TUGAS PERCOBAAN 2

PENGOLAHAN CITRA

MK401

POLITEKNIK NEGERI Batam

Disusun oleh :

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PROGRAM STUDI TEKNIK MEKATRONIKA

JURUSAN TEKNIK ELEKTRO

POLITEKNIK NEGERI BATAM

2020

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);
}
```

2. 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);
}
```

3. Tambahkan koding pada button dan trackBar yTrans

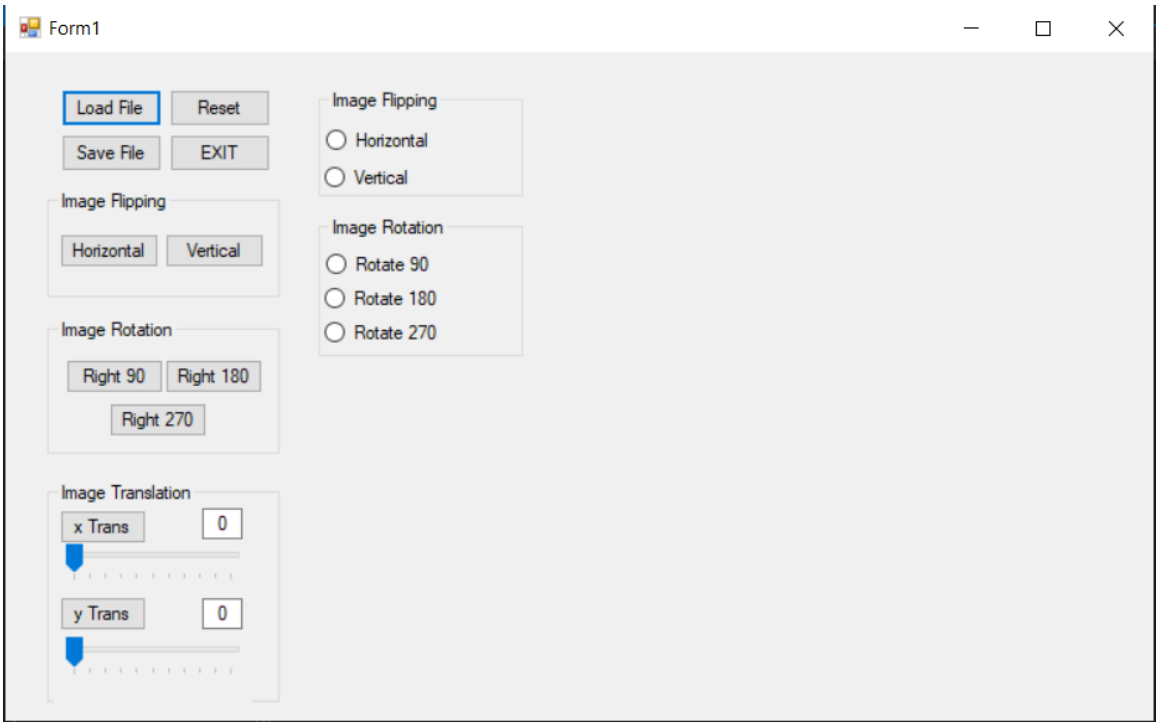
```
private void trackBar2_Scroll(object sender, EventArgs e)
{
    if (tempImage == null) return;

    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);
}
```

