECT,gm,a,b;

float p1,p2;

initgraph(&gd,&gm,"c:\\turboc3\\bgi");

printf(" Ellipse Generating Algorithm \n\n");

printf("Enter the value of Xc\t");

scanf("%d",&xc);

printf("Enter the value of Yc\t");

scanf("%d",&yc);

printf("Enter X axis length\t");

scanf("%d",&a);

printf("Enter Y axis length\t");

scanf("%d",&b);

x=0;

y=b;

display();

p1=(b\*b)-(a\*a\*b)+(a\*a)/4;

while((2.0\*b\*b\*x)<=(2.0\*a\*a\*y))

{

x++;

if(p1<=0)

p1=p1+(2.0\*b\*b\*x)+(b\*b);

else

{

y--;

p1=p1+(2.0\*b\*b\*x)+(b\*b)-(2.0\*a\*a\*y);

}

display();

x=-x;

display();

x=-x;

delay(50);

}

x=a;

y=0;

display();

p2=(a\*a)+2.0\*(b\*b\*a)+(b\*b)/4;

while((2.0\*b\*b\*x)>(2.0\*a\*a\*y))

{

y++;

if(p2>0)

p2=p2+(a\*a)-(2.0\*a\*a\*y);

else

{

x--;

p2=p2+(2.0\*b\*b\*x)-(2.0\*a\*a\*y)+(a\*a);

}

display();

y=-y;

display();

y=-y;

delay(50);

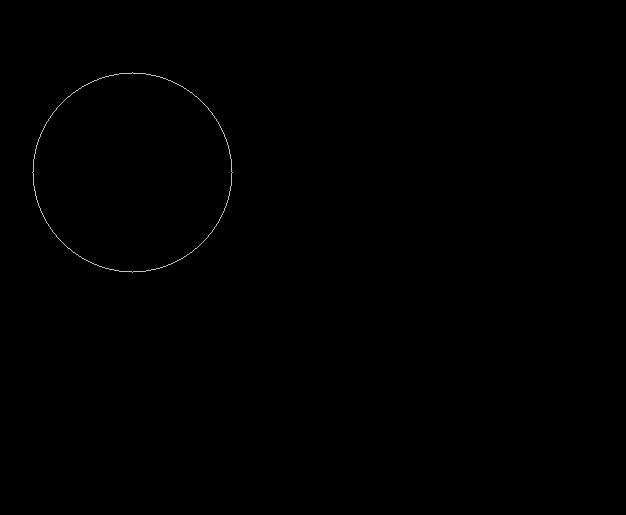
}

getch();

closegraph();

}

**Output Screenshot:**



**Work-2:Scan Convert an Ellipse**

**Source code:**

#include<bits/stdc++.h>

#include<conio.h>

#include<graphics.h>

#include<math.h>

using namespace std;

//void display();

float x,y;

int xc,yc;

void display()

{

putpixel(xc+x,yc+y,8);

putpixel(xc-x,yc+y,8);

putpixel(xc+x,yc-y,8);

putpixel(xc+x,yc-y,8);

}

int main()

{ int gd=DETECT,gm,a,b;

float p1,p2;

initgraph(&gd,&gm,"c:\\turboc3\\bgi");

printf(" Ellipse Generating Algorithm \n\n");

printf("Enter the value of Xc\t");

scanf("%d",&xc);

printf("Enter the value of Yc\t");

scanf("%d",&yc);

printf("Enter X axis length\t");

scanf("%d",&a);

printf("Enter Y axis length\t");

scanf("%d",&b);

x=0;

y=b;

display();

p1=(b\*b)-(a\*a\*b)+(a\*a)/4;

while((2.0\*b\*b\*x)<=(2.0\*a\*a\*y))

{

x++;

if(p1<=0)

p1=p1+(2.0\*b\*b\*x)+(b\*b);

else

{

y--;

p1=p1+(2.0\*b\*b\*x)+(b\*b)-(2.0\*a\*a\*y);

}

display();

x=-x;

display();

x=-x;

delay(50);

}

x=a;

y=0;

display();

p2=(a\*a)+2.0\*(b\*b\*a)+(b\*b)/4;

while((2.0\*b\*b\*x)>(2.0\*a\*a\*y))

{

y++;

if(p2>0)

p2=p2+(a\*a)-(2.0\*a\*a\*y);

else

{

x--;

p2=p2+(2.0\*b\*b\*x)-(2.0\*a\*a\*y)+(a\*a);

}

display();

y=-y;

display();

y=-y;

delay(50);

}

getch();

closegraph();

}

**Output ScreenShoot:**

