**РУСЕНСКИ УНИВЕРСИТЕТ „АНГЕЛ КЪНЧЕВ“**

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# Задание

Да се напише програма, която показва изображение в нива на сивото, записано във формат PGM – текст (идентификатор P2) и извършва операция получаване на негативно изображение. Да се реализира функция завъртане на изображението на -90, +90 и 180 градуса. Видът на резултата да се избира от подходящо меню или диалог. Резултатът да се показва до оригиналното изображение или в отделен прозорец и да може да бъде съхранен като изображение в същия формат.

# Код на програмата (листинг)



* Prоgram.cs

namespace NegativeRotationP2

{

using System;

using System.Windows.Forms;

static class Program

{

/// <summary>

/// The main entry point for the application.

/// </summary>

[STAThread]

static void Main()

{

Application.EnableVisualStyles();

Application.SetCompatibleTextRenderingDefault(false);

Application.Run(new FormMain());

}

}

}

* PgmImage.cs

namespace NegativeRotationP2

{

using System;

using System.IO;

public class PgmImage

{

private int width;

private int height;

private int maxVal;

private byte[][] data;

private string magicNumber;

private string comment;

public int Width

{

get

{

return width;

}

set

{

width = value;

}

}

public int Height

{

get

{

return height;

}

set

{

height = value;

}

}

public int MaxVal

{

get

{

return maxVal;

}

set

{

maxVal = value;

}

}

public byte[][] Data

{

get

{

return data;

}

set

{

data = value;

}

}

public string MagicNumber

{

get

{

return magicNumber;

}

set

{

magicNumber = value;

}

}

public string Comment

{

get

{

return comment;

}

set

{

comment = value;

}

}

public string Header

{

get

{

return this.MagicNumber + Convert.ToChar(10) +

'#' + this.comment + Convert.ToChar(10) +

this.width.ToString() + " " + this.height.ToString() + Convert.ToChar(10) +

this.maxVal.ToString() + Convert.ToChar(10);

}

}

public PgmImage(int width, int height, string magicNumber, string comment, int maxVal)

{

this.width = width;

this.height = height;

this.data = new byte[height][];

for (int i = 0; i < height; i++)

{

this.data[i] = new byte[width];

}

this.magicNumber = magicNumber;

this.comment = comment;

this.maxVal = maxVal;

}

public PgmImage(string filePath)

{

ReadPGM(filePath);

}

public void Save(string filePath)

{

WritePGM(filePath);

}

private void ReadPGM(string filePath)

{

/\*

P2

# feep.ascii.pgm

24 7

15

[data]

OR

P2

24 7

15

[data]

\*/

string line;

FileStream InputStream = File.OpenRead(filePath);

using (StreamReader PGMReader = new StreamReader(InputStream))

{

this.magicNumber = PGMReader.ReadLine().Trim();

if (this.magicNumber != "P2")

{

throw new InvalidDataException("Invalid magic number " + magicNumber);

}

this.comment = PGMReader.ReadLine().Trim();

if (!this.comment.StartsWith("#"))

{

line = this.comment;

this.comment = null;

}

else

{

line = PGMReader.ReadLine().Trim();

}

int[] size = Array.ConvertAll(line.Split(new char[] { ' ' }, StringSplitOptions.RemoveEmptyEntries), int.Parse);

this.width = size[0];

this.height = size[1];

this.data = new byte[height][];

for (int i = 0; i < height; i++)

{

this.data[i] = new byte[width];

}

this.maxVal = int.Parse(PGMReader.ReadLine().Trim());

// read data

int row = 0, column = 0;

while ((line = PGMReader.ReadLine()) != null)

{

byte[] textRow = Array.ConvertAll(line.Split(new char[] { ' ' }, StringSplitOptions.RemoveEmptyEntries), byte.Parse);

for (int i = 0; i < textRow.Length; i++)

{

if (column == this.Width)

{

row++;

column = 0;

}

this.data[row][column++] = textRow[i];

}

}

}

InputStream.Close();

}

private void WritePGM(string filePath)

{

FileStream OutputStream = File.Create(filePath);

BinaryWriter PGMWriter = new BinaryWriter(OutputStream);

string PGMInfo = this.Header;

byte[] PGMInfoBuffer = System.Text.ASCIIEncoding.Default.GetBytes(PGMInfo);

PGMWriter.Write(PGMInfoBuffer);

if (this.magicNumber != "P2")

{

throw new InvalidDataException("Invalid magic number " + magicNumber);

