**TUGAS PERCOBAAN 2**

**PENGOLAHAN CITRA**

**MK401**



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**PROGRAM STUDI TEKNIK MEKATRONIKA**

**JURUSAN TEKNIK ELEKTRO**

**POLITEKNIK NEGERI BATAM**

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**MEMBACA DAN MENGOLAH FILE CITRA**

Tugas dan Pertanyaan

1. Tambahkan koding pada button FlipVertical

private void button6\_Click(object sender, EventArgs e)

{

imageFlipping = 2; // flip vartical ( vertical == 2)

setImageFlipping(imageFlipping);

}

1. Tambahkan koding pada button Rotate Right 180 dan tombol Rotate Right 270

private void button8\_Click(object sender, EventArgs e)

{

imageRotation = 180; // rotasi 180 deg

setImageRotation(imageRotation);

}

private void button9\_Click(object sender, EventArgs e)

{

imageRotation = 270; // rotasi 270 deg

setImageRotation(imageRotation);

}

1. Tambahkan koding pada button dan trackBar yTrans

private void trackBar2\_Scroll(object sender, EventArgs e)

{

if (tempImage == null) return;

int xTrans = trackBar1.Value;

int yTrans = trackBar2.Value;

setTranslation(xTrans, yTrans);

// menampilkan nilai translasi pada textbox

textBox3.Text = string.Format("{0}", trackBar1.Value);

textBox4.Text = string.Format("{0}", trackBar2.Value);

}

1. Tambahkan koding untuk masing-masing radio button pada image flipping dan image rotation.

// flipping radio button

private void radioButton1\_CheckedChanged(object sender, EventArgs e)

{

imageFlipping = 1;

setImageFlipping(imageFlipping);

}

private void radioButton2\_CheckedChanged(object sender, EventArgs e)

{

imageFlipping = 2;

setImageFlipping(imageFlipping);

}

// rotation radio button

private void radioButton3\_CheckedChanged(object sender, EventArgs e)

{

imageRotation = 90;

setImageRotation(imageRotation);

}

private void radioButton4\_CheckedChanged(object sender, EventArgs e)

{

imageRotation = 180;

setImageRotation(imageRotation);

}

private void radioButton5\_CheckedChanged(object sender, EventArgs e)

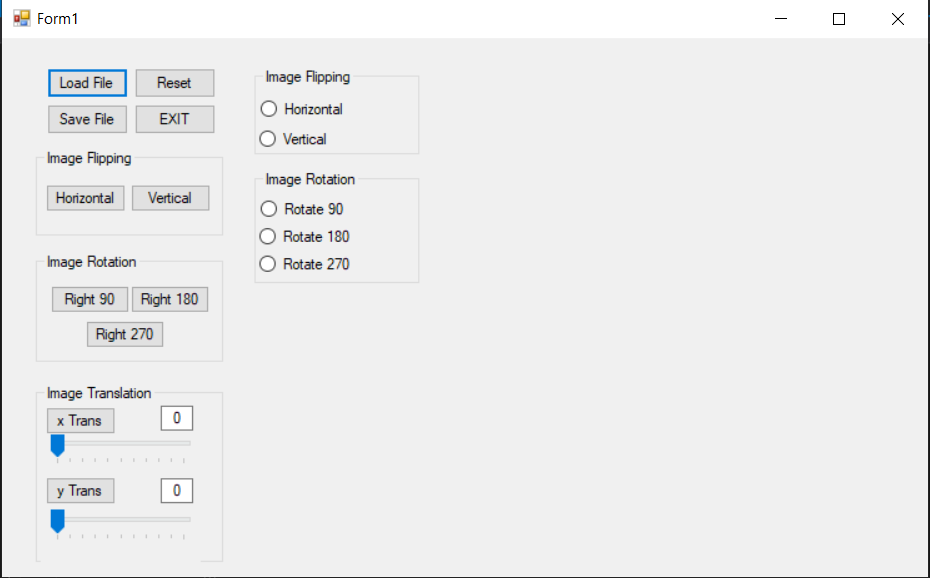
{

imageRotation = 270;

