**РУСЕНСКИ УНИВЕРСИТЕТ „АНГЕЛ КЪНЧЕВ“**

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# Задание

Да се напише програма, която показва изображение в нива на сивото, записано във формат PGM с текстов идентификатор (P2) и позволява преобразуването му до едноцветно с прагова функция. Стойността за праговата функция да се задава с входящ 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)



* Prgram.cs

namespace Grayscale\_To\_Binary\_Image

{

using System;

using System.Windows.Forms;

static class Program

{

[STAThread]

static void Main()

{

Application.EnableVisualStyles();

Application.SetCompatibleTextRenderingDefault(false);

Application.Run(new FormMain());

}

}

}

* PgmImage.cs

namespace Grayscale\_To\_Binary\_Image

{

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[width \* height];

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[this.width \* this.height];

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

// read data

int currentLastIndex = 0;

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

{

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

Array.Copy(row, 0, this.data, currentLastIndex, row.Length);

currentLastIndex += row.Length;

}

}

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 \* this.width; i++)

{

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

Temp = this.data[i];

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

PGMWriter.Write(TempByteArray);

PGMWriter.Write(SpaceAsciiCode);

if (i % this.Width == 0)

{

PGMWriter.Write(NewLineAsciiCode);

}

}

PGMWriter.Close();

}

}

}

* FormMain.cs

namespace Grayscale\_To\_Binary\_Image

{

using System;

using System.Drawing;

using System.Drawing.Imaging;

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);

int pixel = 0;

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

{

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

{

int pixelColor = pgmImage.Data[pixel++];

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 BitmapToPgm(Bitmap monoBmpImage, string magicNumber)

{

if (monoBmpImage != null)

{

PgmImage result = new PgmImage(monoBmpImage.Width, monoBmpImage.Height, magicNumber, null, 255);

int pixel = 0;

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

{

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

{

// the image is monochromatic

result.Data[pixel++] = monoBmpImage.GetPixel(j, i).R;

}

}

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);

}

pictureBoxOriginalImage.Image = PgmToBitmap(pgmOriginalImage);

if (pictureBoxOriginalImage.Image != null)

{

inputFileName = openFileDialog1.FileName;

trackBarThreshold.Maximum = pgmOriginalImage.MaxVal;

trackBarThreshold.Value = trackBarThreshold.Minimum;

trackBarThreshold.Enabled = true;

outputFileName = null;

pictureBoxResultImage.Visible = true;

pictureBoxResultImage.Image = null;

labelMagicNumber.Text = "Magic Number: " + pgmOriginalImage.MagicNumber;

labelWidth.Text = "Width: " + pgmOriginalImage.Width + " px";

labelHieght.Text = "Height: " + pgmOriginalImage.Height + " px";

labelMaxVal.Text = "Maximum Gray Value: " + pgmOriginalImage.MaxVal;

}

else

{

inputFileName = null;

outputFileName = null;

pictureBoxResultImage.Visible = false;

pictureBoxOriginalImage.Image = pictureBoxOriginalImage.ErrorImage;

trackBarThreshold.Value = trackBarThreshold.Minimum;

trackBarThreshold.Enabled = false;

labelMagicNumber.Text = "Magic Number:";

labelWidth.Text = "Width:";

labelHieght.Text = "Height:";

labelMaxVal.Text = "Maximum Gray Value:";

labelThreshold.Text = "Threshold:";

}

}

}

private void trackBarThreshold\_ValueChanged(object sender, EventArgs e)

{

labelThreshold.Text = "Threshold: " + trackBarThreshold.Value;

ImageAttributes imageAttr = new ImageAttributes();

imageAttr.SetThreshold((float)trackBarThreshold.Value);

System.Drawing.Bitmap bmp = new System.Drawing.Bitmap(pictureBoxOriginalImage.Image);

Graphics g = System.Drawing.Graphics.FromImage(bmp);

g.DrawImage(bmp, new Rectangle(0, 0, bmp.Width, bmp.Height), 0, 0,

bmp.Width, bmp.Height, GraphicsUnit.Pixel, imageAttr);

pictureBoxResultImage.Image = bmp;

}

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

{

Application.Exit();

}

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

{

if (String.IsNullOrEmpty(this.outputFileName))

{

saveAsToolStripMenuItem.PerformClick();