}

byte NewLineAsciiCode = 10;

byte SpaceAsciiCode = 32;

int Temp;

for (int i = 0; i < this.Height; i++)

{

for (int j = 0; j < this.Width; j++)

{

//File is text based, convert every byte to text representation followed by "space"

Temp = this.data[i][j];

byte[] TempByteArray = System.Text.ASCIIEncoding.Default.GetBytes(Temp.ToString());

PGMWriter.Write(TempByteArray);

PGMWriter.Write(SpaceAsciiCode);

}

PGMWriter.Write(NewLineAsciiCode);

}

PGMWriter.Close();

}

}

}

* EnumRotationAngles.cs

namespace NegativeRotationP2

{

public enum EnumRotationAngles

{

PLUS\_90 = 90,

MINUS\_90 = -90,

D\_180 = 180

}

}

* FormMain.cs

namespace NegativeRotationP2

{

using System;

using System.Drawing;

using System.Windows.Forms;

public partial class FormMain : Form

{

private string inputFileName;

private string outputFileName;

private PgmImage pgmOriginalImage;

public FormMain()

{

InitializeComponent();

}

public Bitmap PgmToBitmap(PgmImage pgmImage)

{

if (pgmImage != null && pgmImage.MagicNumber == "P2")

{

int width = pgmImage.Width;

int height = pgmImage.Height;

Bitmap result = new Bitmap(width, height);

Graphics gr = Graphics.FromImage(result);

for (int i = 0; i < pgmImage.Height; ++i)

{

for (int j = 0; j < pgmImage.Width; ++j)

{

int pixelColor = pgmImage.Data[i][j];

Color c = Color.FromArgb(pixelColor, pixelColor, pixelColor);

SolidBrush sb = new SolidBrush(c);

gr.FillRectangle(sb, j, i, 1, 1);

}

}

return result;

}

return null;

}

public PgmImage Negative(PgmImage pgmImage)

{

if (pgmImage != null)

{

PgmImage result = new PgmImage(pgmImage.Width, pgmImage.Height, pgmImage.MagicNumber, null, Byte.MinValue);

Array.Copy(pgmImage.Data, result.Data, pgmImage.Data.Length);

for (int i = 0; i < pgmImage.Height; i++)

{

for (int j = 0; j < pgmImage.Width; j++)

{

result.Data[i][j] = (byte)(255 - result.Data[i][j]);

if (result.MaxVal < result.Data[i][j])

{

result.MaxVal = result.Data[i][j];

}

}

}

return result;

}

return null;

}

public PgmImage Rotate(PgmImage pgmImage, EnumRotationAngles angle)

{

if (pgmImage != null)

{

int width, height;

PgmImage result = null;

switch (angle)

{

case EnumRotationAngles.D\_180:

width = pgmImage.Width;

height = pgmImage.Height;

result = new PgmImage(width, height, pgmImage.MagicNumber, pgmImage.Comment, pgmImage.MaxVal);

for (int i = pgmImage.Height - 1; i >= 0; i--)

{

for (int j = pgmImage.Width - 1; j >= 0; j--)

{

result.Data[pgmImage.Height - 1 - i][pgmImage.Width - 1 - j] = pgmImage.Data[i][j];

}

}

break;

case EnumRotationAngles.MINUS\_90:

width = pgmImage.Height;

height = pgmImage.Width;

result = new PgmImage(width, height, pgmImage.MagicNumber, pgmImage.Comment, pgmImage.MaxVal);

for (int i = 0; i < pgmImage.Width; i++)

{

for (int j = pgmImage.Height - 1; j >= 0; j--)

{

result.Data[i][pgmImage.Height - 1 - j] = pgmImage.Data[j][i];

}

}

break;

case EnumRotationAngles.PLUS\_90:

width = pgmImage.Height;

height = pgmImage.Width;

result = new PgmImage(width, height, pgmImage.MagicNumber, pgmImage.Comment, pgmImage.MaxVal);

for (int i = pgmImage.Width - 1; i >= 0; i--)

{

for (int j = 0; j < pgmImage.Height; j++)

{

result.Data[pgmImage.Width - 1 - i][j] = pgmImage.Data[j][i];

}

}

break;

default: return null;

}

return result;

}

return null;

}

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

{

DialogResult dlgResult = openFileDialog1.ShowDialog();

if (dlgResult == DialogResult.OK)

{

try

{

pgmOriginalImage = new PgmImage(openFileDialog1.FileName);