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

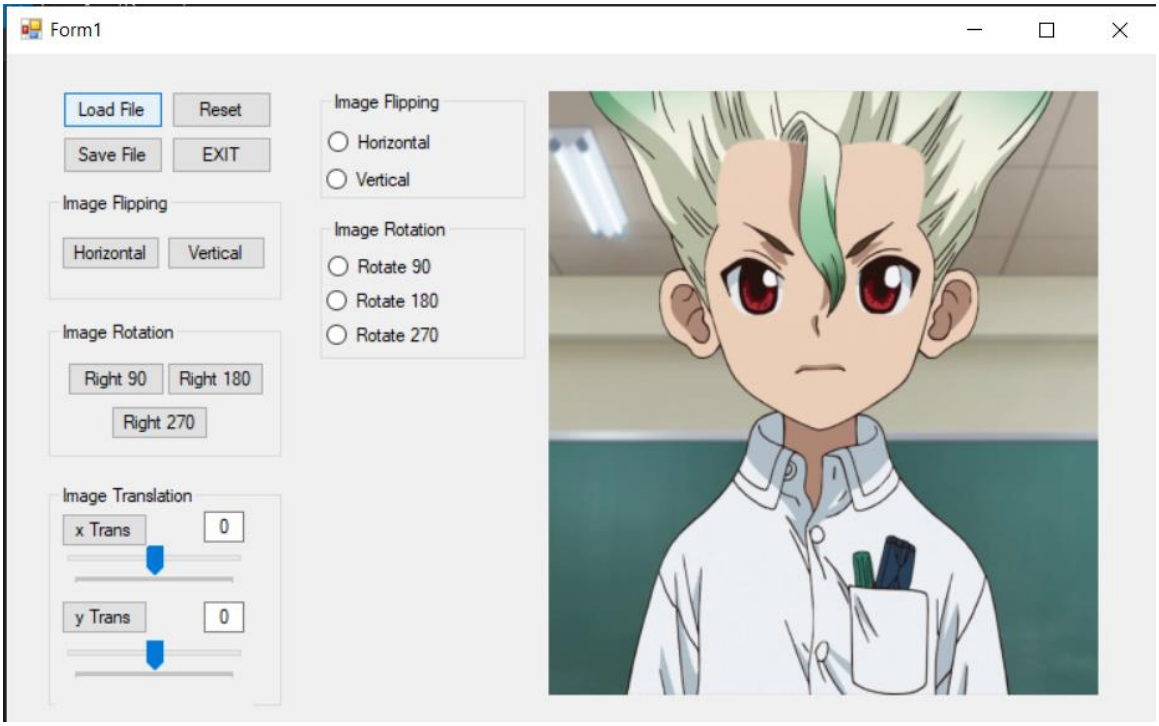
```
// flipping radio button

 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);
    }
```

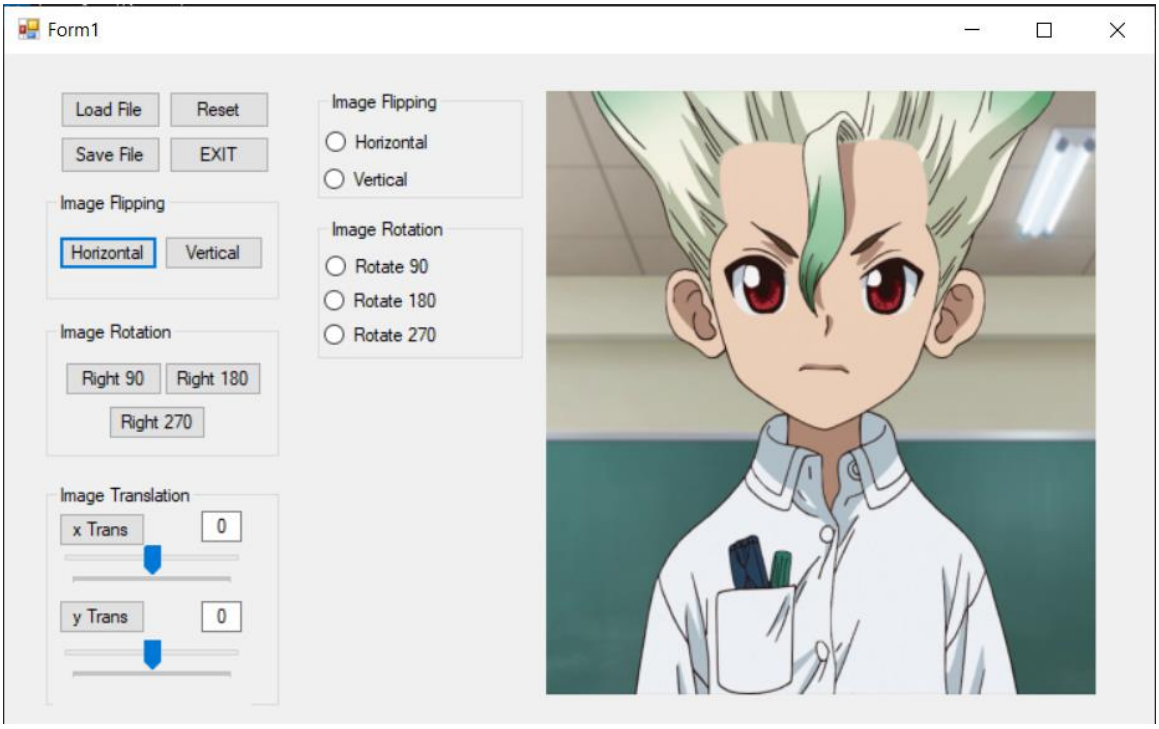
5. Laporan merupakan hasil screenshoot/save hasil running program