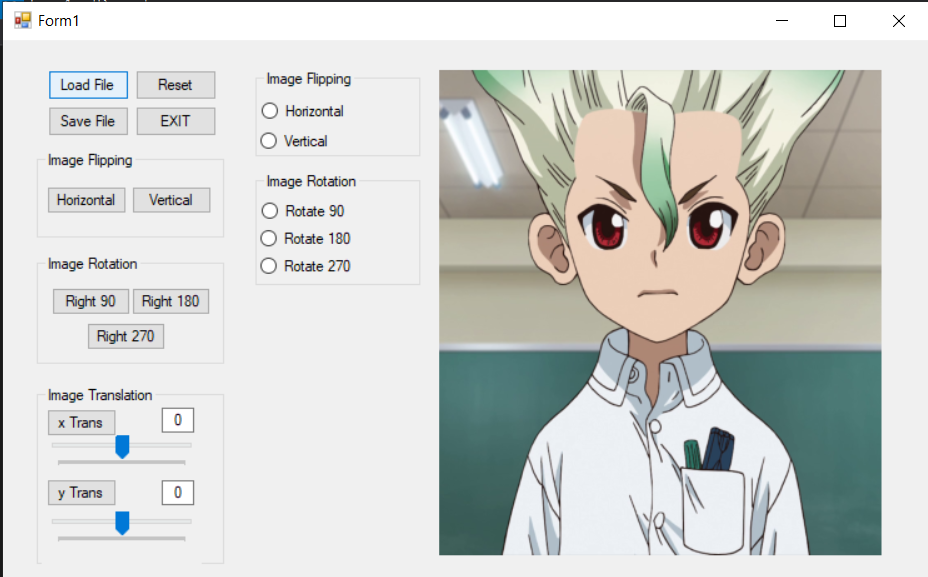
setImageRotation(imageRotation);

}

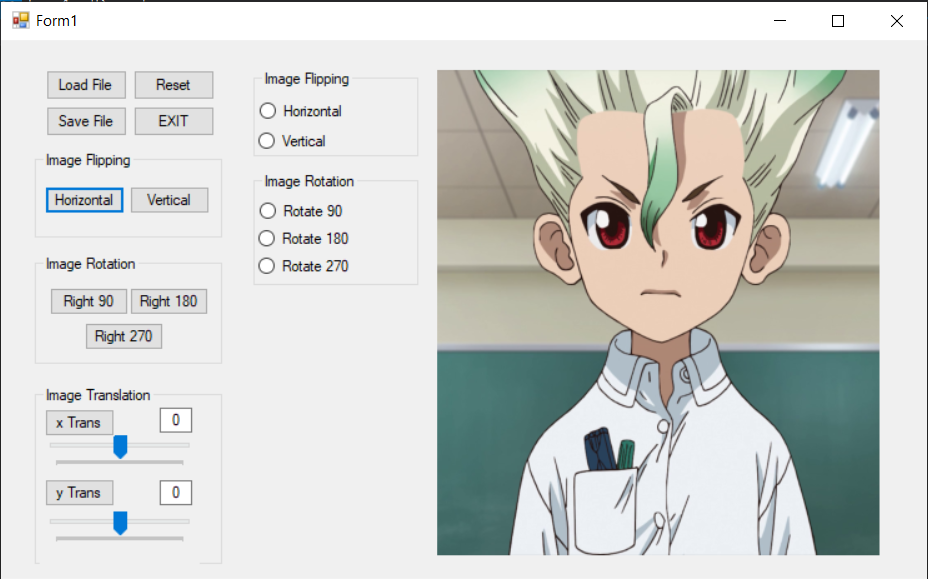
1. Laporan merupakan hasil screenshoot/save hasil running program



