ST. XAVIER’S COLLEGE

**(Affiliated to Tribhuvan University)**

Maitighar, Kathmandu



**Computer Graphics**

**Lab Assignment #5**

**Submitted by:**

PRANESH DHUNJU SHRESTHA

013BSCCSIT026

**Submitted to:**

|  |  |
| --- | --- |
| **Er. Anil Sah**  **Lecturer,**  **St. Xavier’s College** |  |

**Submission Date**

**August 21, 2015**

**STATEMENT :**

DRAW A CIRCLE USING MID-POINT ALGORITHM.

**MID POINT CIRCLE ALGORITHM:**

1. Set X = 0 and Y = R
2. Set P = 1 – R
3. Repeat While (X < Y)
4. Call Draw Circle(Xc, Yc, X, Y)
5. Set X = X + 1
6. If (P < 0) Then
7. P = P + 2X + 6
8. Else
9. Set Y = Y – 1
10. P = P + 2(X – Y) + 1
    1. [End of If]
11. Call Draw Circle(Xc, Yc, X, Y)
    1. [End of While]
12. Exit

**SOURCE CODE :**

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

#include <vcl\vcl.h>

#pragma hdrstop

#include "midpointcircle.h"

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

#pragma resource "\*.dfm"

TForm1 \*Form1;

int xc,yc,r,x,y,pk ;

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

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

: TForm(Owner)

{

}

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

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

{

xc=StrToInt(Edit1->Text);

yc=StrToInt(Edit2->Text);

r=StrToInt(Edit3->Text);

x=0;

y=r;

pk=1-r;

Image1->Canvas->Pixels[xc+x][yc+y]=RGB(255,33,33);

Image1->Canvas->Pixels[xc+y][yc+x]=RGB(0,77,255);

Image1->Canvas->Pixels[xc-y][yc+x]=RGB(0,255,60);

Image1->Canvas->Pixels[xc-x][yc+y]=RGB(255,231,6);

Image1->Canvas->Pixels[xc-x][yc-y]=RGB(6,181,255);

Image1->Canvas->Pixels[xc-y][yc-x]=RGB(6,22,255);

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

Image1->Canvas->Pixels[xc+x][yc-y]=RGB(222,0,255);

while(x<y)

{

if(pk<0)

{

x=x+1;

pk=pk+(2\*x)+1;

}

else

{

x=x+1;

y=y-1;

pk=pk+(2\*x)-(2\*y)+1;

}

Image1->Canvas->Pixels[xc+x][yc+y]=RGB(255,33,33);

Image1->Canvas->Pixels[xc+y][yc+x]=RGB(0,77,255);

Image1->Canvas->Pixels[xc-y][yc+x]=RGB(0,255,60);

Image1->Canvas->Pixels[xc-x][yc+y]=RGB(255,231,6);

Image1->Canvas->Pixels[xc-x][yc-y]=RGB(6,181,255);

Image1->Canvas->Pixels[xc-y][yc-x]=RGB(6,22,255);

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

Image1->Canvas->Pixels[xc+x][yc-y]=RGB(222,0,255);

}

}

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

**OUTPUT SCREEN :**