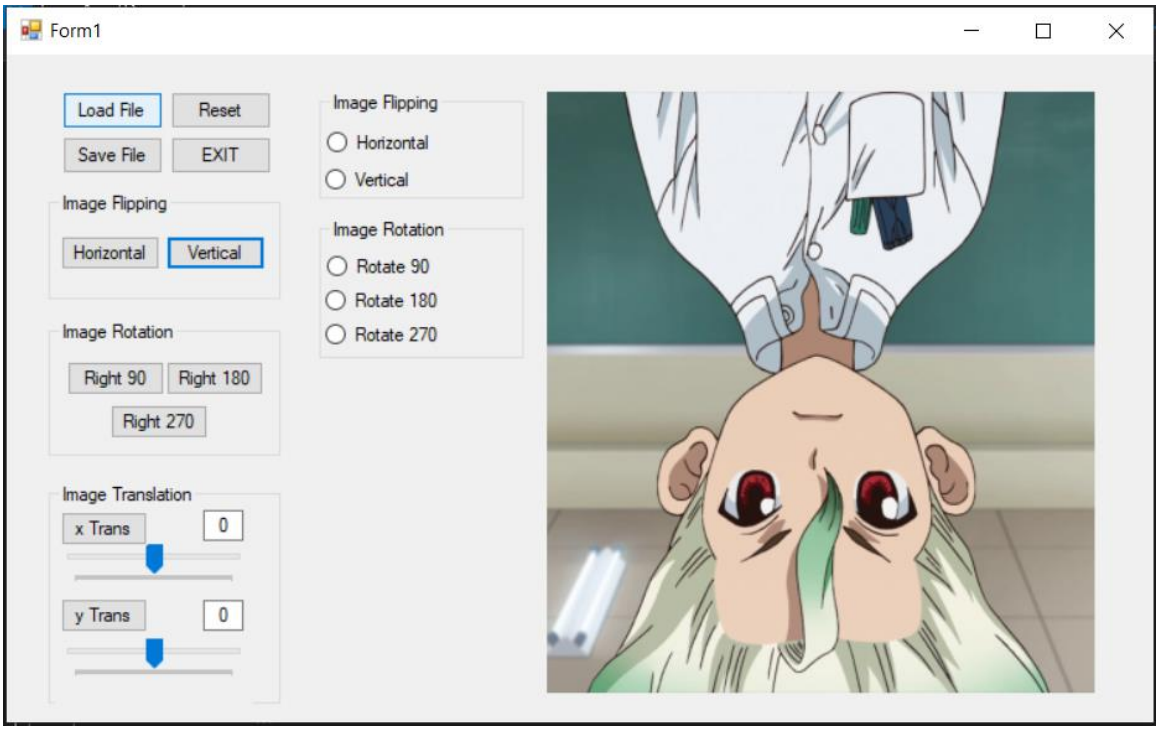
Tampilan awal



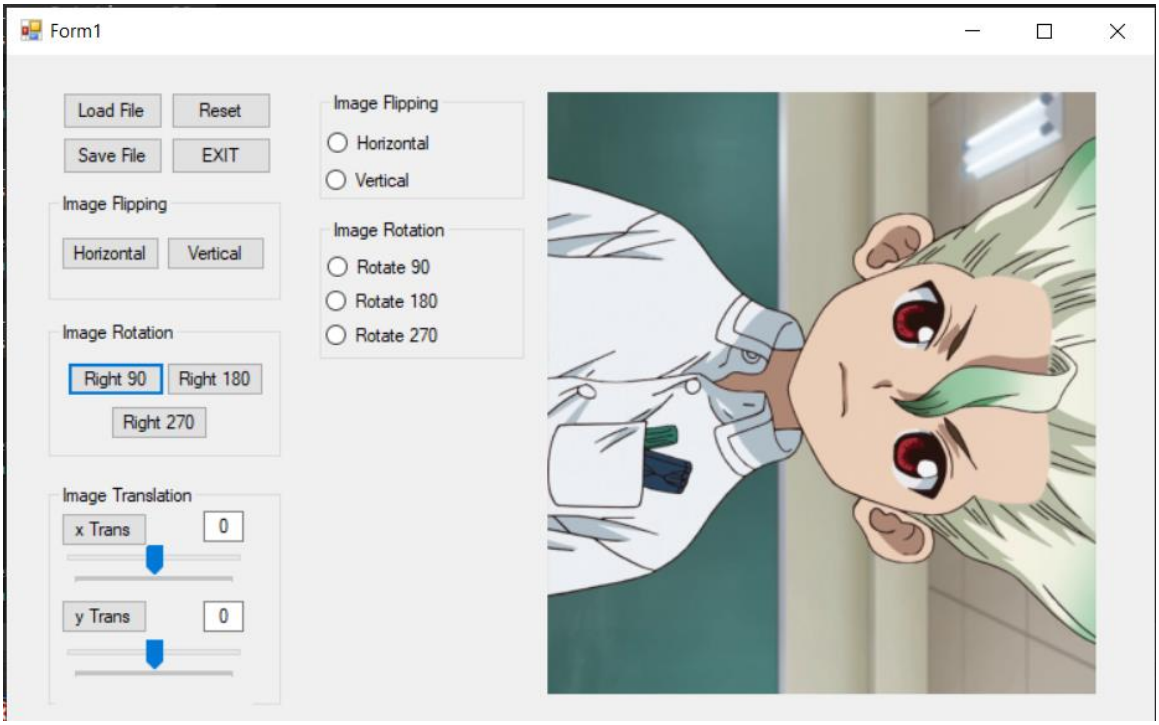
File citra di load



