**St. Xavier’s College**

**Maitighar, Kathmandu**



**COMPUTER GRAPHICS**

**LAB ASSIGNMENT #7**

**TO IMPLEMENT TRANSLATION, ROTATION AND SCALING**

**Submitted By**

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**Submitted To**

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**STATEMENT:**

**TO IMPLEMENT TRANSLATION, ROTATION AND SCALING USING C++ BUILDER.**

**SOURCE CODE:**

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

#include <vcl\vcl.h>

#include <math.h>

#pragma hdrstop

#include "Unit1.h"

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

#pragma resource "\*.dfm"

int i, j, x, y, a, b;

TForm1 \*Form1;

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

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

: TForm(Owner)

{

}

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

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

{

int Tx=StrToInt(Edit1->Text);

int Ty=StrToInt(Edit2->Text);

x = Image1->Height;

y = Image1->Width;

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

{

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

{

a = i + Tx;

b = j + Ty;

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

}

}

}

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

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

{

int theta =StrToInt(Edit3->Text);

x = Image1->Height;

y = Image1->Width;

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

{

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

{

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

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

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

}

}

}

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

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

{

int Sx = StrToInt(Edit4->Text);

int Sy = StrToInt(Edit5->Text);

x = Image1->Height;

y = Image1->Width;

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

{

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

{

a = i \* Sx;

b = j \* Sy;