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

pbImage.Image = PgmToBitmap(pgmOriginalImage);

if (pbImage.Image != null)

{

inputFileName = openFileDialog1.FileName;

tlpActions.Enabled = true;

}

else

{

tlpActions.Enabled = false;

inputFileName = null;

pbImage.Image = pbImage.ErrorImage;

}

chbNegative.Checked = false;

outputFileName = null;

fileToolStripMenuItem.PerformClick();

}

}

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

{

if (String.IsNullOrEmpty(inputFileName))

{

saveToolStripMenuItem.Enabled = false;

saveAsToolStripMenuItem.Enabled = false;

}

else

{

saveToolStripMenuItem.Enabled = true;

saveAsToolStripMenuItem.Enabled = true;

}

}

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

{

Application.Exit();

}

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

{

if (String.IsNullOrEmpty(this.outputFileName))

{

var confirmResult = MessageBox.Show("Are you sure you want to rewrite the original file?",

"Confirmation",

MessageBoxButtons.YesNo);

if (confirmResult == DialogResult.Yes)

{

outputFileName = inputFileName;

try

{

pgmOriginalImage.Save(outputFileName);

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

else

{

saveAsToolStripMenuItem.PerformClick();

}

}

}

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

{

DialogResult dlgResult = saveFileDialog1.ShowDialog();

if (dlgResult == DialogResult.OK)

{

outputFileName = saveFileDialog1.FileName;

try

{

pgmOriginalImage.Save(outputFileName);

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

private void btnMinus90\_Click(object sender, EventArgs e)

{

Cursor.Current = Cursors.WaitCursor;

pgmOriginalImage = Rotate(pgmOriginalImage, EnumRotationAngles.MINUS\_90);

pbImage.Image = PgmToBitmap(pgmOriginalImage);

Cursor.Current = Cursors.Default;

}

private void btnPlus90\_Click(object sender, EventArgs e)

{

Cursor.Current = Cursors.WaitCursor;

pgmOriginalImage = Rotate(pgmOriginalImage, EnumRotationAngles.PLUS\_90);

pbImage.Image = PgmToBitmap(pgmOriginalImage);

Cursor.Current = Cursors.Default;

}

private void btn180\_Click(object sender, EventArgs e)

{

Cursor.Current = Cursors.WaitCursor;

pgmOriginalImage = Rotate(pgmOriginalImage, EnumRotationAngles.D\_180);

pbImage.Image = PgmToBitmap(pgmOriginalImage);

Cursor.Current = Cursors.Default;

}

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

{

Cursor.Current = Cursors.WaitCursor;

chbNegative.Text = chbNegative.Checked ? "On" : "Off";

pgmOriginalImage = Negative(pgmOriginalImage);

pbImage.Image = PgmToBitmap(pgmOriginalImage);

Cursor.Current = Cursors.Default;

}

}

}

* FormMain.Designer.cs

namespace NegativeRotationP2

{

partial class FormMain

{

/// <summary>

/// Required designer variable.

/// </summary>

private System.ComponentModel.IContainer components = null;

/// <summary>

/// Clean up any resources being used.

/// </summary>

/// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>

protected override void Dispose(bool disposing)

{

if (disposing && (components != null))

{

components.Dispose();

}

base.Dispose(disposing);

}

#region Windows Form Designer generated code

/// <summary>

/// Required method for Designer support - do not modify

/// the contents of this method with the code editor.

/// </summary>

private void InitializeComponent()

{

this.menuStrip1 = new System.Windows.Forms.MenuStrip();

this.fileToolStripMenuItem = new System.Windows.Forms.ToolStripMenuItem();

this.openToolStripMenuItem = new System.Windows.Forms.ToolStripMenuItem();

this.toolStripMenuItem1 = new System.Windows.Forms.ToolStripSeparator();

this.saveToolStripMenuItem = new System.Windows.Forms.ToolStripMenuItem();

this.saveAsToolStripMenuItem = new System.Windows.Forms.ToolStripMenuItem();

this.toolStripMenuItem2 = new System.Windows.Forms.ToolStripSeparator();

this.exitToolStripMenuItem = new System.Windows.Forms.ToolStripMenuItem();

this.splitContainer1 = new System.Windows.Forms.SplitContainer();

this.tlpActions = new System.Windows.Forms.TableLayoutPanel();

this.btn180 = new System.Windows.Forms.Button();

this.btnPlus90 = new System.Windows.Forms.Button();

this.lblRotation = new System.Windows.Forms.Label();

this.lblNegative = new System.Windows.Forms.Label();

this.chbNegative = new System.Windows.Forms.CheckBox();

this.btnMinus90 = new System.Windows.Forms.Button();

this.pbImage = new System.Windows.Forms.PictureBox();

this.openFileDialog1 = new System.Windows.Forms.OpenFileDialog();

this.saveFileDialog1 = new System.Windows.Forms.SaveFileDialog();

this.menuStrip1.SuspendLayout();