}

else

{

try

{

BitmapToPgm((Bitmap)pictureBoxResultImage.Image, pgmOriginalImage.MagicNumber).Save(outputFileName);

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

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

{

DialogResult dlgResult = saveFileDialog1.ShowDialog();

if (dlgResult == DialogResult.OK)

{

outputFileName = saveFileDialog1.FileName;

try

{

BitmapToPgm((Bitmap)pictureBoxResultImage.Image, pgmOriginalImage.MagicNumber).Save(outputFileName);

}

catch(Exception ex)

{

MessageBox.Show(ex.Message);

}

}

}

}

}

* FormMain.Designer.cs

namespace Grayscale\_To\_Binary\_Image

{

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

this.tableLayoutPanel2 = new System.Windows.Forms.TableLayoutPanel();

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

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

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

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

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

this.trackBarThreshold = new System.Windows.Forms.TrackBar();

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

this.tableLayoutPanel1 = new System.Windows.Forms.TableLayoutPanel();

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

this.panelResultImage = new System.Windows.Forms.Panel();

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

this.panelOriginalImage = new System.Windows.Forms.Panel();

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

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

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

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

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

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

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

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

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

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

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

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

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

this.splitContainer1.Panel1.SuspendLayout();

this.splitContainer1.Panel2.SuspendLayout();

this.splitContainer1.SuspendLayout();

this.tableLayoutPanel2.SuspendLayout();

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

this.tableLayoutPanel1.SuspendLayout();

this.panelResultImage.SuspendLayout();

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

this.panelOriginalImage.SuspendLayout();

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

this.menuStrip1.SuspendLayout();

this.SuspendLayout();

//

// 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.tableLayoutPanel2);

this.splitContainer1.Panel1MinSize = 200;

//

// splitContainer1.Panel2

//

this.splitContainer1.Panel2.Controls.Add(this.tableLayoutPanel1);

this.splitContainer1.Size = new System.Drawing.Size(828, 561);

this.splitContainer1.SplitterDistance = 200;

this.splitContainer1.TabIndex = 0;

//

// tableLayoutPanel2

//

this.tableLayoutPanel2.CellBorderStyle = System.Windows.Forms.TableLayoutPanelCellBorderStyle.Inset;

this.tableLayoutPanel2.ColumnCount = 1;

this.tableLayoutPanel2.ColumnStyles.Add(new System.Windows.Forms.ColumnStyle(System.Windows.Forms.SizeType.Percent, 100F));

this.tableLayoutPanel2.Controls.Add(this.labelMagicNumber, 0, 1);

this.tableLayoutPanel2.Controls.Add(this.labelDetails, 0, 0);

this.tableLayoutPanel2.Controls.Add(this.labelThreshold, 0, 5);

this.tableLayoutPanel2.Controls.Add(this.labelMaxVal, 0, 4);

this.tableLayoutPanel2.Controls.Add(this.labelHieght, 0, 3);

this.tableLayoutPanel2.Controls.Add(this.trackBarThreshold, 0, 6);

this.tableLayoutPanel2.Controls.Add(this.labelWidth, 0, 2);

this.tableLayoutPanel2.Dock = System.Windows.Forms.DockStyle.Top;

this.tableLayoutPanel2.Location = new System.Drawing.Point(0, 0);

this.tableLayoutPanel2.Margin = new System.Windows.Forms.Padding(0);

this.tableLayoutPanel2.Name = "tableLayoutPanel2";

this.tableLayoutPanel2.RowCount = 7;

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 20F));

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 20F));

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 25F));

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle());

this.tableLayoutPanel2.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 20F));

this.tableLayoutPanel2.Size = new System.Drawing.Size(200, 279);

this.tableLayoutPanel2.TabIndex = 0;

//

// labelMagicNumber

//

this.labelMagicNumber.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelMagicNumber.AutoSize = true;

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

this.labelMagicNumber.Location = new System.Drawing.Point(5, 24);

this.labelMagicNumber.Name = "labelMagicNumber";

this.labelMagicNumber.Size = new System.Drawing.Size(190, 20);

this.labelMagicNumber.TabIndex = 9;

this.labelMagicNumber.Text = "Magic Number:";

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

//

// labelDetails

//

this.labelDetails.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelDetails.AutoSize = true;

this.labelDetails.BackColor = System.Drawing.Color.FromArgb(((int)(((byte)(224)))), ((int)(((byte)(224)))), ((int)(((byte)(224)))));