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

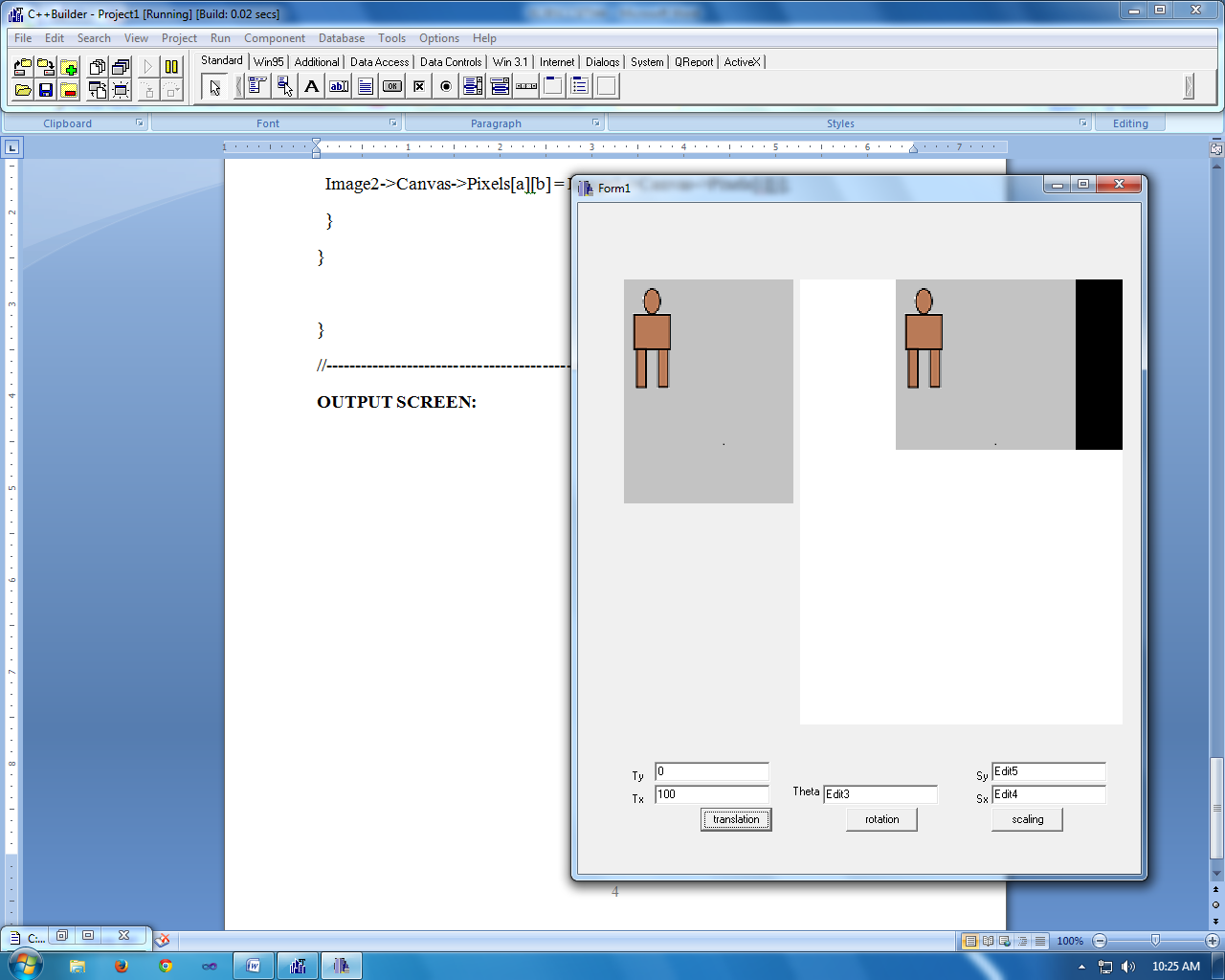
}

}

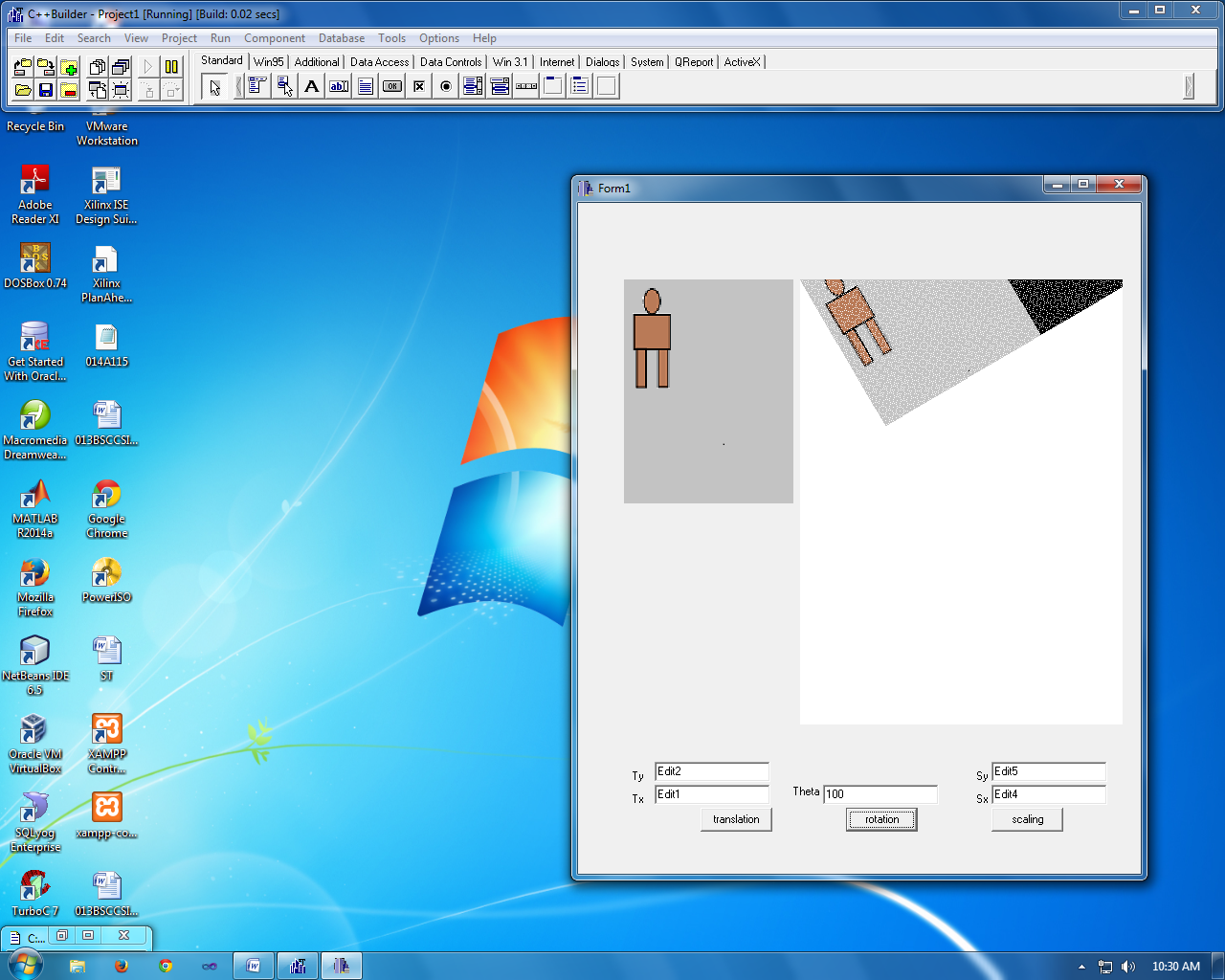
}

