ST. XAVIER’S COLLEGE

**(Affiliated to Tribhuvan University)**

**Maitighar, Kathmandu**

****

**Computer Graphics**

**Lab Assignment #7**

**SUBMITTED BY**

**Dibash Poudel**

**013BSCCSIT017**

**4th sem/ 2nd year**

**SUBMITTED TO**

**Er. Anil K Sah**

**Lecturer**

**Department of Computer Science**

**St. Xavier’s College**

**Statement**

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

**Program codes**

**Translate**  
//---------------------------------------------------------------------------

#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,a,b;

int h,w;

h =inPanel->Height;

w= inPanel->Width;

tx= StrToInt(inTx->Text);

ty= StrToInt(inTy->Text);

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

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

a=i+tx;

b=j+ty;

outPanel->Canvas->Pixels[a][b] = inPanel->Canvas->Pixels[i][j];

}

}

}

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

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

{

outPanel->Canvas->FillRect(ClientRect);

int i,j;

int h,w;

h =inPanel->Height;

w= inPanel->Width;

float a,b;

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

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

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

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

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

outPanel->Canvas->Pixels[a][b] = inPanel->Canvas->Pixels[i][j];

}

}

}

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

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

{

float sx,sy,a,b;

int i,j;

outPanel->Canvas->FillRect(ClientRect);

sx = StrToFloat(inSx->Text);

sy = StrToFloat(inSy->Text);

int h,w;

h =inPanel->Height;

w= inPanel->Width;

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

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

a=sx\*i;

b=sy\*j;

outPanel->Canvas->Pixels[a][b] = inPanel->Canvas->Pixels[i][j];

}

}

}

**Rotate**

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

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

{

outPanel->Canvas->FillRect(ClientRect);

int i,j;

int h,w;

h =inPanel->Height;

w= inPanel->Width;

float a,b;

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

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

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

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

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

outPanel->Canvas->Pixels[a][b] = inPanel->Canvas->Pixels[i][j];

}

}

}

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

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

{

float sx,sy,a,b;

int i,j;

outPanel->Canvas->FillRect(ClientRect);

sx = StrToFloat(inSx->Text);

sy = StrToFloat(inSy->Text);

int h,w;

h =inPanel->Height;

w= inPanel->Width;

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

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

a=sx\*i;

b=sy\*j;

outPanel->Canvas->Pixels[a][b] = inPanel->Canvas->Pixels[i][j];

}

}

}

**Scaling**

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

{

float sx,sy,a,b;

int i,j;

outPanel->Canvas->FillRect(ClientRect);

sx = StrToFloat(inSx->Text);

sy = StrToFloat(inSy->Text);

int h,w;

h =inPanel->Height;

w= inPanel->Width;

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

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

a=sx\*i;

b=sy\*j;

