



আন্তর্জাতিক ইসলামী বিশ্ববিদ্যালয় চট্টগ্রাম
الجامعة الإسلامية العالمية شيتاغونغ
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LAB - 5

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Course Title : Computer Graphics Lab

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1. Ellipse using polynomial method

```
#include<bits/stdc++.h>
```

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

```
#include<conio.h>
```

```
#include<math.h>
```

```
using namespace std;
```

```
void plot4pixels(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,r,i,h,k,a,b;
```

```
    a=50;
```

```
    b=30;
```

```
    x=0;
```

```
    y=30;
```

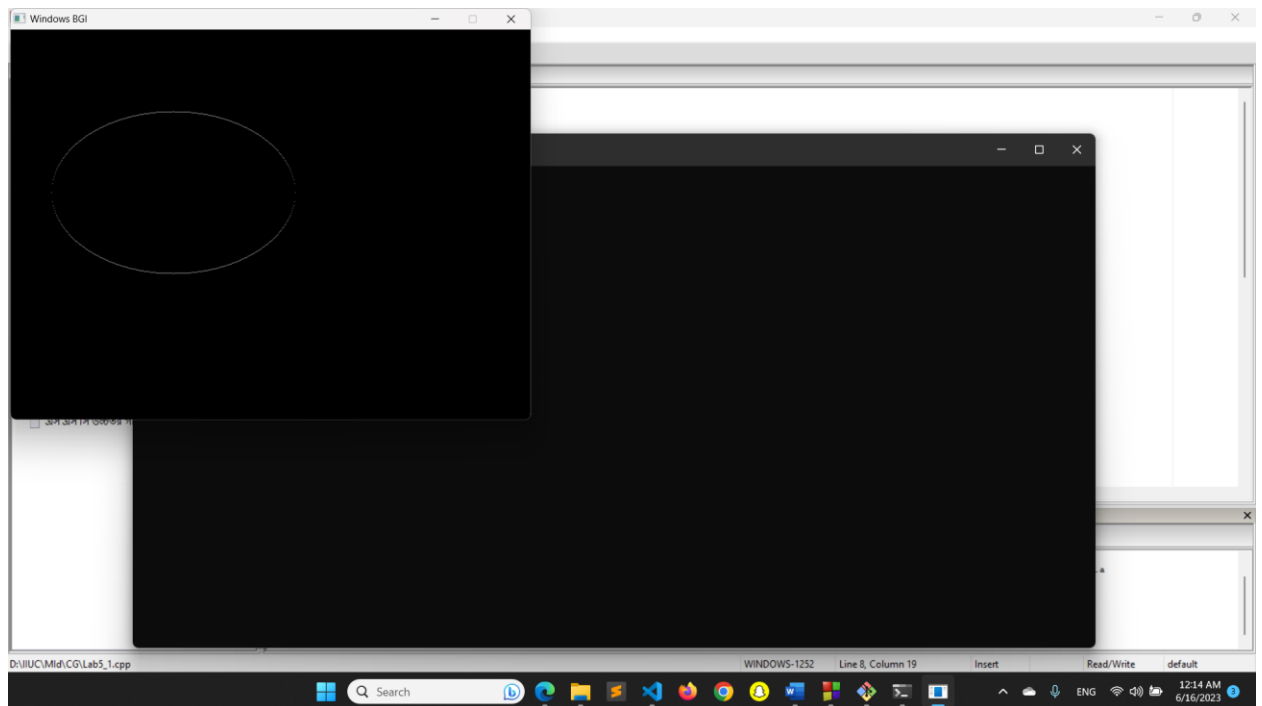
```
    int gd=DETECT,gm;
```

```
    initgraph(&gd,&gm,"");
```

```

setbkcolor(GREEN);
while(x<a)
{
    plot4pixels(x,y,200,200);
    x++;
    y=b*sqrt(((a*a)-(x*x*1.0))/(a*a));
}
plot4pixels(x,y,200,200);
setcolor(8);
getch();
}

```



2. Ellipse using Trigonometric method

```
#include<bits/stdc++.h>
```

```
#include<graphics.h>
#include<conio.h>
#include<math.h>
using namespace std;
void plot4pixels(int,int,int,int);
int main()
{
    int x,y,x1,y1,a,b,h,k,theta;
    float p=3.14159/180;

    int gd=DETECT,gm;
    initgraph(&gd,&gm,"");
    setbkcolor(WHITE);
    for(theta=0; theta<=90; theta++)
    {
        x1=50*cos(theta*p);
        y1=30*sin(theta*p);
        x=int(x1+0.5);
        y=int(y1+0.5);
        plot4pixels(x,y,200,200);
    }
    setcolor(8);
```

The screenshot shows a Windows desktop environment. In the foreground, there is a window titled "Windows BGI" which displays a black canvas with a white circle centered on it. Behind this window, a command prompt window is open, showing the output of a compilation command. The command prompt text is as follows:

```
mingw32-g++ -o D:\IUC\Mid\CG\Lab5_2.exe D:\IUC\Mid\CG\Lab5_2.o -lbgi -lgdi32 -lcomctl32 -luser32 -loleaut32 -lole32 D:\AS\MinGW\lib\libbgi.a
Process terminated with status 0 (0 minutes, 0 seconds)
0 errors, 1 warnings (0 minutes, 0 seconds)

Checking for existence: D:\IUC\Mid\CG\Lab5_2.exe
Executing: D:\AS\cb_console_runner.exe "D:\IUC\Mid\CG\Lab5_2.exe" (in D:\IUC\Mid\CG)
```

The taskbar at the bottom of the screen shows the Start button, a search bar, and several pinned application icons including File Explorer, Visual Studio Code, and various web browsers. The system tray on the right indicates the date and time as 12:17 AM on 6/16/2023.

```
#include<bits/stdc++.h>
```

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

```
#include<conio.h>

using namespace std;

int main()
{

    int gd = DETECT, gm;
    int x = 250;
    int y = 250;

    int start_angle = 155;
    int end_angle = 300;

    int radius = 100;

    initgraph(&gd, &gm, "");

    arc(x, y, start_angle, end_angle, radius);

    getch();

    closegraph();
```

```
    return 0;  
}
```

4. Sectors

```
#include<bits/stdc++.h>  
#include<graphics.h>  
#include<conio.h>  
using namespace std;  
int main()  
{  
  
    int gd = DETECT, gm;  
  
    initgraph(&gd, &gm, "");  
  
    sector(200, 200, 0, 150, 50, 65);  
  
    getch();  
  
    closegraph();  
  
    return 0;
```

}