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

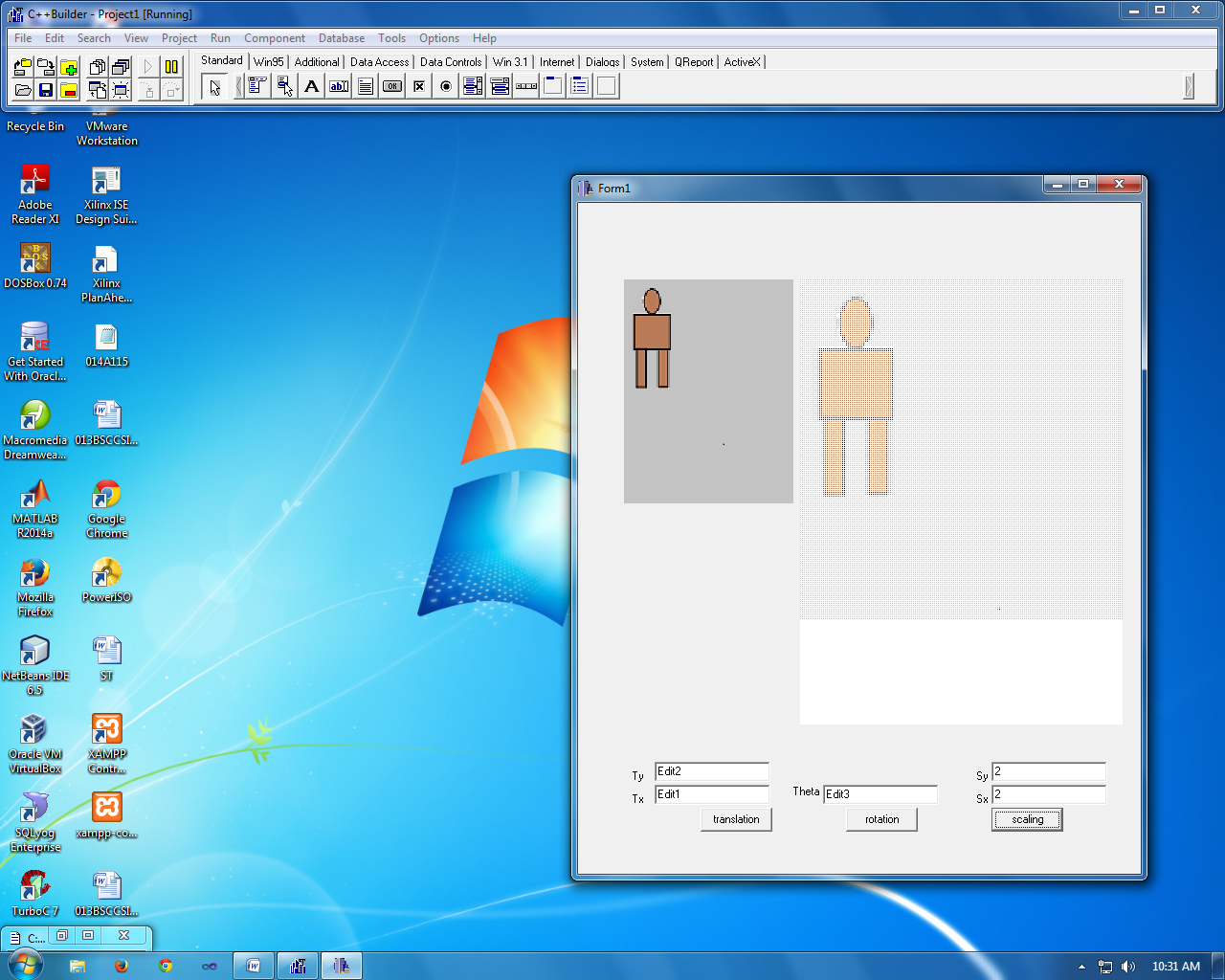
**OUTPUT SCREEN:**



**Fig1: Translation**



**Fig2: Rotation**



**Fig3: Scaling**