**ST.XAVIER’S COLLEGE**

MAITIGHAR, KATHMANDU



Computer Graphics

Assignment #5

Submitted By:

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Submitted to:

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**STATEMENT**

Write a program to draw a circle in C++ builder.

­**ALGORITHM**

Step 1: Set x = 0 and y = R

Step 2: Set P = 1 – R

Step 3: Repeat While (x < y)

Call Draw Circle(x0, y0, x, y)

Set x = x + 1

If (P < 0) Then

P = P + 2x + 6

Else

Set y = y – 1

P = P + 2(x – y) + 1

Step 4: Call Draw Circle(x0, y0, x, y)

Draw Circle (x0, y0, x, y)

Image1->Canvas->Pixels[x0 + x][y0 + y];

Image1->Canvas->Pixels[x0 - x][y0 + y];

Image1->Canvas->Pixels[x0 + x][y0 + y];

Image1->Canvas->Pixels[x0 + x][y0 - y];

Image1->Canvas->Pixels[x0 - x][y0 - y];

Image1->Canvas->Pixels[x0 + x][y0 + y];

Image1->Canvas->Pixels[x0 - x][y0 + y];

Image1->Canvas->Pixels[x0 + x][y0 - y];

Image1->Canvas->Pixels[x0 - x][y0 - y];

**SOURCE CODE**

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

#include <vcl\vcl.h>

#pragma hdrstop

#include "C.h"

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

#pragma resource "\*.dfm"

TForm1 \*Form1;

int r, x0, y0;

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

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

: TForm(Owner)

{

}

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

void \_\_fastcall TForm1::Edit1Change(TObject \*Sender)

{

r = Edit1->Text.ToInt();

}

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

void \_\_fastcall TForm1::Edit2Change(TObject \*Sender)

{

x0 = Edit2->Text.ToInt();

}

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

void \_\_fastcall TForm1::Edit3Change(TObject \*Sender)

{

y0 = Edit3->Text.ToInt();

}

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

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

{

int x,y,p;

x = 0;

y = r;

Image1->Canvas->Pixels[x0 + x][y0 + y] =RGB(0,0,255);

Image1->Canvas->Pixels[x0 - x][y0 + y] =RGB(0,0,255);

Image1->Canvas->Pixels[x0 + x][y0 - y] =RGB(12,23,255);

Image1->Canvas->Pixels[x0 - x][y0 - y] =RGB(255,0,255);

Image1->Canvas->Pixels[x0 + x][y0 + y] =RGB(12,23,255);

Image1->Canvas->Pixels[x0 + x][y0 - y] =RGB(0,12,255);

Image1->Canvas->Pixels[x0 - x][y0 + y] =RGB(12,255,255);

Image1->Canvas->Pixels[x0 - x][y0 - y] =RGB(0,23,127);

p = 1 - r;

while (x<y)

{

if (p<0)

{

x++;

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

}

else

{

x++;

y--;

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

}

Image1->Canvas->Pixels[x0 + x][y0 + y] =RGB(0,0,255);

Image1->Canvas->Pixels[x0 - x][y0 + y] =RGB(0,0,255);

Image1->Canvas->Pixels[x0 + x][y0 - y] =RGB(12,23,255);

Image1->Canvas->Pixels[x0 - x][y0 - y] =RGB(255,0,255);

Image1->Canvas->Pixels[x0 + x][y0 + y] =RGB(12,23,255);

Image1->Canvas->Pixels[x0 + x][y0 - y] =RGB(0,12,255);

Image1->Canvas->Pixels[x0 - x][y0 + y] =RGB(12,255,255);

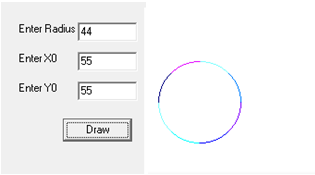
Image1->Canvas->Pixels[x0 - x][y0 - y] =RGB(0,23,127);

}

}

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

**OUTPUT SCREENS**

****

**CONCLUSION**

Hence, a program to draw a circle was implemented using in C++ builder.