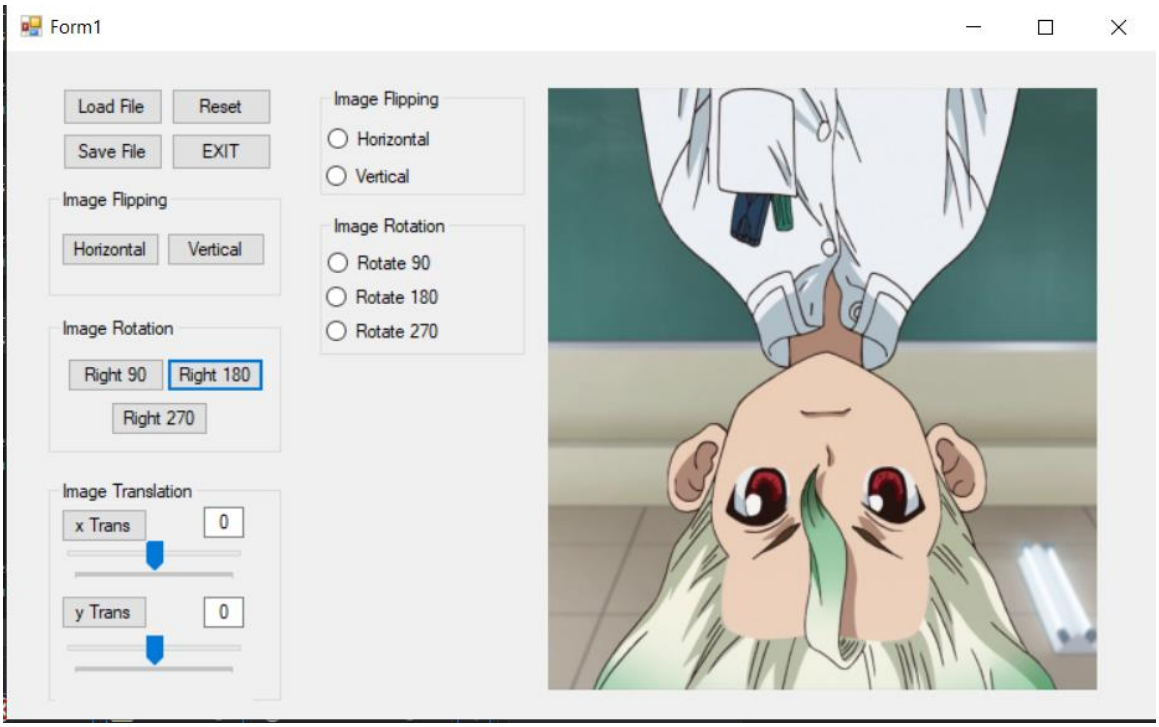
Flip horizontal dengan button



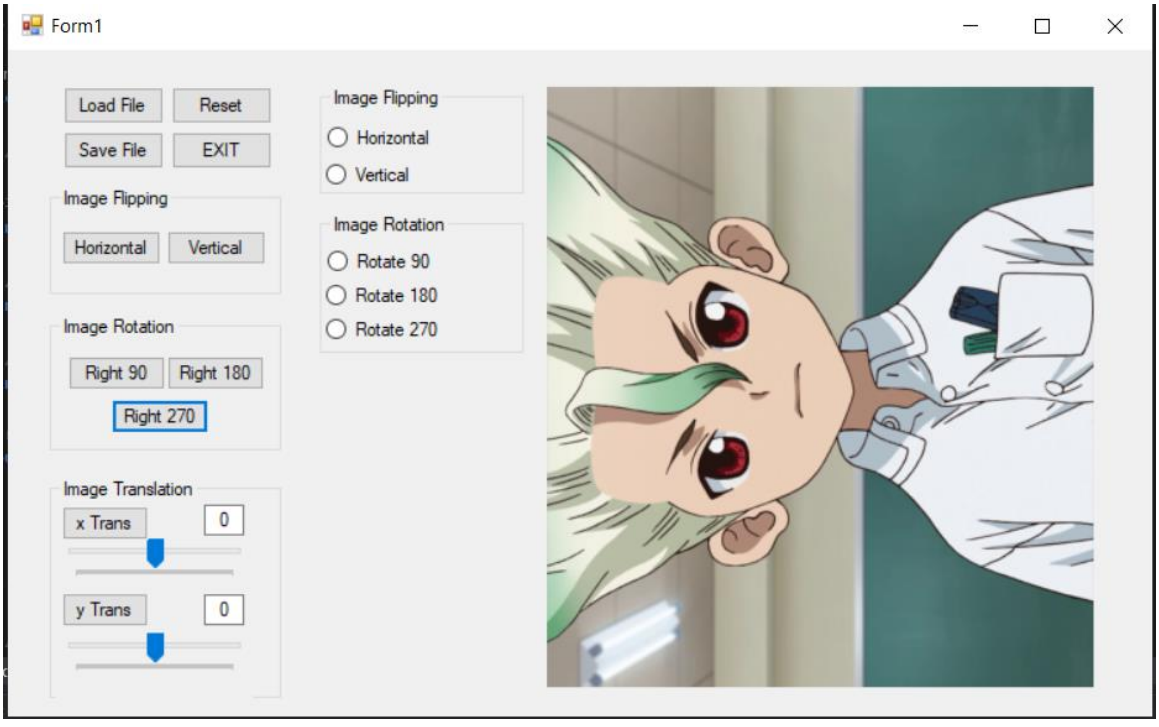
Flip vertical dengan button