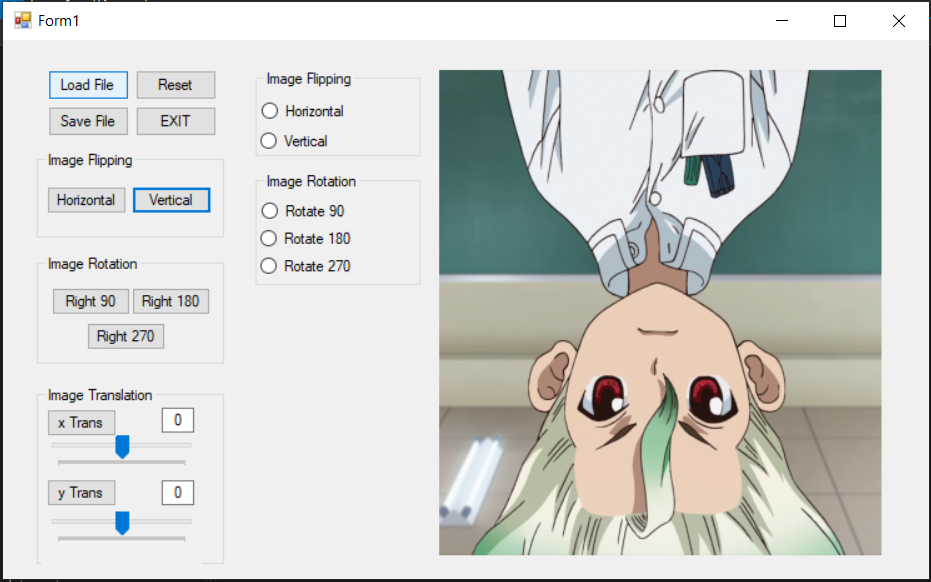
Tampilan awal



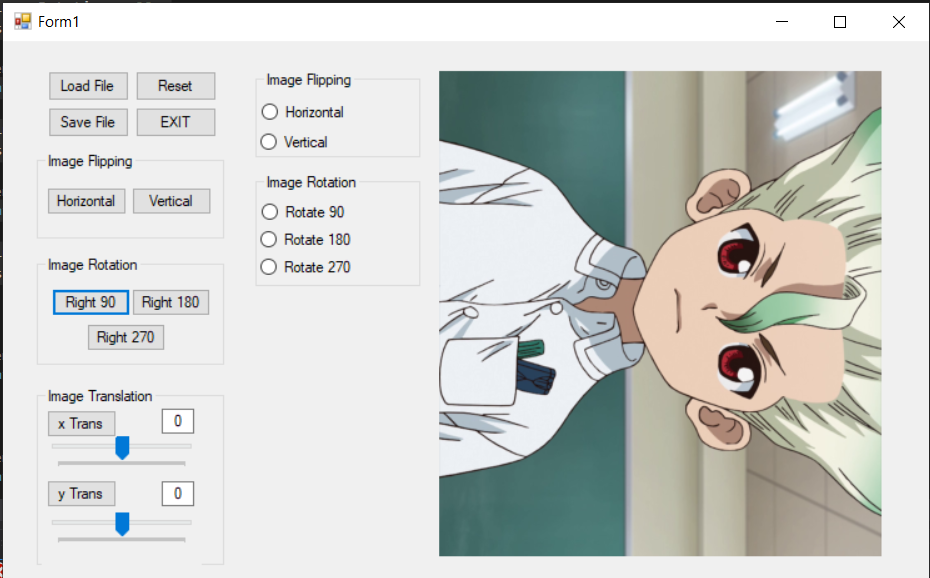
File citra di load



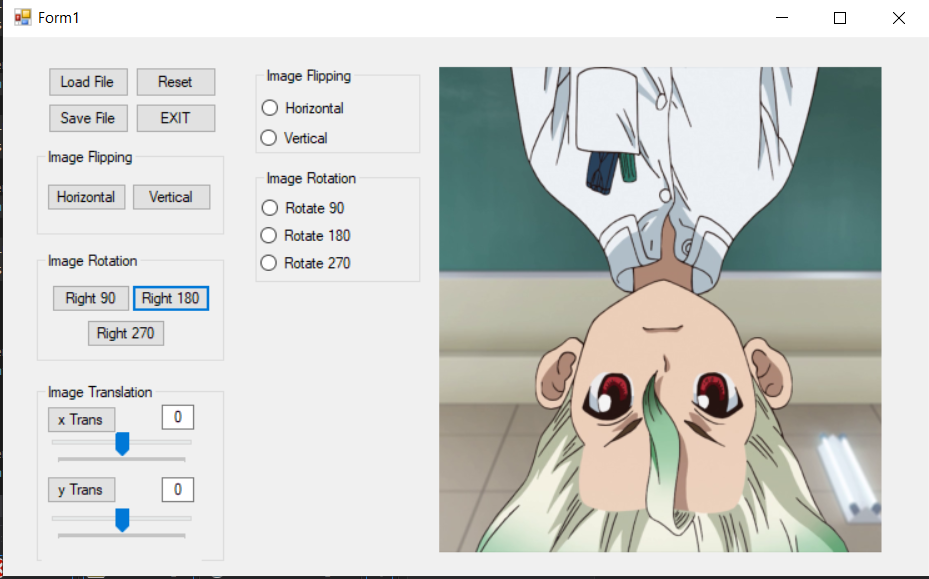
Flip horizontal dengan button



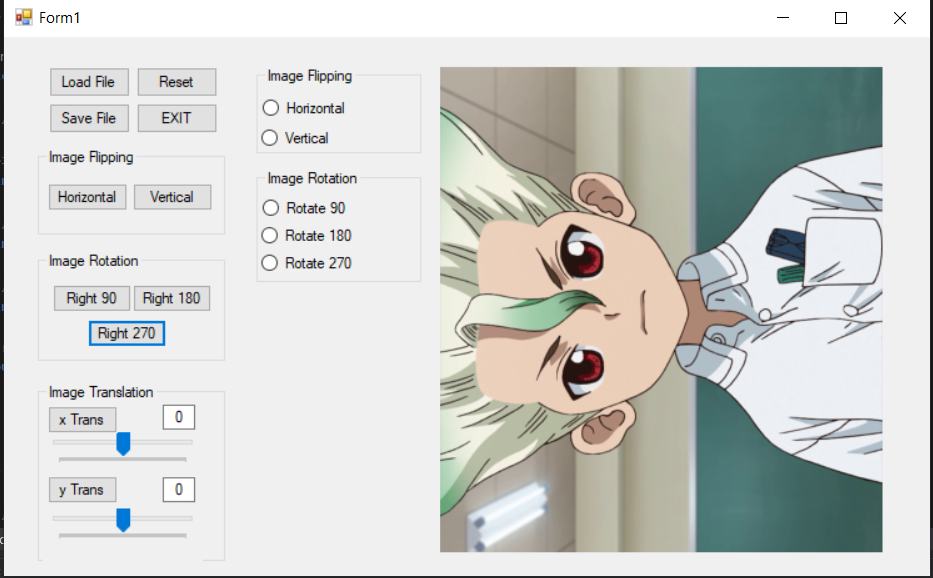
Flip vertical dengan button



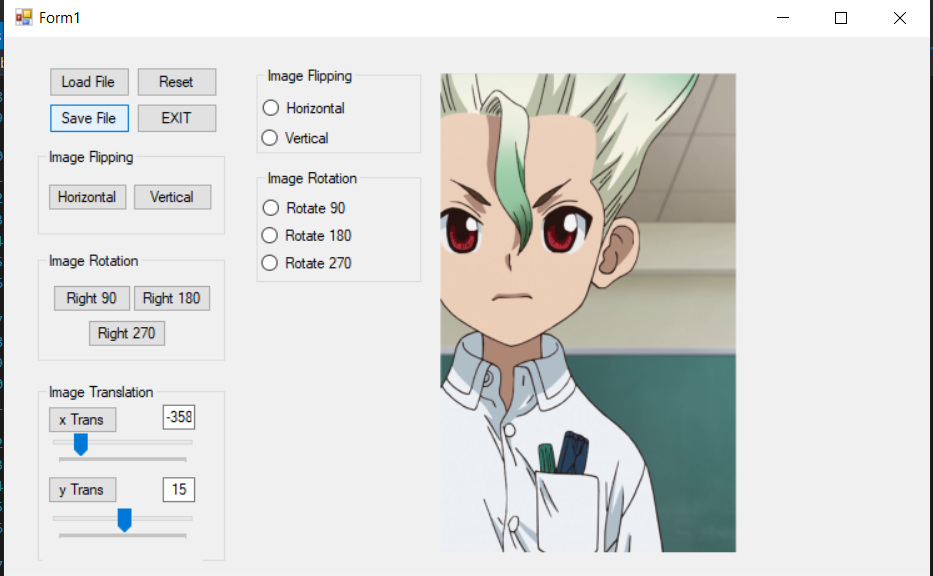
Rotate 90 derajat dengan button



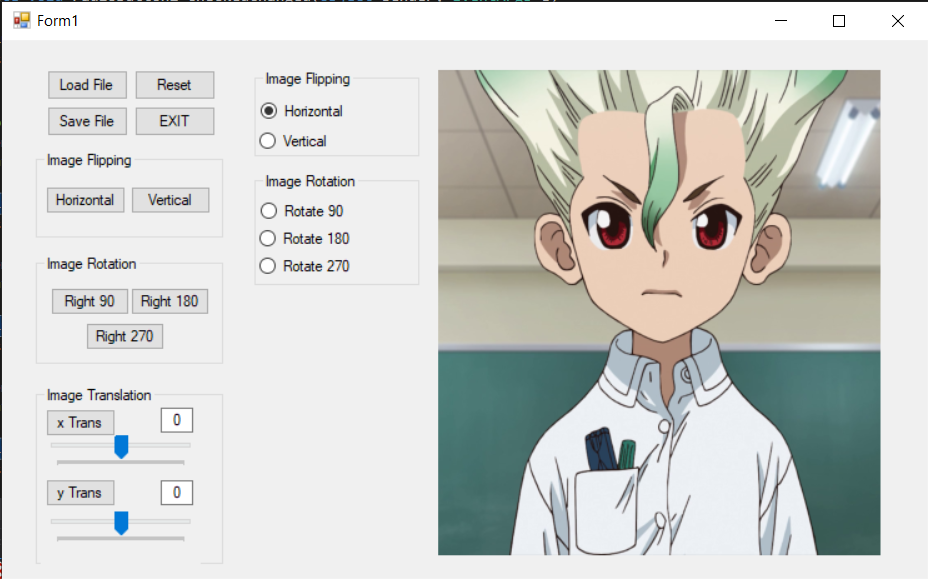
Rotate 180 derajat dengan button



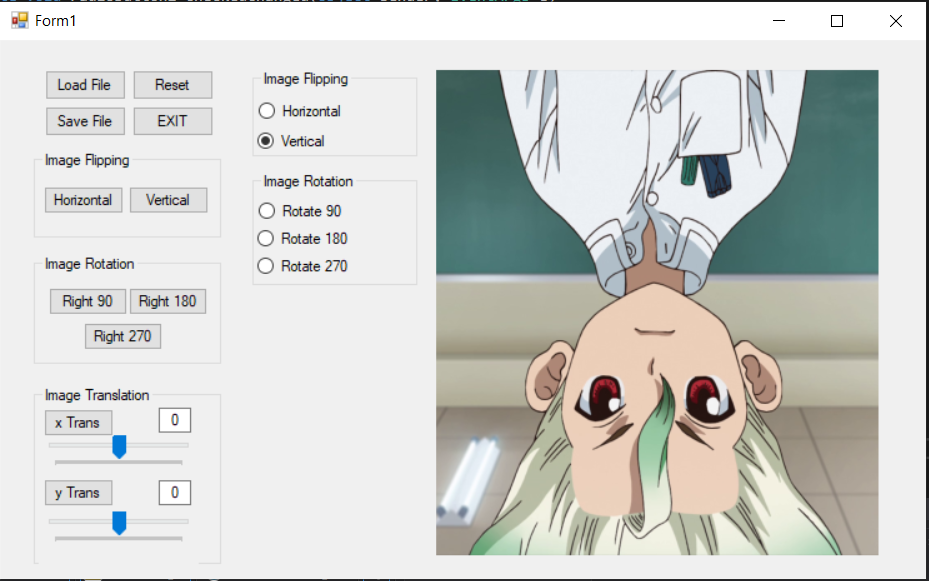
Rotate 270 derajat dengan button



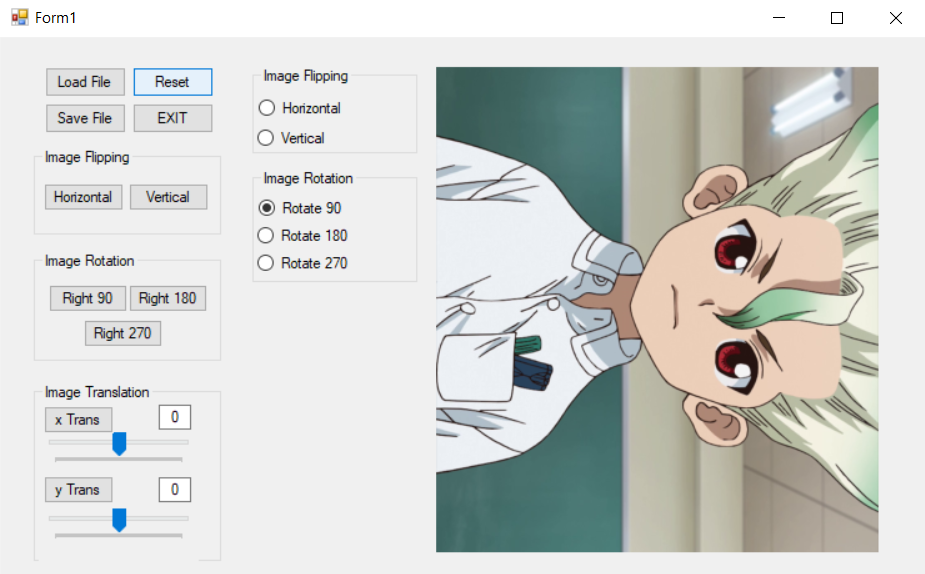
Translation dengan trackbar



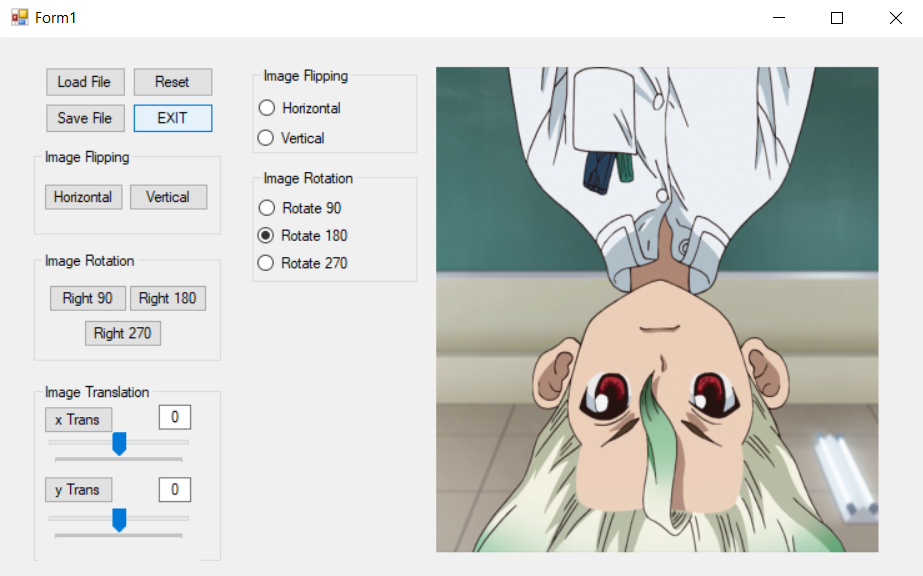
Flip horizontal dengan radio button



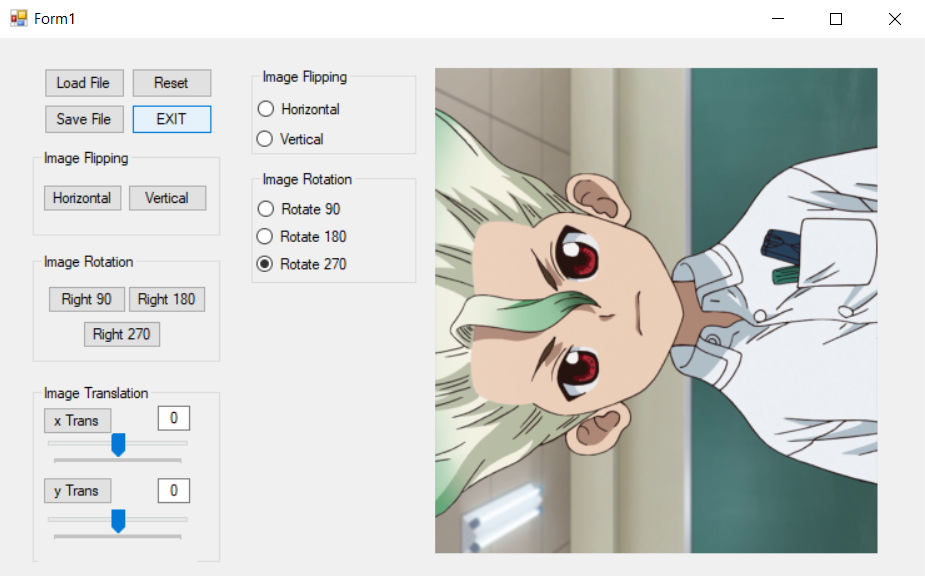
Flip vertical dengan radio button