((System.ComponentModel.ISupportInitialize)(this.splitContainer1)).BeginInit();

this.splitContainer1.Panel1.SuspendLayout();

this.splitContainer1.Panel2.SuspendLayout();

this.splitContainer1.SuspendLayout();

this.tlpActions.SuspendLayout();

((System.ComponentModel.ISupportInitialize)(this.pbImage)).BeginInit();

this.SuspendLayout();

//

// menuStrip1

//

this.menuStrip1.Items.AddRange(new System.Windows.Forms.ToolStripItem[] {

this.fileToolStripMenuItem});

this.menuStrip1.Location = new System.Drawing.Point(0, 0);

this.menuStrip1.Name = "menuStrip1";

this.menuStrip1.Size = new System.Drawing.Size(743, 24);

this.menuStrip1.TabIndex = 0;

this.menuStrip1.Text = "menuStrip1";

//

// fileToolStripMenuItem

//

this.fileToolStripMenuItem.DropDownItems.AddRange(new System.Windows.Forms.ToolStripItem[] {

this.openToolStripMenuItem,

this.toolStripMenuItem1,

this.saveToolStripMenuItem,

this.saveAsToolStripMenuItem,

this.toolStripMenuItem2,

this.exitToolStripMenuItem});

this.fileToolStripMenuItem.Name = "fileToolStripMenuItem";

this.fileToolStripMenuItem.Size = new System.Drawing.Size(37, 20);

this.fileToolStripMenuItem.Text = "File";

this.fileToolStripMenuItem.Click += new System.EventHandler(this.fileToolStripMenuItem\_Click);

//

// openToolStripMenuItem

//

this.openToolStripMenuItem.Name = "openToolStripMenuItem";

this.openToolStripMenuItem.Size = new System.Drawing.Size(123, 22);

this.openToolStripMenuItem.Text = "Open";

this.openToolStripMenuItem.Click += new System.EventHandler(this.openToolStripMenuItem\_Click);

//

// toolStripMenuItem1

//

this.toolStripMenuItem1.Name = "toolStripMenuItem1";

this.toolStripMenuItem1.Size = new System.Drawing.Size(120, 6);

//

// saveToolStripMenuItem

//

this.saveToolStripMenuItem.Enabled = false;

this.saveToolStripMenuItem.Name = "saveToolStripMenuItem";

this.saveToolStripMenuItem.Size = new System.Drawing.Size(123, 22);

this.saveToolStripMenuItem.Text = "Save";

this.saveToolStripMenuItem.Click += new System.EventHandler(this.saveToolStripMenuItem\_Click);

//

// saveAsToolStripMenuItem

//

this.saveAsToolStripMenuItem.Enabled = false;

this.saveAsToolStripMenuItem.Name = "saveAsToolStripMenuItem";

this.saveAsToolStripMenuItem.Size = new System.Drawing.Size(123, 22);

this.saveAsToolStripMenuItem.Text = "Save As...";

this.saveAsToolStripMenuItem.Click += new System.EventHandler(this.saveAsToolStripMenuItem\_Click);

//

// toolStripMenuItem2

//

this.toolStripMenuItem2.Name = "toolStripMenuItem2";

this.toolStripMenuItem2.Size = new System.Drawing.Size(120, 6);

//

// exitToolStripMenuItem

//

this.exitToolStripMenuItem.Name = "exitToolStripMenuItem";

this.exitToolStripMenuItem.Size = new System.Drawing.Size(123, 22);

this.exitToolStripMenuItem.Text = "Exit";

this.exitToolStripMenuItem.Click += new System.EventHandler(this.exitToolStripMenuItem\_Click);

//

// splitContainer1

//

this.splitContainer1.Dock = System.Windows.Forms.DockStyle.Fill;

this.splitContainer1.Location = new System.Drawing.Point(0, 24);

this.splitContainer1.Name = "splitContainer1";

//

// splitContainer1.Panel1

//

this.splitContainer1.Panel1.Controls.Add(this.tlpActions);