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

this.labelDetails.Location = new System.Drawing.Point(2, 2);

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

this.labelDetails.Name = "labelDetails";

this.labelDetails.Size = new System.Drawing.Size(196, 20);

this.labelDetails.TabIndex = 8;

this.labelDetails.Text = "Details";

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

//

// labelThreshold

//

this.labelThreshold.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelThreshold.AutoSize = true;

this.labelThreshold.BackColor = System.Drawing.Color.FromArgb(((int)(((byte)(224)))), ((int)(((byte)(224)))), ((int)(((byte)(224)))));

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

this.labelThreshold.Location = new System.Drawing.Point(2, 127);

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

this.labelThreshold.Name = "labelThreshold";

this.labelThreshold.Size = new System.Drawing.Size(196, 25);

this.labelThreshold.TabIndex = 7;

this.labelThreshold.Text = "Threshold: 1";

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

//

// labelMaxVal

//

this.labelMaxVal.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelMaxVal.AutoSize = true;

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

this.labelMaxVal.Location = new System.Drawing.Point(5, 100);

this.labelMaxVal.Name = "labelMaxVal";

this.labelMaxVal.Size = new System.Drawing.Size(190, 25);

this.labelMaxVal.TabIndex = 6;

this.labelMaxVal.Text = "Maximum Gray Value:";

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

//

// labelHieght

//

this.labelHieght.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelHieght.AutoSize = true;

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

this.labelHieght.Location = new System.Drawing.Point(5, 73);

this.labelHieght.Name = "labelHieght";

this.labelHieght.Size = new System.Drawing.Size(190, 25);

this.labelHieght.TabIndex = 5;

this.labelHieght.Text = "Height:";

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

//

// trackBarThreshold

//

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

this.trackBarThreshold.Enabled = false;

this.trackBarThreshold.Location = new System.Drawing.Point(5, 157);

this.trackBarThreshold.Minimum = 1;

this.trackBarThreshold.Name = "trackBarThreshold";

this.trackBarThreshold.RightToLeft = System.Windows.Forms.RightToLeft.No;

this.trackBarThreshold.Size = new System.Drawing.Size(190, 45);

this.trackBarThreshold.TabIndex = 3;

this.trackBarThreshold.TickStyle = System.Windows.Forms.TickStyle.None;

this.trackBarThreshold.Value = 1;

this.trackBarThreshold.ValueChanged += new System.EventHandler(this.trackBarThreshold\_ValueChanged);

//

// labelWidth

//

this.labelWidth.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelWidth.AutoSize = true;

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

this.labelWidth.Location = new System.Drawing.Point(5, 46);

this.labelWidth.Name = "labelWidth";

this.labelWidth.Size = new System.Drawing.Size(190, 25);

this.labelWidth.TabIndex = 4;

this.labelWidth.Text = "Width:";

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

//

// tableLayoutPanel1

//

this.tableLayoutPanel1.BackColor = System.Drawing.SystemColors.Control;

this.tableLayoutPanel1.CellBorderStyle = System.Windows.Forms.TableLayoutPanelCellBorderStyle.Inset;

this.tableLayoutPanel1.ColumnCount = 1;

this.tableLayoutPanel1.ColumnStyles.Add(new System.Windows.Forms.ColumnStyle(System.Windows.Forms.SizeType.Percent, 100F));

this.tableLayoutPanel1.Controls.Add(this.labelResult, 0, 2);

this.tableLayoutPanel1.Controls.Add(this.panelResultImage, 0, 3);

this.tableLayoutPanel1.Controls.Add(this.panelOriginalImage, 0, 1);

this.tableLayoutPanel1.Controls.Add(this.labelOriginalImage, 0, 0);

this.tableLayoutPanel1.Dock = System.Windows.Forms.DockStyle.Fill;

this.tableLayoutPanel1.Location = new System.Drawing.Point(0, 0);

this.tableLayoutPanel1.Name = "tableLayoutPanel1";

this.tableLayoutPanel1.RowCount = 4;

this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 20F));

this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Percent, 50F));

this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 20F));

this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Percent, 50F));

this.tableLayoutPanel1.RowStyles.Add(new System.Windows.Forms.RowStyle(System.Windows.Forms.SizeType.Absolute, 20F));

this.tableLayoutPanel1.Size = new System.Drawing.Size(624, 561);

this.tableLayoutPanel1.TabIndex = 0;

