**ST.XAVIER’S COLLEGE**

MAITIGHAR, KATHMANDU



**Computer Graphics Assignment #6**

**Draw a Ellipse using Mid-point Algorithm**

**Submitted By:**

Sushant Gautam

013BSCCSIT043

**Submitted to:**

|  |  |
| --- | --- |
| Er. Anil K. Sah  Lecturer, Department of Computer Science |  |

//---------------------------------------------------------------------------

#include <vcl\vcl.h>

#pragma hdrstop

#include "ellipse.h"

//---------------------------------------------------------------------------

#pragma resource "\*.dfm"

TForm1 \*Form1;

int xc,yc,rx,ry,x,y,p;

//---------------------------------------------------------------------------

\_\_fastcall TForm1::TForm1(TComponent\* Owner)

: TForm(Owner)

{

}

//---------------------------------------------------------------------------

void \_\_fastcall TForm1::Button1Click(TObject \*Sender)

{

xc=StrToInt(Edit1->Text);

yc=StrToInt(Edit2->Text);

rx=StrToInt(Edit3->Text);

ry=StrToInt(Edit4->Text);

x=0;

y=ry;

p=(ry\*ry)-(rx\*rx\*ry)+((rx\*rx)/4);

while((2\*x\*ry\*ry)<(2\*y\*rx\*rx))

{

Image1->Canvas->Pixels[xc+x][yc-y]=RGB(100,125,150);

Image1->Canvas->Pixels[xc-x][yc+y]=RGB(100,1,0);

Image1->Canvas->Pixels[xc+x][yc+y]=RGB(0,125,150);

Image1->Canvas->Pixels[xc-x][yc-y]=RGB(200,15,150);

if(p<0)

{

x=x+1;

p=p+(2\*ry\*ry\*x)+(ry\*ry);

}

else

{

x=x+1;

y=y-1;

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

}

}

p=((float)x+0.5)\*((float)x+0.5)\*ry\*ry+(y-1)\*(y-1)\*rx\*rx-rx\*rx\*ry\*ry;

while(y>=0)

{

Image1->Canvas->Pixels[xc+x][yc-y]=RGB(100,125,150);

Image1->Canvas->Pixels[xc-x][yc+y]=RGB(100,1,0);

Image1->Canvas->Pixels[xc+x][yc+y]=RGB(0,125,150);

Image1->Canvas->Pixels[xc-x][yc-y]=RGB(200,15,150);

if(p>0)

{

y=y-1;

p=p-(2\*rx\*rx\*y)+(rx\*rx);

}

else

{

y=y-1;

x=x+1;

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

} }

}

//---------------------------------------------------------------------------