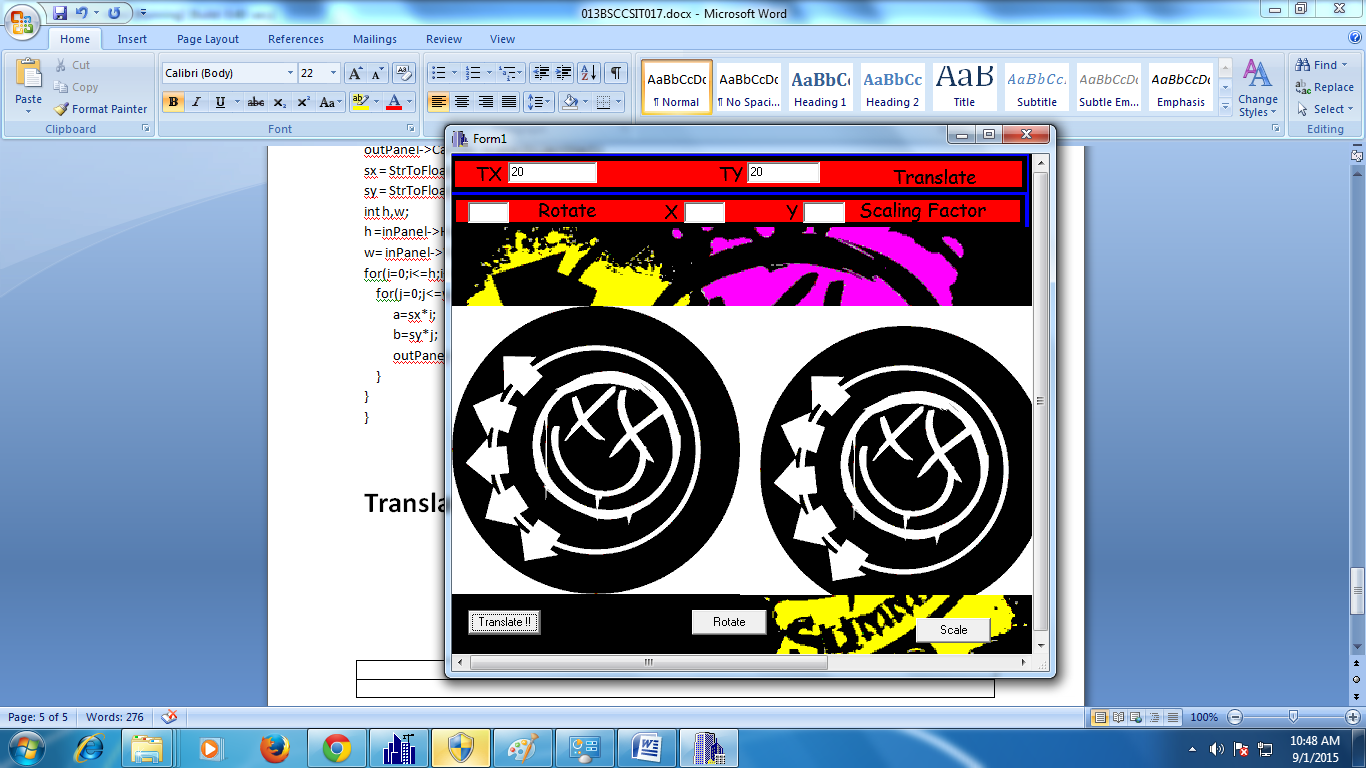
outPanel->Canvas->Pixels[a][b] = inPanel->Canvas->Pixels[i][j];