Rotate 90 derajat dengan radio button



Rotate 180 derajat dengan radio



Rotate 270 derajat dengan radio

**Source Code**

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

using System.Drawing.Imaging;

using System.IO;

namespace Percobaan\_2

{

public partial class Form1 : Form

{

// global variable

Bitmap sourceImage, tempImage;

int imageHeight, imageWidth;

// image flipping

int imageFlipping;

// image rotation

int imageRotation;

public Form1()

{

InitializeComponent();

trackbarInitialization();

textBoxInitialization();

}

// my function

private void trackbarInitialization()

{

// trackbar init

trackBar1.Value = 0;

trackBar2.Value = 0;

}

private void textBoxInitialization()

{

textBox3.Text = "0";

textBox4.Text = "0";

}

// flip

private void setImageFlipping(int flipping)

{

if (tempImage == null) return;

Bitmap flipImage = new Bitmap(tempImage);

/\* Image flipping

1. Horizontal

2. Vertical

\*/

for(int x=0; x<imageWidth; x++)

{

for(int y=0; y<imageHeight; y++)

{

Color w = flipImage.GetPixel(x, y);

if(flipping == 1)

{

tempImage.SetPixel(imageWidth - 1 - x, y, w); // flip horizontal

}

else if(flipping == 2)

{

tempImage.SetPixel(x, imageHeight - 1 - y, w); // flip vertical

}

}

}

pictureBox1.Image = tempImage;

}

// image rotate

private void setImageRotation(int rotation)

{

if (tempImage == null) return;

if(rotation == 90)

{