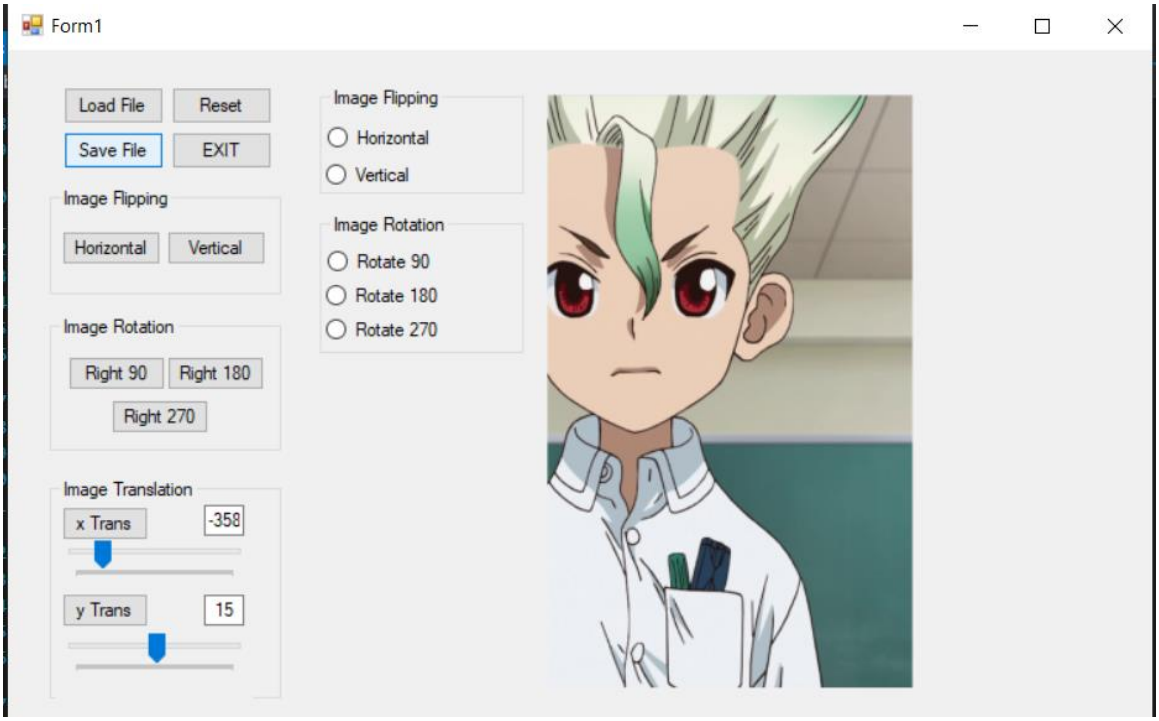
Rotate 90 derajat dengan button



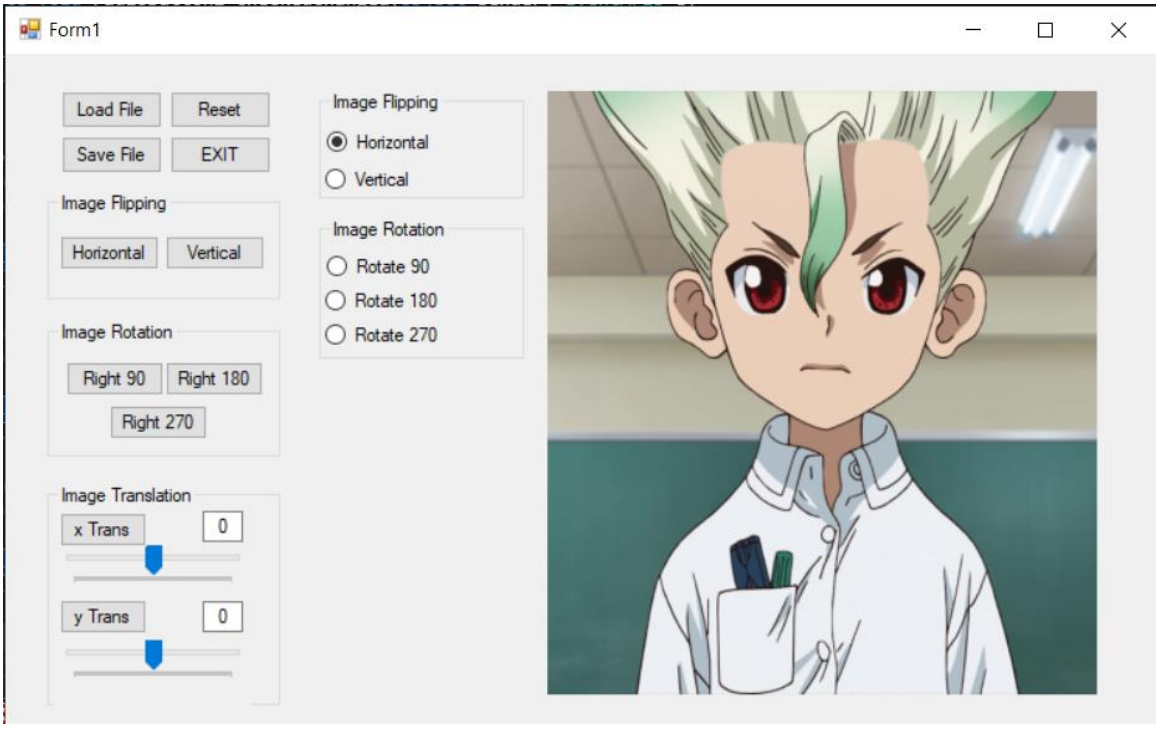
Rotate 180 derajat dengan button