//

// labelResult

//

this.labelResult.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelResult.AutoSize = true;

this.labelResult.BackColor = System.Drawing.Color.FromArgb(((int)(((byte)(224)))), ((int)(((byte)(224)))), ((int)(((byte)(224)))));

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

this.labelResult.Location = new System.Drawing.Point(2, 281);

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

this.labelResult.Name = "labelResult";

this.labelResult.Size = new System.Drawing.Size(620, 20);

this.labelResult.TabIndex = 3;

this.labelResult.Text = "Result";

this.labelResult.TextAlign = System.Drawing.ContentAlignment.MiddleCenter;

//

// panelResultImage

//

this.panelResultImage.AutoScroll = true;

this.panelResultImage.Controls.Add(this.pictureBoxResultImage);

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

this.panelResultImage.Location = new System.Drawing.Point(2, 303);

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

this.panelResultImage.Name = "panelResultImage";

this.panelResultImage.Size = new System.Drawing.Size(620, 256);

this.panelResultImage.TabIndex = 1;

//

// pictureBoxResultImage

//

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

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

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

this.pictureBoxResultImage.Name = "pictureBoxResultImage";

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

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

this.pictureBoxResultImage.TabIndex = 1;

this.pictureBoxResultImage.TabStop = false;

//

// panelOriginalImage

//

this.panelOriginalImage.AutoScroll = true;

this.panelOriginalImage.Controls.Add(this.pictureBoxOriginalImage);

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

this.panelOriginalImage.Location = new System.Drawing.Point(2, 24);

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

this.panelOriginalImage.Name = "panelOriginalImage";

this.panelOriginalImage.Size = new System.Drawing.Size(620, 255);

this.panelOriginalImage.TabIndex = 0;

//

// pictureBoxOriginalImage

//

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

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

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

this.pictureBoxOriginalImage.Name = "pictureBoxOriginalImage";

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

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

this.pictureBoxOriginalImage.TabIndex = 0;

this.pictureBoxOriginalImage.TabStop = false;

//

// labelOriginalImage

//

this.labelOriginalImage.Anchor = ((System.Windows.Forms.AnchorStyles)((((System.Windows.Forms.AnchorStyles.Top | System.Windows.Forms.AnchorStyles.Bottom)

| System.Windows.Forms.AnchorStyles.Left)

| System.Windows.Forms.AnchorStyles.Right)));

this.labelOriginalImage.AutoSize = true;

this.labelOriginalImage.BackColor = System.Drawing.Color.FromArgb(((int)(((byte)(224)))), ((int)(((byte)(224)))), ((int)(((byte)(224)))));

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

this.labelOriginalImage.Location = new System.Drawing.Point(2, 2);

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

this.labelOriginalImage.Name = "labelOriginalImage";

this.labelOriginalImage.Size = new System.Drawing.Size(620, 20);

this.labelOriginalImage.TabIndex = 2;

this.labelOriginalImage.Text = "Original";

this.labelOriginalImage.TextAlign = System.Drawing.ContentAlignment.MiddleCenter;

//

// 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(828, 24);

this.menuStrip1.TabIndex = 1;

this.menuStrip1.Text = "menuStrip1";

//

// fileToolStripMenuItem

//

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

this.openToolStripMenuItem,

this.toolStripMenuItem2,

this.saveToolStripMenuItem,

this.saveAsToolStripMenuItem,

this.toolStripMenuItem1,

this.exitToolStripMenuItem});

this.fileToolStripMenuItem.Name = "fileToolStripMenuItem";

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

this.fileToolStripMenuItem.Text = "File";

//

// openToolStripMenuItem

//

this.openToolStripMenuItem.Name = "openToolStripMenuItem";

this.openToolStripMenuItem.ShortcutKeys = ((System.Windows.Forms.Keys)((System.Windows.Forms.Keys.Control | System.Windows.Forms.Keys.O)));

this.openToolStripMenuItem.Size = new System.Drawing.Size(152, 22);

this.openToolStripMenuItem.Text = "Open";

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

//

// toolStripMenuItem2

//

this.toolStripMenuItem2.Name = "toolStripMenuItem2";

this.toolStripMenuItem2.Size = new System.Drawing.Size(149, 6);