//

// splitContainer1.Panel2

//

this.splitContainer1.Panel2.AutoScroll = true;

this.splitContainer1.Panel2.Controls.Add(this.pbImage);

this.splitContainer1.Size = new System.Drawing.Size(743, 425);

this.splitContainer1.SplitterDistance = 192;

this.splitContainer1.TabIndex = 1;

//

// tlpActions

//

this.tlpActions.AutoSize = true;

this.tlpActions.ColumnCount = 1;

this.tlpActions.ColumnStyles.Add(new System.Windows.Forms.ColumnStyle(System.Windows.Forms.SizeType.Percent, 100F));

this.tlpActions.Controls.Add(this.btn180, 0, 5);

this.tlpActions.Controls.Add(this.btnPlus90, 0, 4);

this.tlpActions.Controls.Add(this.lblRotation, 0, 2);

this.tlpActions.Controls.Add(this.lblNegative, 0, 0);

this.tlpActions.Controls.Add(this.chbNegative, 0, 1);

this.tlpActions.Controls.Add(this.btnMinus90, 0, 3);

this.tlpActions.Dock = System.Windows.Forms.DockStyle.Top;

this.tlpActions.Enabled = false;

this.tlpActions.Location = new System.Drawing.Point(0, 0);

this.tlpActions.Name = "tlpActions";

this.tlpActions.RowCount = 7;

this.tlpActions.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 30F));

this.tlpActions.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tlpActions.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 30F));

this.tlpActions.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tlpActions.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tlpActions.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tlpActions.RowStyles.Add(new System.Windows.Forms.RowStyle());

this.tlpActions.Size = new System.Drawing.Size(192, 160);

this.tlpActions.TabIndex = 0;

//

// btn180

//

this.btn180.Anchor = System.Windows.Forms.AnchorStyles.None;

this.btn180.Location = new System.Drawing.Point(58, 136);

this.btn180.Margin = new System.Windows.Forms.Padding(0);

this.btn180.Name = "btn180";

this.btn180.Size = new System.Drawing.Size(75, 23);

this.btn180.TabIndex = 5;

this.btn180.Text = "180";

this.btn180.UseVisualStyleBackColor = true;

this.btn180.Click += new System.EventHandler(this.btn180\_Click);

//

// btnPlus90

//

this.btnPlus90.Anchor = System.Windows.Forms.AnchorStyles.None;

this.btnPlus90.Location = new System.Drawing.Point(58, 111);

this.btnPlus90.Margin = new System.Windows.Forms.Padding(0);

this.btnPlus90.Name = "btnPlus90";

this.btnPlus90.Size = new System.Drawing.Size(75, 23);

this.btnPlus90.TabIndex = 4;

this.btnPlus90.Text = "+90";

this.btnPlus90.UseVisualStyleBackColor = true;

this.btnPlus90.Click += new System.EventHandler(this.btnPlus90\_Click);

//

// lblRotation

//

this.lblRotation.AutoSize = true;

this.lblRotation.BackColor = System.Drawing.SystemColors.ControlLight;

this.lblRotation.Dock = System.Windows.Forms.DockStyle.Fill;

this.lblRotation.Font = new System.Drawing.Font("Microsoft Sans Serif", 9F, System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)(204)));

this.lblRotation.Location = new System.Drawing.Point(0, 55);

this.lblRotation.Margin = new System.Windows.Forms.Padding(0);

this.lblRotation.Name = "lblRotation";

this.lblRotation.Size = new System.Drawing.Size(192, 30);

this.lblRotation.TabIndex = 1;

this.lblRotation.Text = "Rotation";

this.lblRotation.TextAlign = System.Drawing.ContentAlignment.MiddleLeft;

//

// lblNegative

//

this.lblNegative.AutoSize = true;

this.lblNegative.BackColor = System.Drawing.SystemColors.ControlLight;

this.lblNegative.Dock = System.Windows.Forms.DockStyle.Fill;

this.lblNegative.Font = new System.Drawing.Font("Microsoft Sans Serif", 9F, System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)(204)));

this.lblNegative.Location = new System.Drawing.Point(0, 0);

this.lblNegative.Margin = new System.Windows.Forms.Padding(0);

this.lblNegative.Name = "lblNegative";

this.lblNegative.Size = new System.Drawing.Size(192, 30);

this.lblNegative.TabIndex = 0;

this.lblNegative.Text = "Negative";

this.lblNegative.TextAlign = System.Drawing.ContentAlignment.MiddleLeft;