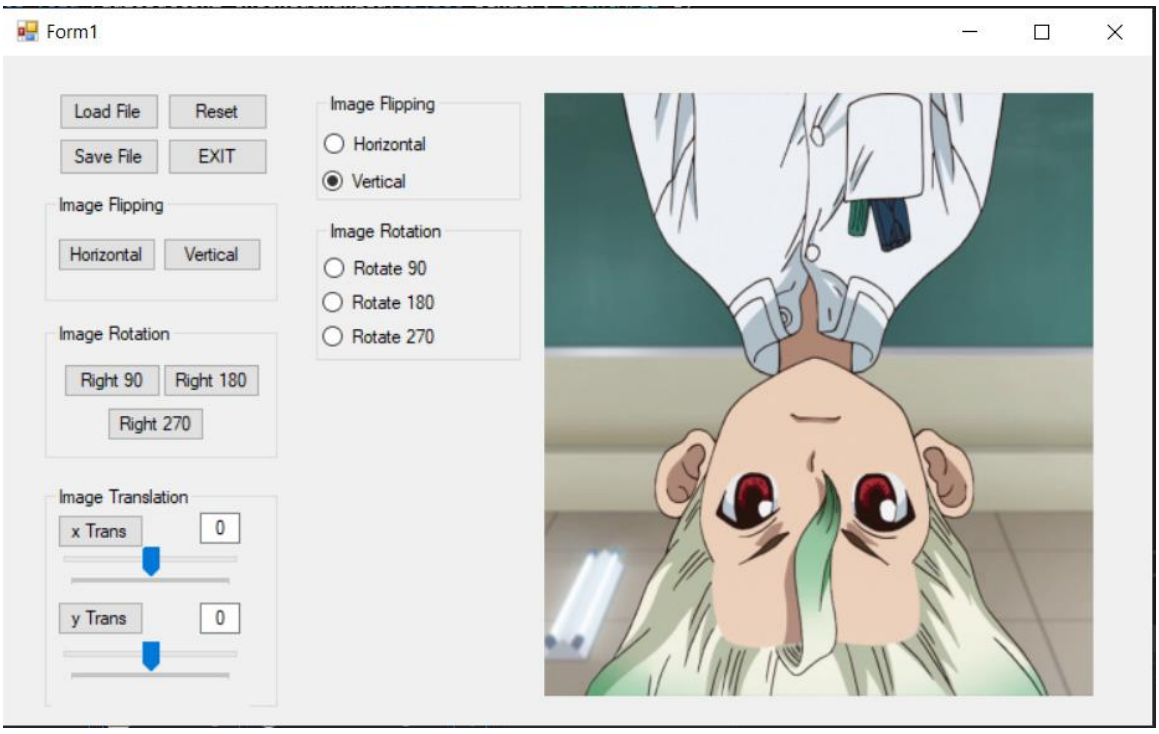
Rotate 270 derajat dengan button



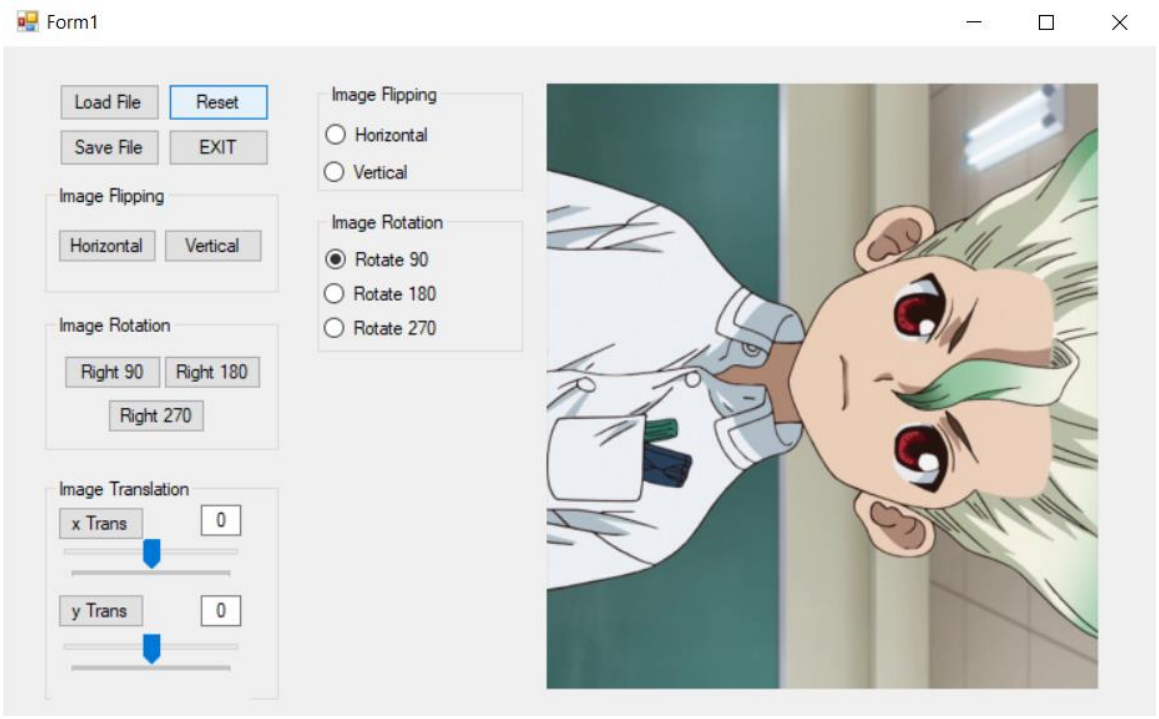