//

// saveToolStripMenuItem

//

this.saveToolStripMenuItem.Name = "saveToolStripMenuItem";

this.saveToolStripMenuItem.ShortcutKeys = ((System.Windows.Forms.Keys)((System.Windows.Forms.Keys.Control | System.Windows.Forms.Keys.S)));

this.saveToolStripMenuItem.Size = new System.Drawing.Size(152, 22);

this.saveToolStripMenuItem.Text = "Save";

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

//

// saveAsToolStripMenuItem

//

this.saveAsToolStripMenuItem.Name = "saveAsToolStripMenuItem";

this.saveAsToolStripMenuItem.Size = new System.Drawing.Size(152, 22);

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

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

//

// toolStripMenuItem1

//

this.toolStripMenuItem1.Name = "toolStripMenuItem1";

this.toolStripMenuItem1.Size = new System.Drawing.Size(149, 6);

//

// exitToolStripMenuItem

//

this.exitToolStripMenuItem.Name = "exitToolStripMenuItem";

this.exitToolStripMenuItem.ShortcutKeys = ((System.Windows.Forms.Keys)((System.Windows.Forms.Keys.Alt | System.Windows.Forms.Keys.F4)));

this.exitToolStripMenuItem.Size = new System.Drawing.Size(152, 22);

this.exitToolStripMenuItem.Text = "Exit";

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

//

// 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(828, 585);

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.Text = "Convert Grayscale Image to Binary";

this.splitContainer1.Panel1.ResumeLayout(false);

this.splitContainer1.Panel2.ResumeLayout(false);

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

this.splitContainer1.ResumeLayout(false);

this.tableLayoutPanel2.ResumeLayout(false);

this.tableLayoutPanel2.PerformLayout();

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

this.tableLayoutPanel1.ResumeLayout(false);

this.tableLayoutPanel1.PerformLayout();

this.panelResultImage.ResumeLayout(false);

this.panelResultImage.PerformLayout();

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

this.panelOriginalImage.ResumeLayout(false);

this.panelOriginalImage.PerformLayout();

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

this.menuStrip1.ResumeLayout(false);

this.menuStrip1.PerformLayout();

this.ResumeLayout(false);

this.PerformLayout();

}

#endregion

private System.Windows.Forms.SplitContainer splitContainer1;

private System.Windows.Forms.TableLayoutPanel tableLayoutPanel1;

private System.Windows.Forms.Panel panelOriginalImage;

private System.Windows.Forms.PictureBox pictureBoxOriginalImage;

private System.Windows.Forms.TableLayoutPanel tableLayoutPanel2;

private System.Windows.Forms.MenuStrip menuStrip1;

private System.Windows.Forms.ToolStripMenuItem fileToolStripMenuItem;

private System.Windows.Forms.ToolStripMenuItem openToolStripMenuItem;

private System.Windows.Forms.ToolStripSeparator toolStripMenuItem2;

private System.Windows.Forms.ToolStripMenuItem saveToolStripMenuItem;

private System.Windows.Forms.ToolStripMenuItem saveAsToolStripMenuItem;

private System.Windows.Forms.ToolStripSeparator toolStripMenuItem1;

private System.Windows.Forms.ToolStripMenuItem exitToolStripMenuItem;

private System.Windows.Forms.OpenFileDialog openFileDialog1;

private System.Windows.Forms.SaveFileDialog saveFileDialog1;

private System.Windows.Forms.TrackBar trackBarThreshold;

private System.Windows.Forms.Panel panelResultImage;

private System.Windows.Forms.PictureBox pictureBoxResultImage;

private System.Windows.Forms.Label labelOriginalImage;

private System.Windows.Forms.Label labelResult;

private System.Windows.Forms.Label labelThreshold;

private System.Windows.Forms.Label labelMaxVal;

private System.Windows.Forms.Label labelHieght;

private System.Windows.Forms.Label labelWidth;

