ST. XAVIER’S COLLEGE

**(Affiliated to Tribhuvan University)**

**Maitighar, Kathmandu**

****

**Computer Graphics**

**Lab Assignment # 6**

**Mid-Point Ellipse Algorithm in C++ Builder**

**SUBMITTED BY:**

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**SUBMITTED TO:**

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**STATEMENT**

**Write a program to draw an ellipse using mid-point circle Algorithm in C++ Builder.**

**SOURCE CODE:**

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

#include <vcl\vcl.h>

#pragma hdrstop

#include "Ellipse.h"

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

#pragma resource "\*.dfm"

TForm1 \*Form1;

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

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

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

: TForm(Owner)

{

}

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

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

{

rx = StrToInt(Edit1->Text);

}

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

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

{

ry = StrToInt(Edit2->Text);

}

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

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

{

xc = StrToInt(Edit3->Text);

}

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

void \_\_fastcall TForm1::Edit4Change(TObject \*Sender)

{

yc = StrToInt(Edit3->Text);

}

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

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

{

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(128,220,245);

Image1->Canvas->Pixels[xc-x][yc+y]=RGB(98,180,250);

Image1->Canvas->Pixels[xc+x][yc+y]=RGB(105,249,85);

Image1->Canvas->Pixels[xc-x][yc-y]=RGB(225,175,75);

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(128,220,245);

Image1->Canvas->Pixels[xc-x][yc+y]=RGB(98,180,250);

Image1->Canvas->Pixels[xc+x][yc+y]=RGB(105,249,85);

Image1->Canvas->Pixels[xc-x][yc-y]=RGB(225,175,75);

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);

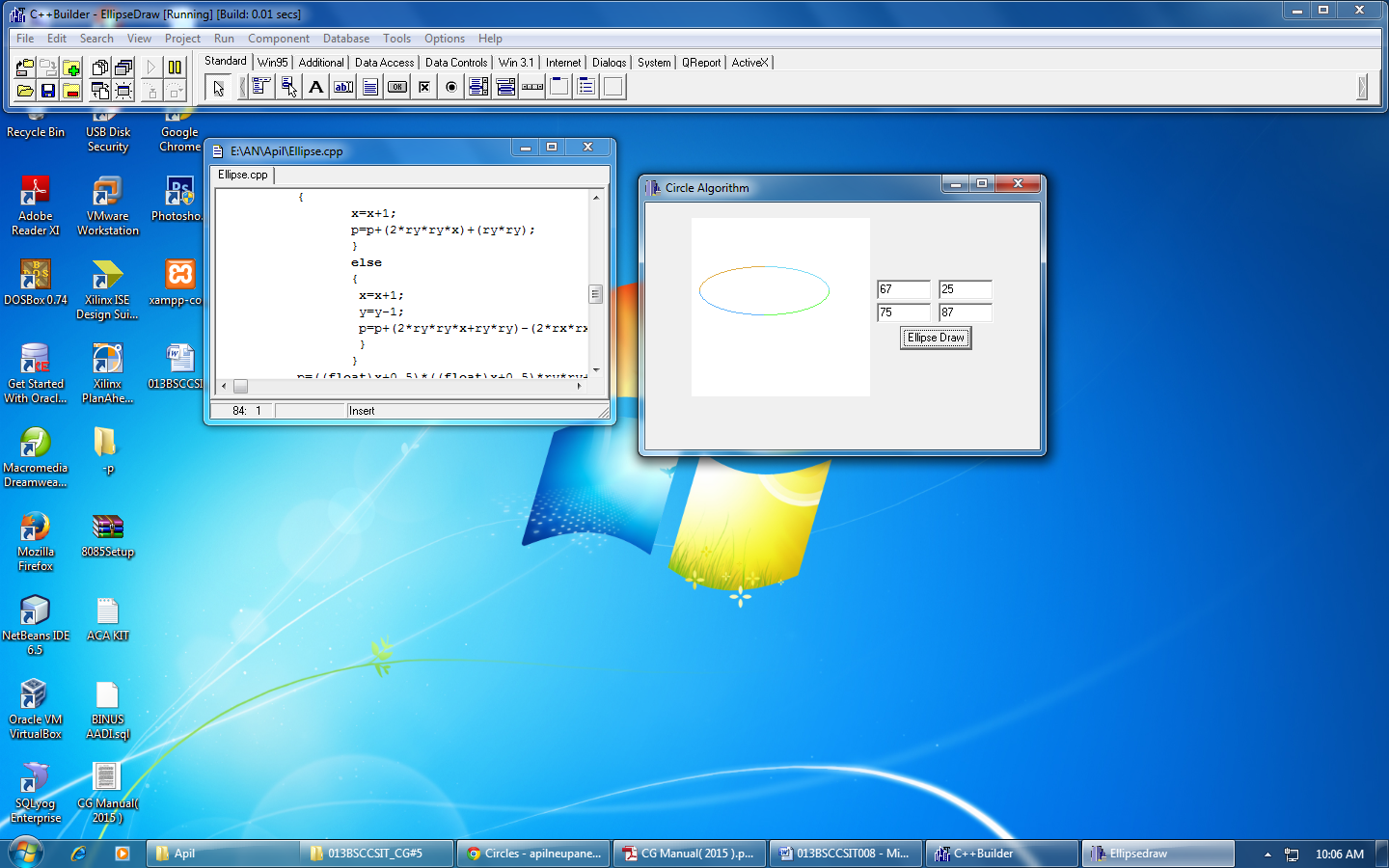
}

}

}

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

**OUTPUT:**



**CONCLUSION:**

Hence, a program to draw an ellipse using mid-point Algorithm was implemented in C++ Builder.