Translation dengan trackbar



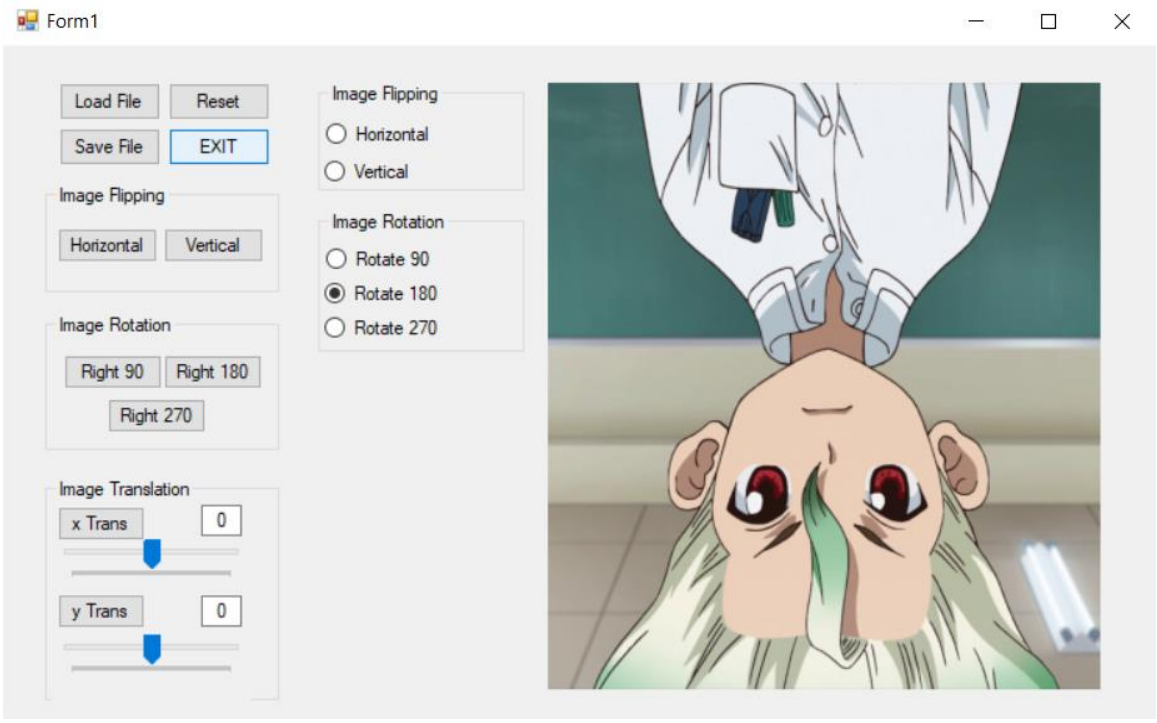
Flip horizontal dengan radio button



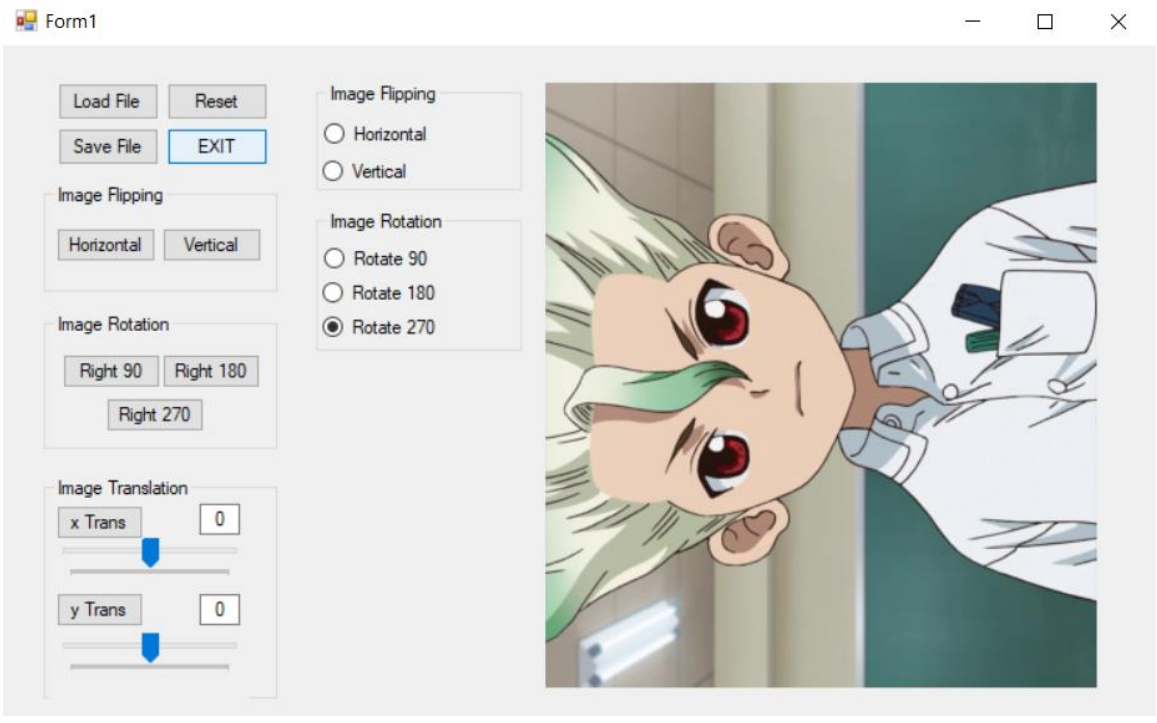
Flip vertical dengan radio button



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)
        {

        }

    }
}
```