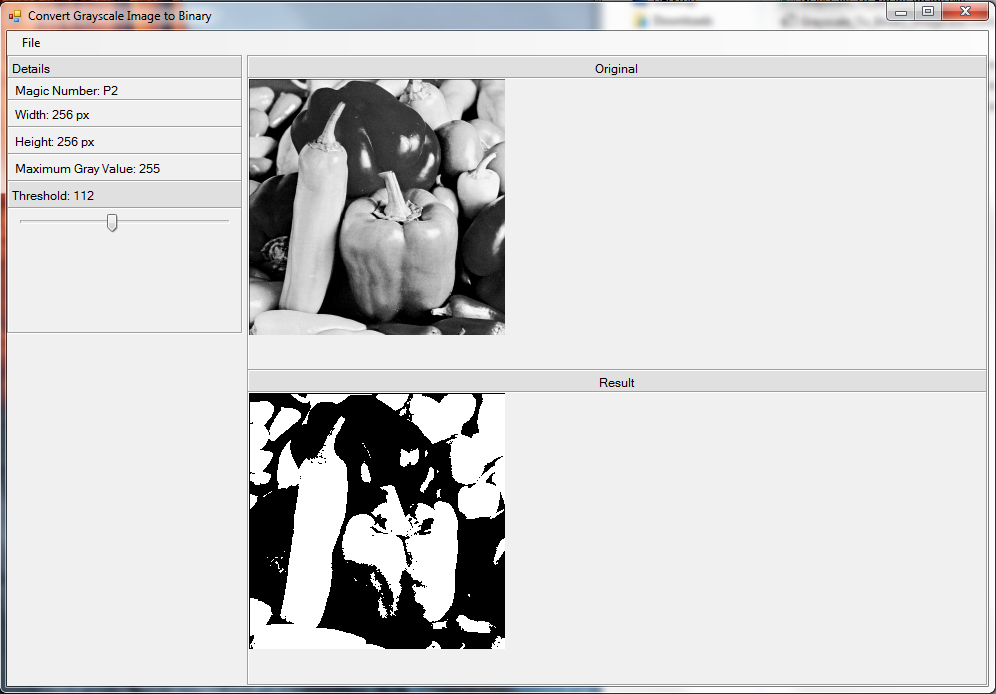
private System.Windows.Forms.Label labelDetails;

private System.Windows.Forms.Label labelMagicNumber;

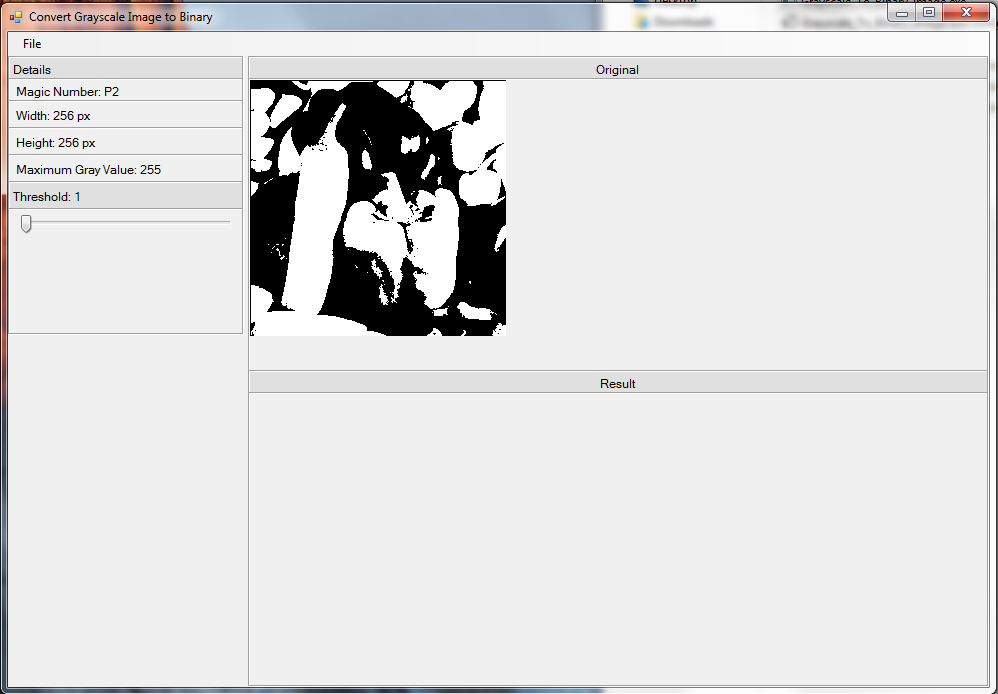
}

}

# Демо



Фигура Конвертиране на оригиналното изображение



Фигура Записаното изображение-резултат