Title: Lab Report No.2

Course title: Computer Graphics Laboratory
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Submitted to-

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Scan Conversion of a circle using Mid Point Algorithm:
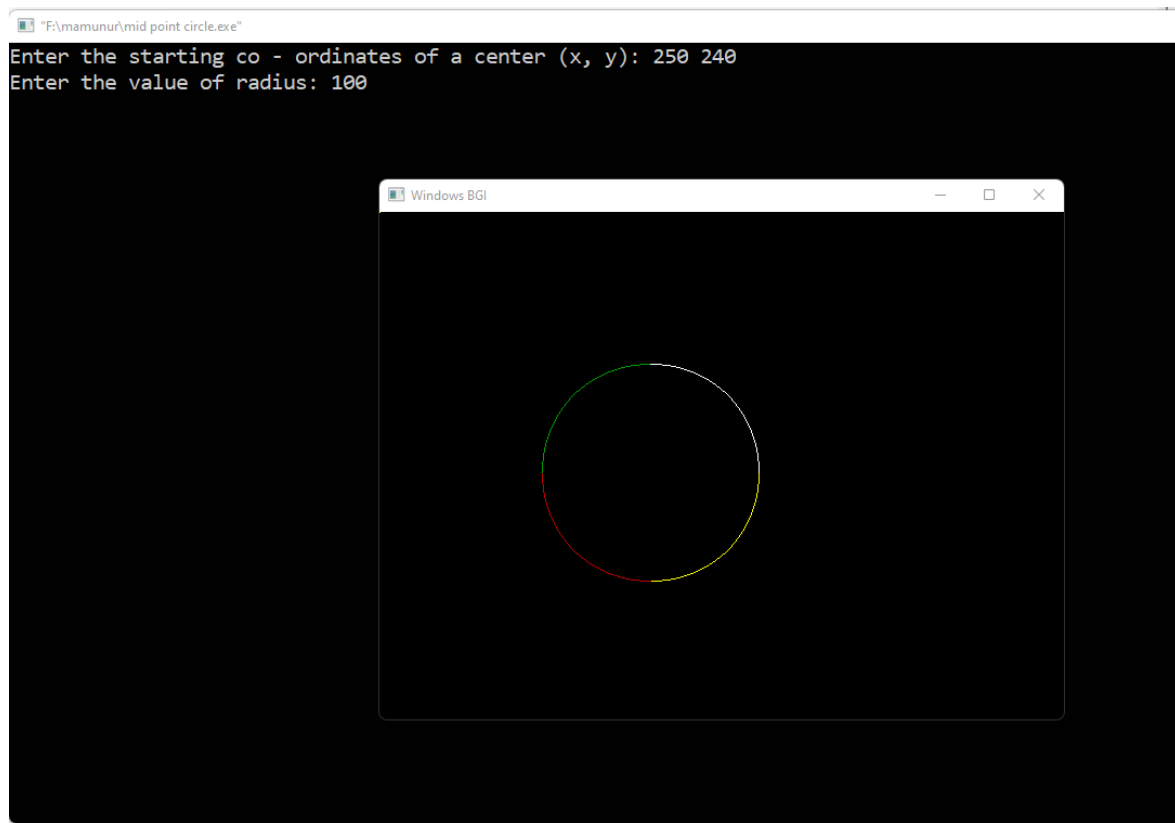
Source Code:

```cpp
#include <bits/stdc++.h>
#include <graphics.h>
using namespace std;
void mid_circle(double x1, double y1, double r)
{
    int x = 0;
    int y = r;
    int p = 1-r;
    while (y>x)
    {
        putpixel(x1 + x, y1 + y, YELLOW);
        putpixel(x1 + y, y1 + x,YELLOW);
        putpixel(x1 - x, y1 + y,RED);
        putpixel(x1 - y, y1 + x, RED);
        putpixel(x1 - x, y1 - y, GREEN);
        putpixel(x1 - y, y1 - x, GREEN);
        putpixel(x1 + x, y1 - y, WHITE);
        putpixel(x1 + y, y1 - x, WHITE);
        if (p < 0)
        {
            p += 2*x + 1;
        }
        else
        {
            p += 2*x -2*y+1;
            y=y-1;
        }
        x=x+1;
        delay(50);
    }
}
int main()
{
    double x1, y1, r;
    int gd = DETECT, gm;
    cout<<"Enter the starting co - ordinates of a center (x, y): ";
    cin>>x1>>y1;
    cout<<"Enter the value of radius: ";
    cin>>r;
```

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```
        initgraph(&gd, &gm, "");
        mid_circle(x1, y1, r);
        getch();
        closegraph();
        return 0;
}
```

OUTPUT:

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Scan Conversion of a Ellipse:
Source Code:

```cpp
#include<iostream>
#include<graphics.h>
#include<conio.h>
#include<math.h>
using namespace std;
void put4pixel(int x,int y,int h,int k)
{
    putpixel(x+h,y+k,8);
    putpixel(x+h,-y+k,8);
    putpixel(-x+h,y+k,8);
    putpixel(-x+h,-y+k,8);
}
int main()
{
    int x,y,x1,y1,a,b,h,k,theta;
    float p=3.14159/180;
    cout<<"Enter the x and y coordinates: ";
    cin>>h>>k;
    cout<<"Enter the major radius: ";
    cin>>a;
    cout<<"Enter the minor radius: ";
    cin>>b;
    int gd=DETECT,gm;
    initgraph(&gd,&gm,"");
    setbkcolor(WHITE);
    for(theta=0; theta<=90; theta++)
    {
        x1=a*cos(theta*p);
        y1=b*sin(theta*p);
        x=int(x1+0.5);
        y=int(y1+0.5);
        put4pixel(x,y,h,k);
    }
    setcolor(8);
    getch();
    closegraph();
```

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```
        return 0;
}
```

OUTPUT:

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