//

// chbNegative

//

this.chbNegative.AutoSize = true;

this.chbNegative.Dock = System.Windows.Forms.DockStyle.Fill;

this.chbNegative.Location = new System.Drawing.Point(0, 30);

this.chbNegative.Margin = new System.Windows.Forms.Padding(0);

this.chbNegative.Name = "chbNegative";

this.chbNegative.Padding = new System.Windows.Forms.Padding(10, 0, 0, 0);

this.chbNegative.Size = new System.Drawing.Size(192, 25);

this.chbNegative.TabIndex = 2;

this.chbNegative.Text = "Off";

this.chbNegative.UseVisualStyleBackColor = true;

this.chbNegative.Click += new System.EventHandler(this.chbNegative\_Click);

//

// btnMinus90

//

this.btnMinus90.Anchor = System.Windows.Forms.AnchorStyles.None;

this.btnMinus90.Location = new System.Drawing.Point(58, 86);

this.btnMinus90.Margin = new System.Windows.Forms.Padding(0);

this.btnMinus90.Name = "btnMinus90";

this.btnMinus90.Size = new System.Drawing.Size(75, 23);

this.btnMinus90.TabIndex = 3;

this.btnMinus90.Text = "-90";

this.btnMinus90.UseVisualStyleBackColor = true;

this.btnMinus90.Click += new System.EventHandler(this.btnMinus90\_Click);

//

// pbImage

//

this.pbImage.BackColor = System.Drawing.Color.Transparent;

this.pbImage.Location = new System.Drawing.Point(0, 0);

this.pbImage.Margin = new System.Windows.Forms.Padding(0);

this.pbImage.Name = "pbImage";

this.pbImage.Size = new System.Drawing.Size(100, 50);

this.pbImage.SizeMode = System.Windows.Forms.PictureBoxSizeMode.AutoSize;

this.pbImage.TabIndex = 0;

this.pbImage.TabStop = false;

//

// openFileDialog1

//

this.openFileDialog1.Filter = "Portable Gray Map | \*.pgm";

//

// saveFileDialog1

//

this.saveFileDialog1.Filter = "Portable Gray Map | \*.pgm";

//

// FormMain

//

this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(743, 449);

this.Controls.Add(this.splitContainer1);

this.Controls.Add(this.menuStrip1);

this.MainMenuStrip = this.menuStrip1;

this.Name = "FormMain";

this.StartPosition = System.Windows.Forms.FormStartPosition.CenterScreen;

this.menuStrip1.ResumeLayout(false);

this.menuStrip1.PerformLayout();

this.splitContainer1.Panel1.ResumeLayout(false);

this.splitContainer1.Panel1.PerformLayout();

this.splitContainer1.Panel2.ResumeLayout(false);

this.splitContainer1.Panel2.PerformLayout();

((System.ComponentModel.ISupportInitialize)(this.splitContainer1)).EndInit();

this.splitContainer1.ResumeLayout(false);

this.tlpActions.ResumeLayout(false);

this.tlpActions.PerformLayout();

((System.ComponentModel.ISupportInitialize)(this.pbImage)).EndInit();

this.ResumeLayout(false);

this.PerformLayout();

}

#endregion

private System.Windows.Forms.MenuStrip menuStrip1;

private System.Windows.Forms.ToolStripMenuItem fileToolStripMenuItem;

private System.Windows.Forms.ToolStripMenuItem openToolStripMenuItem;

private System.Windows.Forms.ToolStripSeparator toolStripMenuItem1;

private System.Windows.Forms.ToolStripMenuItem saveToolStripMenuItem;

private System.Windows.Forms.ToolStripMenuItem saveAsToolStripMenuItem;

private System.Windows.Forms.ToolStripSeparator toolStripMenuItem2;

private System.Windows.Forms.ToolStripMenuItem exitToolStripMenuItem;

private System.Windows.Forms.SplitContainer splitContainer1;

private System.Windows.Forms.PictureBox pbImage;

private System.Windows.Forms.TableLayoutPanel tlpActions;

private System.Windows.Forms.Label lblRotation;

private System.Windows.Forms.Label lblNegative;

private System.Windows.Forms.CheckBox chbNegative;

private System.Windows.Forms.OpenFileDialog openFileDialog1;

private System.Windows.Forms.SaveFileDialog saveFileDialog1;

private System.Windows.Forms.Button btn180;

private System.Windows.Forms.Button btnPlus90;

private System.Windows.Forms.Button btnMinus90;

}

}

# Демо



