**ST.XAVIER’S COLLEGE**

(Affiliated to Tribhuwan University)

MAITIGHAR, KATHMANDU



Computer Graphics

Assignment #7

Submitted By:

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2nd year/ 4th semester

Submitted to:

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**STATEMENT: “IMPLEMENT TRANSLATION, ROTATION AND SCALING ALGORITHM IN C++ BUILDER”.**

**SOURCE CODE:**

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

#include <vcl\vcl.h>

#pragma hdrstop

#include <math.h>

#include "transformation.h"

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

#pragma resource "\*.dfm"

TForm1 \*Form1;

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

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

: TForm(Owner)

{

}

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

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

{

outPanel->Canvas->FillRect(ClientRect);

int i ,j,tx,ty,x,y;

int h = inPanel->Height;

int w= inPanel->Width;

tx= StrToInt(inTx->Text);

ty= StrToInt(inTy->Text);

for(i=0;i<=h;i++){

for(j=0;j<=w;j++){

x=i+tx;

y=j+ty;

outPanel->Canvas->Pixels[x][y] = inPanel->Canvas->Pixels[i][j];

}

}

}

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

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

{

outPanel->Canvas->FillRect(ClientRect);

int i,j,h,w;

float x,y;

float angle= StrToFloat(inRo->Text)\*(3.1415/180);

h =inPanel->Height;

w= inPanel->Width;

for(i=0;i<=h;i++){

for(j=0;j<=w;j++){

x=(i\*cos(angle)- j\*sin(angle));

y=(j\*cos(angle) + i\*sin(angle));

outPanel->Canvas->Pixels[x][y] = inPanel->Canvas->Pixels[i][j];

}

}

}

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

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

{

outPanel->Canvas->FillRect(ClientRect);

int i ,j,sx,sy,x,y;

int h = inPanel->Height;

int w= inPanel->Width;

sx= StrToInt(Edit1->Text);

sy= StrToInt(Edit2->Text);

for(i=0;i<=h;i++){

for(j=0;j<=w;j++){

x=i\*sx;

y=j\*sy;

outPanel->Canvas->Pixels[x][y] = inPanel->Canvas->Pixels[i][j];

}

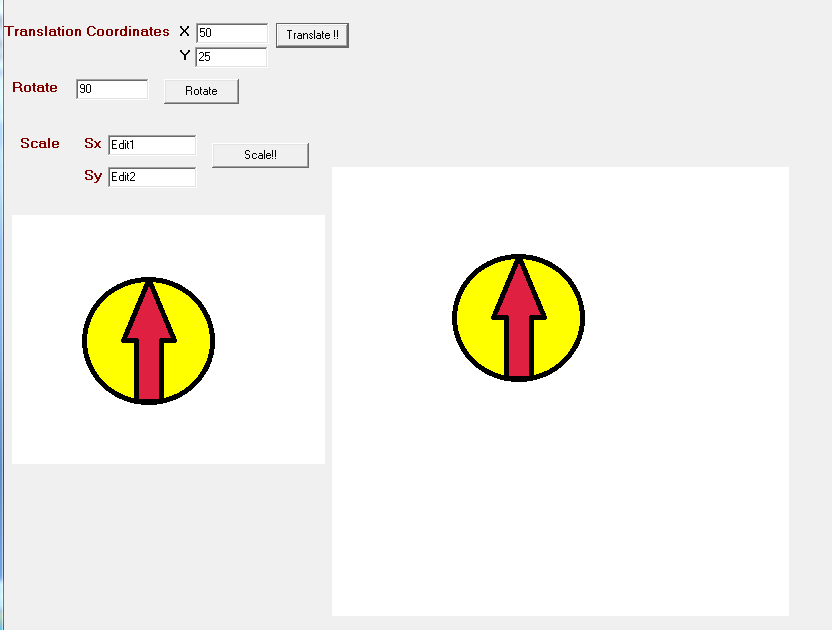
}

}

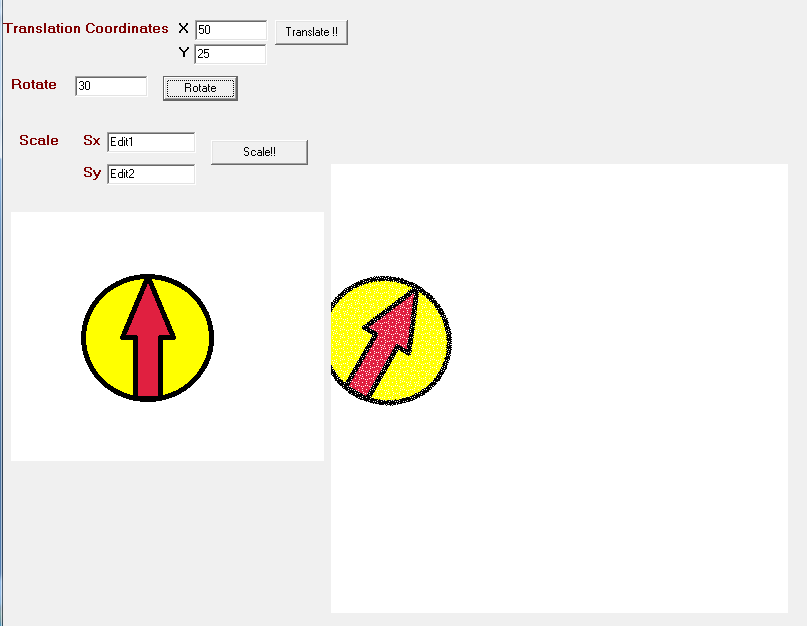
//-----

**OUTPUT SCREENS:**

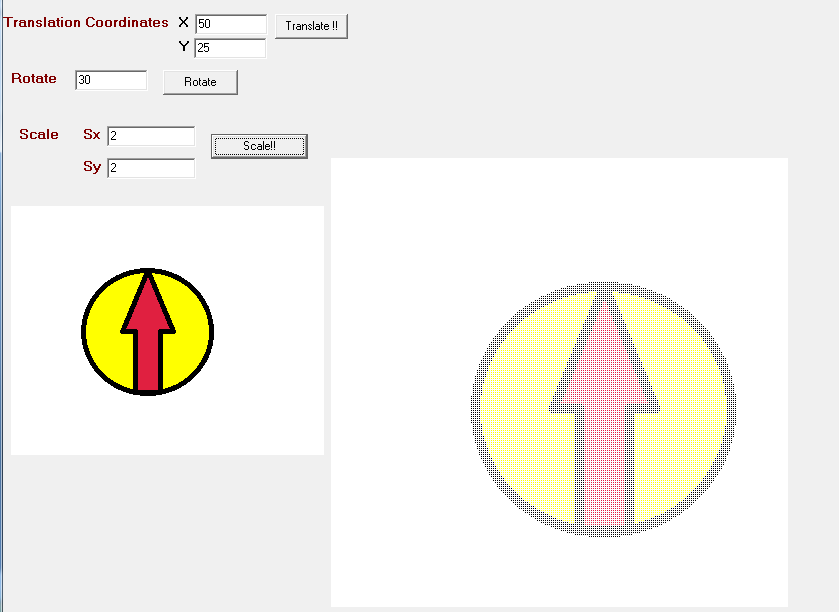
**Translation:**

****

**Rotation:**

****

**Scaling:**

****

**CONCLUSION:**

Hence, the program to implement translation, rotation and scaling using C++ builder was implemented.