}

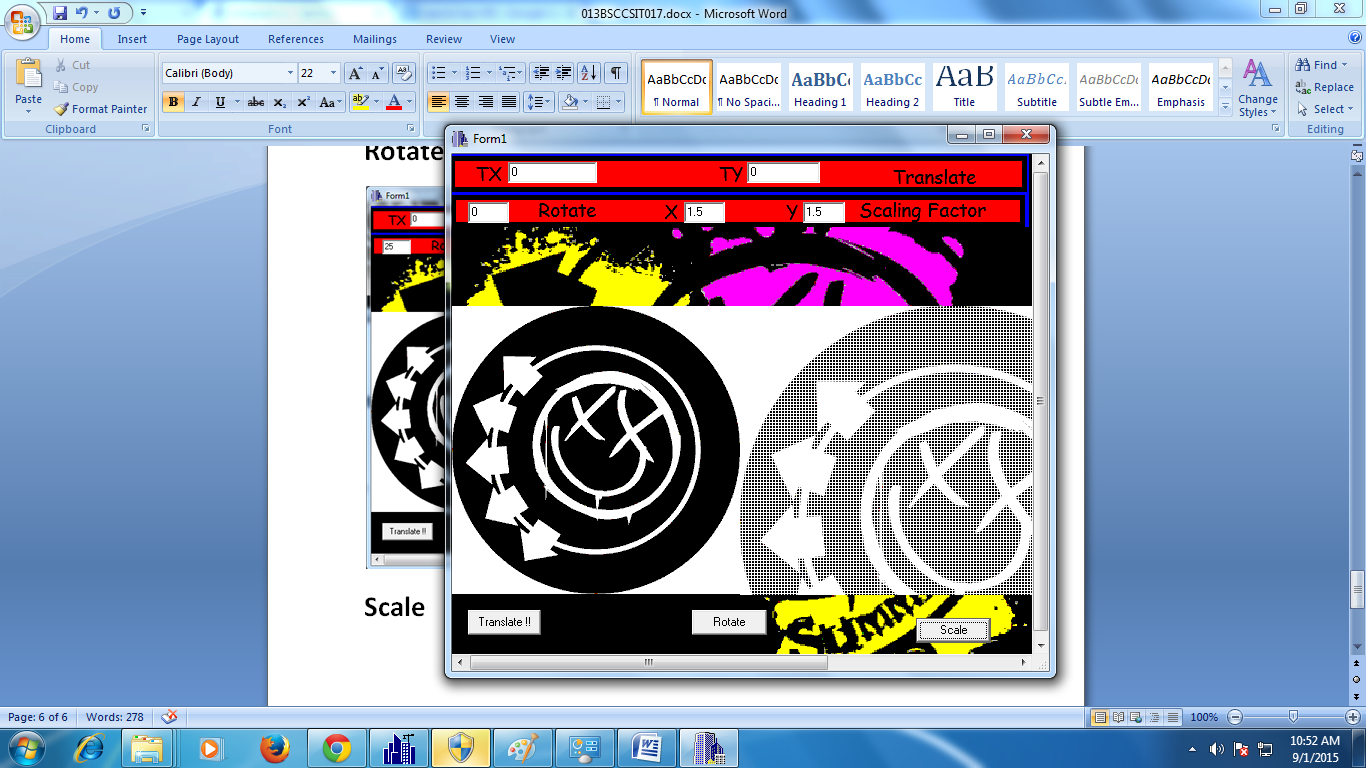
}

}

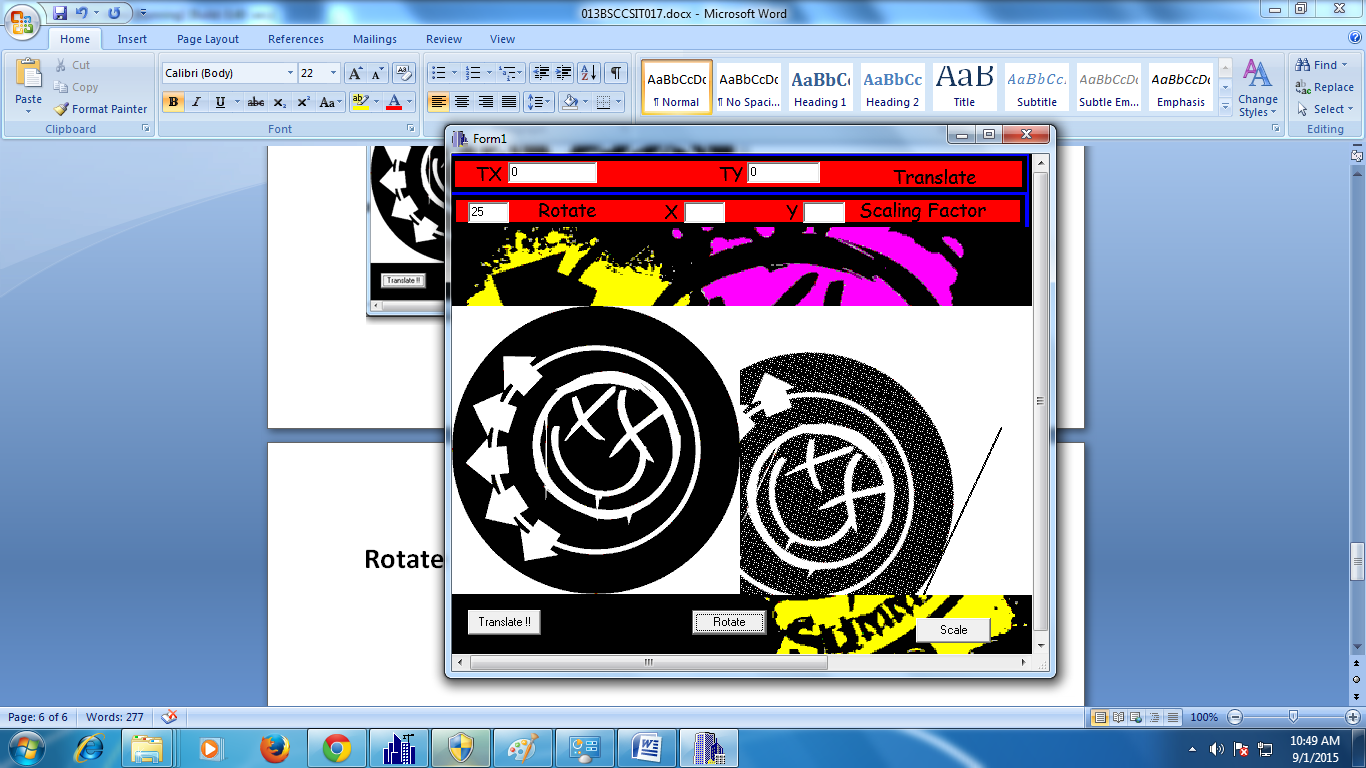
**Translate**

****

**Rotate**

****

**Scale**

****

|  |
| --- |
|  |
|  |