tempImage.RotateFlip(RotateFlipType.Rotate90FlipNone);

}

else if (rotation == 180)

{

tempImage.RotateFlip(RotateFlipType.Rotate180FlipNone);

}

else if (rotation == 270)

{

tempImage.RotateFlip(RotateFlipType.Rotate270FlipNone);

}

pictureBox1.Image = tempImage;

}

// image translation

private void setTranslation(int xTrans, int yTrans)

{

Bitmap transImage = new Bitmap(imageWidth, imageHeight);

for(int x=0; x<imageWidth; x++)

{

for(int y=0; y<imageHeight; y++)

{

Color w = tempImage.GetPixel(x, y);

byte wMerah = w.R;

byte wHijau = w.G;

int xT = x + xTrans;

int yT = y + yTrans;

if(yT < imageHeight && yT > 0 && xT < imageWidth && xT > 0)

{

transImage.SetPixel(xT, yT, w);

}

}

pictureBox1.Image = transImage;

}

}

private void openFileDialog1\_FileOk(object sender, CancelEventArgs e)

{

sourceImage = (Bitmap)Bitmap.FromFile(openFileDialog1.FileName);

tempImage = new Bitmap(sourceImage);

pictureBox1.Image = sourceImage;

// mencari tinggi dan lebar image

imageHeight = sourceImage.Height;

imageWidth = sourceImage.Width;

// translation trackbar init

trackBar1.Minimum = -imageWidth / 2;

trackBar1.Maximum = imageWidth / 2;

trackBar2.Minimum = -imageWidth / 2;

trackBar2.Maximum = imageWidth / 2;

}

private void button2\_Click(object sender, EventArgs e)

{

if (sourceImage == null) return;

pictureBox1.Image = sourceImage;

// init

trackbarInitialization();

textBoxInitialization();

