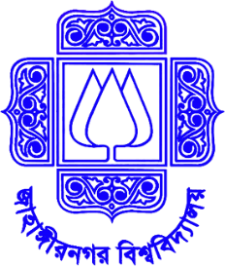
**Lab Report. 02**

*Course title: Computer Graphics Lab*

*Course code: CSE-304*

*3rd Year 1st Semester 2022*

**Date of Submission**: 4/6/2023



###### 

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

###### **Dr. Mohammad Shorif Uddin** Professor &

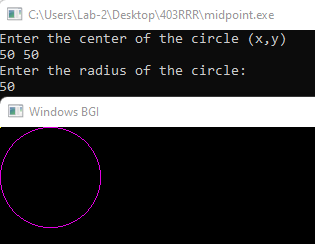
***Dr. Morium Akter*** Associate Professor

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| **Sl** | Class Roll | Exam Roll | Name |
| 01 | 403 |  | Raian Rashid |

Scan Conversion of a Circle using Midpoint Algorithm:

Code:

|  |  |
| --- | --- |
| #include<iostream>  #include<graphics.h>  using namespace std;  void midpoint(int xc, int yc, int r)  {  int x = 0;  int y = r;  int p = 1-r;  while(x<=y)  {  putpixel(xc+x,yc+y, MAGENTA);  putpixel(xc-x,yc+y, MAGENTA);  putpixel(xc+x,yc-y, MAGENTA);  putpixel(xc-x,yc-y, MAGENTA);  putpixel(xc+y,yc+x, MAGENTA);  putpixel(xc-y,yc+x, MAGENTA);  putpixel(xc+y,yc-x, MAGENTA);  putpixel(xc-y,yc-x, MAGENTA);  if(p<0)  {  p += 2\*x+3;  } | else  {  p += 2\*(x-y)+5;  y--;  }  x++;  }  }  int main()  {  int gd = DETECT, gm;  initgraph(&gd,&gm, "");  int xc,yc,r;  cout<<"Enter the center of the circle (x,y)"<<endl;  cin >> xc >> yc;  cout << "Enter the radius of the circle: " << endl;  cin >> r;  midpoint(xc,yc,r);  delay(5000000);  closegraph();  return 0;  } |

Output:

Scan Conversion of an Ellipse:

Code:

|  |  |
| --- | --- |
| #include<graphics.h>  using namespace std;  void drawellipse(int xc, int yc, int a, int b)  {  int x=0;  int y=b;  int a\_sqr = a\*a;  int b\_sqr = b\*b;  int two\_a\_sqr = 2\*a\_sqr;  int two\_b\_sqr = 2\*b\_sqr;  int p;  int px = 0;  int py = two\_a\_sqr\*y;  p = b\_sqr - (a\_sqr\*b)+(0.25\*a\_sqr);  while(px<py)  {  putpixel(xc+x,yc+y, CYAN);  putpixel(xc-x,yc+y, CYAN);  putpixel(xc+x,yc-y, CYAN);  putpixel(xc-x,yc-y, CYAN);  x++;  px += two\_b\_sqr;  if(p<0)  {  p += b\_sqr+px;  }  else  {  y--;  py -= two\_a\_sqr;  p += b\_sqr + px-py;  }  }  while(y>=0) | {  putpixel(xc+x,yc+y, CYAN);  putpixel(xc-x,yc+y, CYAN);  putpixel(xc+x,yc-y, CYAN);  putpixel(xc-x,yc-y, CYAN);  y--;  py -= two\_a\_sqr;  if(p>0)  {  p += a\_sqr - py;  }  else  {  x++;  px += two\_a\_sqr;  p += a\_sqr - py+px;  }  }  }  int main()  {  int gd = DETECT, gm;  initgraph(&gd, &gm, "");  int xc,yc,a,b;  cout << "Enter the center coordinate of the ellipse: " << endl;  cin >> xc >> yc;  cout << "Enter the length of the major axis: " << endl;  cin >> a;  cout <<"Enter the length of the minor axis: "<< endl;  cin >> b;  drawellipse(xc,yc,a,b);  delay(500000);  closegraph();  return 0;} |

Output:

