**St. Xavier’s College**

**(Affiliated to Tribhuvan University)**

**Maitighar, Kathmandu**



**COMPUTER GRAPHICS**

**LAB ASSIGNMENT #7**

**TO IMPLEMENT TRANSLATION, ROTATION AND SCALING**

**Submitted By**

Urendra Khakurel

013BSCCSIT045

**Submitted To**

|  |  |
| --- | --- |
| Er. Anil K Shah  Lecturer, St. Xavier’s College |  |

Department of Computer Science

Date of Submission: 1st Sep, 2015

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

#include <vcl.h>

#include <math.h>

#pragma hdrstop

#include "Unit1.h"

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

#pragma package(smart\_init)

#pragma resource "\*.dfm"

inti, j;

TForm1 \*Form1;

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

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

: TForm(Owner)

{

}

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

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

{

intTx=StrToInt(Edit1->Text);

int Ty=StrToInt(Edit2->Text);

int x = Image1->Height;

int y = Image1->Width;

for(i=0;i<=x;i++)

{

for(j=0;j<=y;j++)

{

int a = i + Tx;

int b = j + Ty;

Image2->Canvas->Pixels[a][b] = Image1->Canvas->Pixels[i][j];

}

}

}

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

void \_\_fastcall TForm1::Button3Click(TObject \*Sender)

{

intSx = StrToInt(Edit4->Text);

intSy = StrToInt(Edit5->Text);

int x = Image1->Height;

int y = Image1->Width;

for(i=0;i<=x;i++)

{

for(j=0;j<=y;j++)

{

int a = i \* Sx;

int b = j \* Sy;

Image2->Canvas->Pixels[a][b] = Image1->Canvas->Pixels[i][j];

}

}

}

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

void \_\_fastcall TForm1::Button2Click(TObject \*Sender)

{

int theta =StrToInt(Edit3->Text);

int x = Image1->Height;

int y = Image1->Width;

for(i=0;i<=x;i++)

{

for(j=0;j<=y;j++)

{

int a = i\*cos(theta)-j\*sin(theta);

int b = j\*cos(theta)+i\*sin(theta);

Image2->Canvas->Pixels[a][b] = Image1->Canvas->Pixels[i][j];

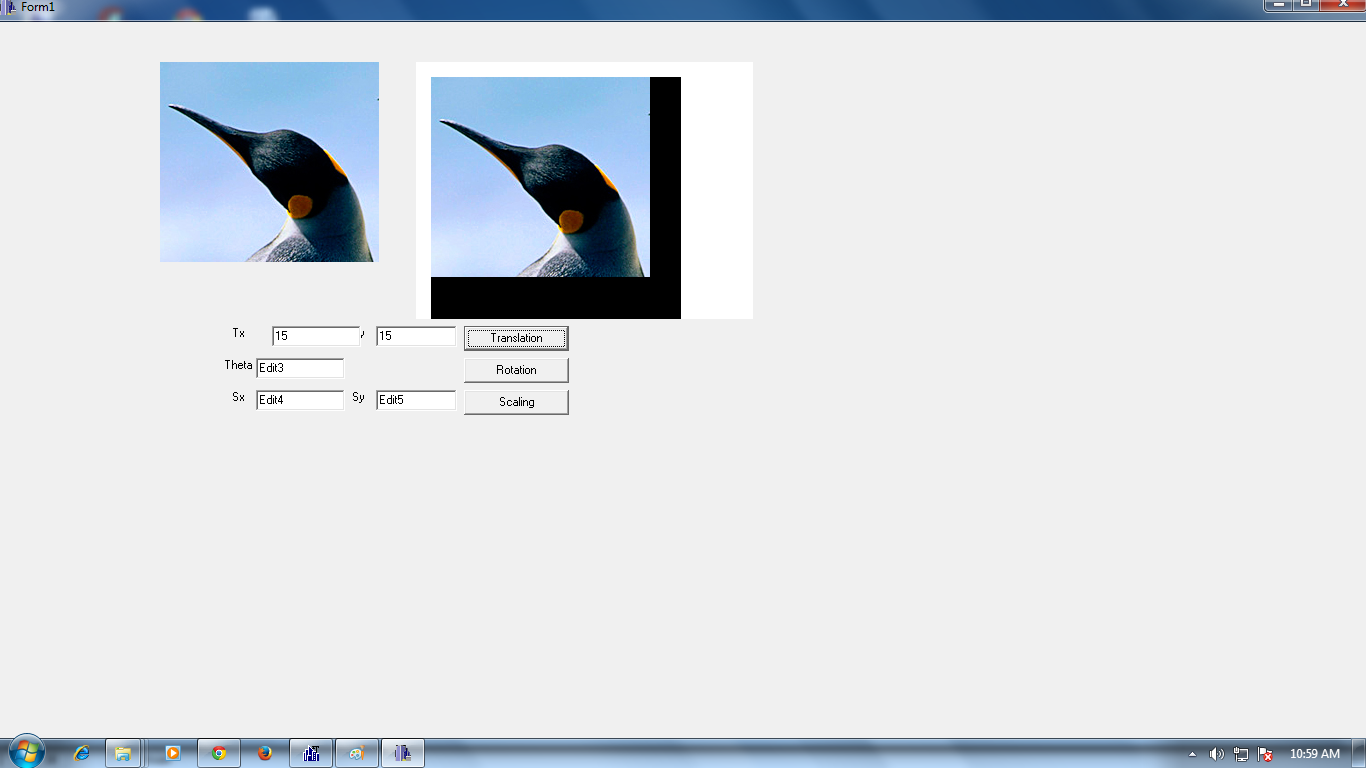
}

}

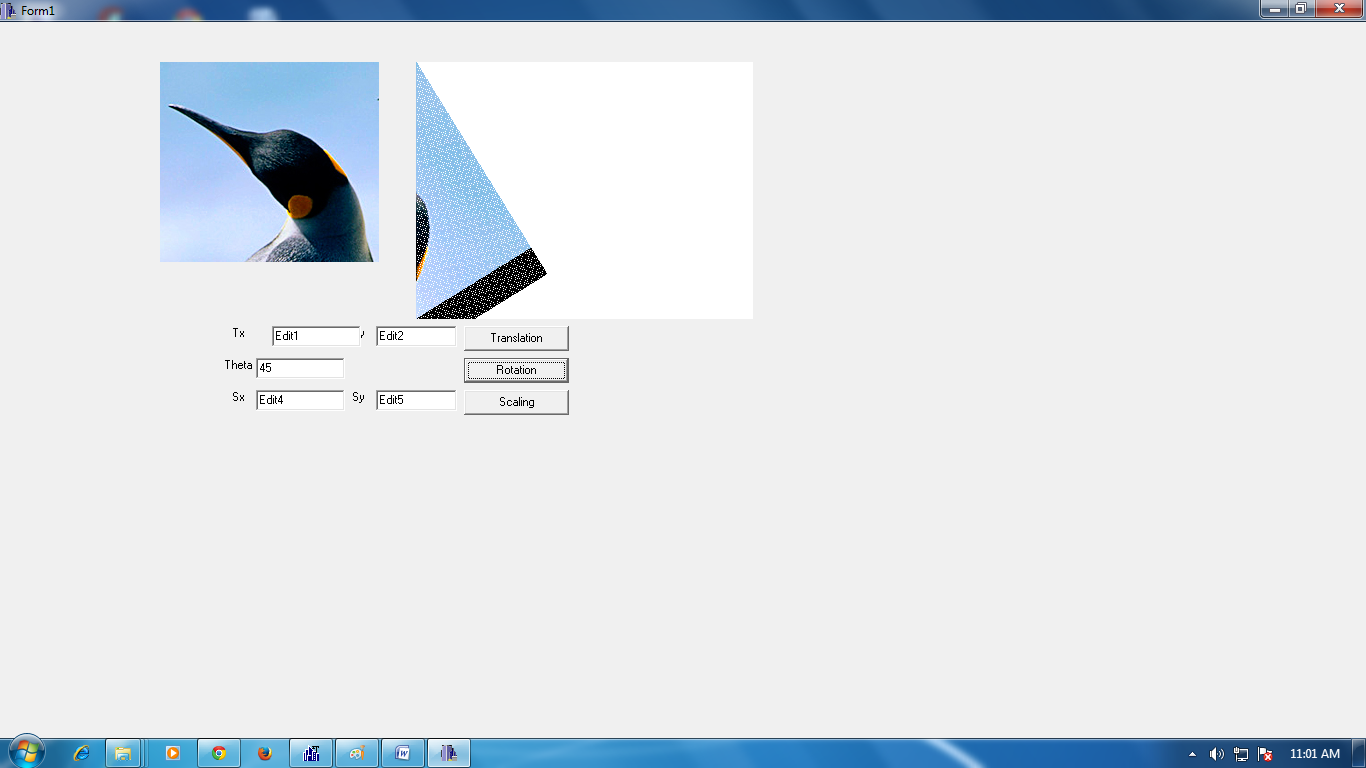
}

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