}

private void button1\_Click(object sender, EventArgs e)

{

openFileDialog1.ShowDialog();

}

private void button4\_Click(object sender, EventArgs e)

{

Close();

}

private void button10\_Click(object sender, EventArgs e)

{

if (tempImage == null) return;

int xTrans = int.Parse(textBox3.Text);

int yTrans = int.Parse(textBox4.Text);

// set translation

setTranslation(xTrans, yTrans);

// menampilkan nilai pada trackbar

trackBar1.Value = int.Parse(textBox3.Text);

trackBar2.Value = int.Parse(textBox4.Text);

}

private void button3\_Click(object sender, EventArgs e)

{

DialogResult d = saveFileDialog1.ShowDialog();

if (d == DialogResult.OK)

{

string ext = Path.GetExtension(saveFileDialog1.FileName).ToLower();

string fileName = saveFileDialog1.FileName;

ImageFormat format = ImageFormat.Jpeg;

if (ext == ".bmp")

{

format = ImageFormat.Bmp;

}

else if (ext == ".png")

{

format = ImageFormat.Png;

}

else if (ext == ".gif")

{

format = ImageFormat.Gif;

}

else if (ext == ".tiff")

{

format = ImageFormat.Tiff;

}

try

{

lock (this)

{

Bitmap image = (Bitmap)pictureBox1.Image;

image.Save(fileName, format);

}

}

catch (Exception ex)

{

MessageBox.Show("Failed saving the image\n" + ex.Message, "Error", MessageBoxButtons.OK, MessageBoxIcon.Error);

};

}

}

// flip button

private void button5\_Click(object sender, EventArgs e)

{

imageFlipping = 1; // flip horizontal ( horizontal == 1)

setImageFlipping(imageFlipping);

}

private void button6\_Click(object sender, EventArgs e)

{

imageFlipping = 2; // flip vartical ( vertical == 2)

setImageFlipping(imageFlipping);

}

// image rotation button

private void button7\_Click(object sender, EventArgs e)

{

imageRotation = 90; // rotatasi 90 deg

setImageRotation(imageRotation);

}

private void button8\_Click(object sender, EventArgs e)

{

imageRotation = 180; // rotasi 180 deg

setImageRotation(imageRotation);

}

private void button9\_Click(object sender, EventArgs e)

{

imageRotation = 270; // rotasi 270 deg

setImageRotation(imageRotation);

}

// trackbar

private void trackBar1\_Scroll(object sender, EventArgs e)

{

if (tempImage == null) return;

int xTrans = trackBar1.Value;

int yTrans = trackBar2.Value;

setTranslation(xTrans, yTrans);

// menampilkan nilai translasi pada textbox

textBox3.Text = string.Format("{0}", trackBar1.Value);

textBox4.Text = string.Format("{0}", trackBar2.Value);

}

private void trackBar2\_Scroll(object sender, EventArgs e)

{

if (tempImage == null) return;

int xTrans = trackBar1.Value;

int yTrans = trackBar2.Value;

setTranslation(xTrans, yTrans);

// menampilkan nilai translasi pada textbox

textBox3.Text = string.Format("{0}", trackBar1.Value);

textBox4.Text = string.Format("{0}", trackBar2.Value);

}

// flipping radio button

private void radioButton1\_CheckedChanged(object sender, EventArgs e)

{

imageFlipping = 1;

setImageFlipping(imageFlipping);

}

private void radioButton2\_CheckedChanged(object sender, EventArgs e)

{

imageFlipping = 2;

setImageFlipping(imageFlipping);

}

// rotation radio button

private void radioButton3\_CheckedChanged(object sender, EventArgs e)

{

imageRotation = 90;

setImageRotation(imageRotation);

}

private void radioButton4\_CheckedChanged(object sender, EventArgs e)

{

imageRotation = 180;

setImageRotation(imageRotation);

}

private void radioButton5\_CheckedChanged(object sender, EventArgs e)

{

imageRotation = 270;

setImageRotation(imageRotation);

}

//

private void pictureBox1\_Click\_1(object sender, EventArgs e)

{

}

private void pictureBox1\_Click(object sender, EventArgs e)

{

}

private void Form1\_Load(object sender, EventArgs e)

{

}

}

}