ST. XAVIER’S COLLEGE

**(Affiliated to Tribhuvan University)**

**Maitighar, Kathmandu**

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**Computer Graphics**

**Lab Assignment #7**

**SUBMITTED BY**

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**Statement::**

**WAP a program to translate, rotate and scale a bitmap image in C++ programming.**

**Program code**

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

#include <vcl\vcl.h>

#pragma hdrstop

#include <math.h>

#include "ref\_rot\_sca.h"

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

#pragma resource "\*.dfm"

TForm1 \*Form1;

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

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

: TForm(Owner)

{

}

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

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

{

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

Tx=StrToInt(Edit1->Text);

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::Button2Click(TObject \*Sender)

{

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

th = StrToInt(Edit3->Text);

x = Image1->Height;

y = Image1->Width;

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

{

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

{

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

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

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

}

}

}

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

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

{

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

Sx = StrToInt(Edit4->Text);

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];

}

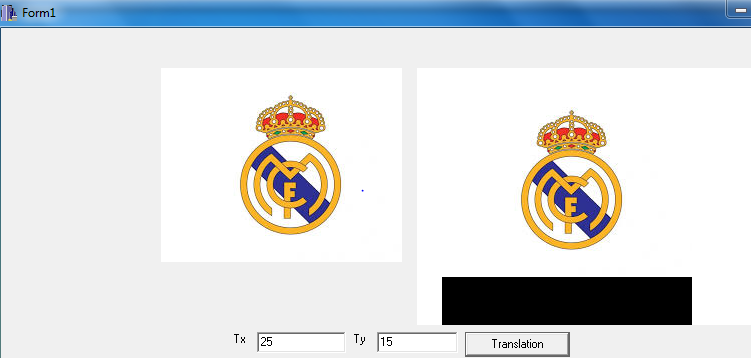
}

}

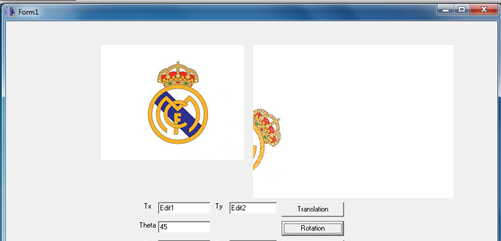
//---------------------------------------------------------------------------

**OUTPUT:**

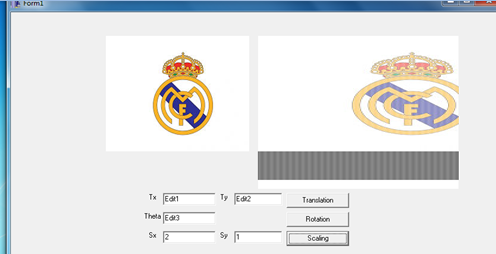
**Translation**

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**Rotation with**

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**Scaling**

****