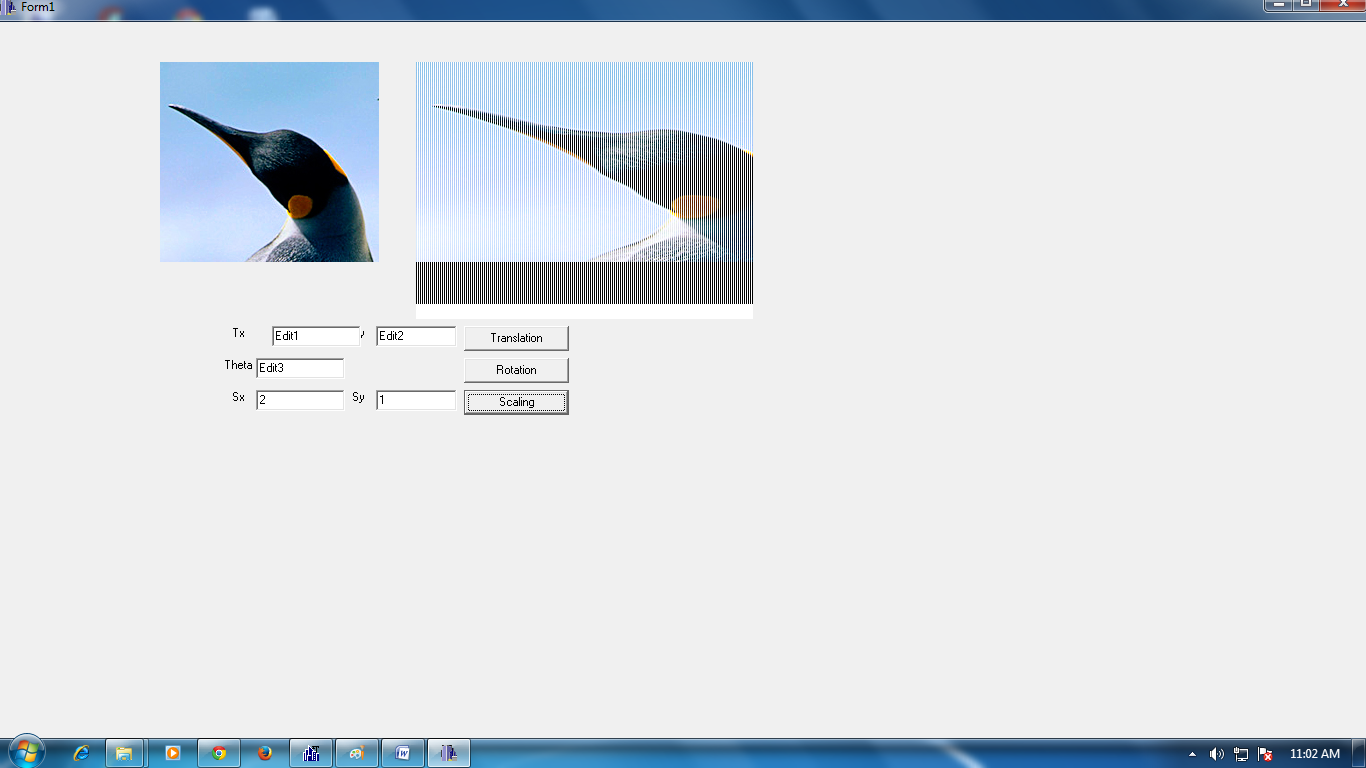
**OUTPUT SCREEN:**



**Fig: Translation**

****

**Fig: Rotation**

****

**Fig: Scaling**