# Homework – Week 5 – Programming

Name:

Question 5.1 - Write a program that solves the following problems with standard modules

* asks the user to type in a number with decimal places. The program should then display the rounded and truncated number.
* that reads in a string and displays the numbers of characters in the string.
* that displays the ASCII code for any given character.
* that will display the character for a given ASCII code.
* that asks the user for their surname and displays the surname in uppercase letters.

## Designer file:

namespace Homework\_5.\_1

{

partial class HW5A

{

/// <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.BTNDecimalIn = new System.Windows.Forms.Button();

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

this.TBDecimalInput = new System.Windows.Forms.TextBox();

this.TBStrLen = new System.Windows.Forms.TextBox();

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

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

this.TBAscii = new System.Windows.Forms.TextBox();

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

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

this.TBChar = new System.Windows.Forms.TextBox();

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

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

this.TBSurname = new System.Windows.Forms.TextBox();

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

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

this.SuspendLayout();

//

// BTNDecimalIn

//

this.BTNDecimalIn.Location = new System.Drawing.Point(118, 12);

this.BTNDecimalIn.Name = "BTNDecimalIn";

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

this.BTNDecimalIn.TabIndex = 0;

this.BTNDecimalIn.Text = "Input";

this.BTNDecimalIn.UseVisualStyleBackColor = true;

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

//

// LBLDecimalOut

//

this.LBLDecimalOut.AutoSize = true;

this.LBLDecimalOut.Location = new System.Drawing.Point(199, 17);

this.LBLDecimalOut.Name = "LBLDecimalOut";

this.LBLDecimalOut.Size = new System.Drawing.Size(77, 13);

this.LBLDecimalOut.TabIndex = 1;

this.LBLDecimalOut.Text = "RoundDecimal";

//

// TBDecimalInput

//

this.TBDecimalInput.Location = new System.Drawing.Point(12, 12);

this.TBDecimalInput.Name = "TBDecimalInput";

this.TBDecimalInput.Size = new System.Drawing.Size(100, 20);

this.TBDecimalInput.TabIndex = 2;

//

// TBStrLen

//

this.TBStrLen.Location = new System.Drawing.Point(12, 38);

this.TBStrLen.Name = "TBStrLen";

this.TBStrLen.Size = new System.Drawing.Size(100, 20);

this.TBStrLen.TabIndex = 5;

//

// LBLStrLenOut

//

this.LBLStrLenOut.AutoSize = true;

this.LBLStrLenOut.Location = new System.Drawing.Point(199, 43);

this.LBLStrLenOut.Name = "LBLStrLenOut";

this.LBLStrLenOut.Size = new System.Drawing.Size(67, 13);

this.LBLStrLenOut.TabIndex = 4;

this.LBLStrLenOut.Text = "StringLength";

//

// BTNStrLenIn

//

this.BTNStrLenIn.Location = new System.Drawing.Point(118, 38);

this.BTNStrLenIn.Name = "BTNStrLenIn";

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

this.BTNStrLenIn.TabIndex = 3;

this.BTNStrLenIn.Text = "Input";

this.BTNStrLenIn.UseVisualStyleBackColor = true;

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

//

// TBAscii

//

this.TBAscii.Location = new System.Drawing.Point(12, 64);

this.TBAscii.Name = "TBAscii";

this.TBAscii.Size = new System.Drawing.Size(100, 20);

this.TBAscii.TabIndex = 8;

//

// LBLAsciiOut

//

this.LBLAsciiOut.AutoSize = true;

this.LBLAsciiOut.Location = new System.Drawing.Point(199, 69);

this.LBLAsciiOut.Name = "LBLAsciiOut";

this.LBLAsciiOut.Size = new System.Drawing.Size(70, 13);

this.LBLAsciiOut.TabIndex = 7;

this.LBLAsciiOut.Text = "Char To Ascii";

//

// TBAsciiIn

//

this.TBAsciiIn.Location = new System.Drawing.Point(118, 64);

this.TBAsciiIn.Name = "TBAsciiIn";

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

this.TBAsciiIn.TabIndex = 6;

this.TBAsciiIn.Text = "Input";

this.TBAsciiIn.UseVisualStyleBackColor = true;

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

//

// TBChar

//

this.TBChar.Location = new System.Drawing.Point(12, 90);

this.TBChar.Name = "TBChar";

this.TBChar.Size = new System.Drawing.Size(100, 20);

this.TBChar.TabIndex = 11;

//

// LBLCharOut

//

this.LBLCharOut.AutoSize = true;

this.LBLCharOut.Location = new System.Drawing.Point(199, 95);

this.LBLCharOut.Name = "LBLCharOut";

this.LBLCharOut.Size = new System.Drawing.Size(70, 13);

this.LBLCharOut.TabIndex = 10;

this.LBLCharOut.Text = "Ascii To Char";

//

// BTNCharIn

//

this.BTNCharIn.Location = new System.Drawing.Point(118, 90);

this.BTNCharIn.Name = "BTNCharIn";

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

this.BTNCharIn.TabIndex = 9;

this.BTNCharIn.Text = "Input";

this.BTNCharIn.UseVisualStyleBackColor = true;

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

//

// TBSurname

//

this.TBSurname.Location = new System.Drawing.Point(12, 116);

this.TBSurname.Name = "TBSurname";

this.TBSurname.Size = new System.Drawing.Size(100, 20);

this.TBSurname.TabIndex = 14;

//

// LBLSurnameOut

//

this.LBLSurnameOut.AutoSize = true;

this.LBLSurnameOut.Location = new System.Drawing.Point(199, 121);

this.LBLSurnameOut.Name = "LBLSurnameOut";

this.LBLSurnameOut.Size = new System.Drawing.Size(88, 13);

this.LBLSurnameOut.TabIndex = 13;

this.LBLSurnameOut.Text = "Surname In Caps";

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

//

// BTNSurnameIn

//

this.BTNSurnameIn.Location = new System.Drawing.Point(118, 116);

this.BTNSurnameIn.Name = "BTNSurnameIn";

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

this.BTNSurnameIn.TabIndex = 12;

this.BTNSurnameIn.Text = "Input";

this.BTNSurnameIn.UseVisualStyleBackColor = true;

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

//

// HW5A

//

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

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

this.ClientSize = new System.Drawing.Size(800, 450);

this.Controls.Add(this.TBSurname);

this.Controls.Add(this.LBLSurnameOut);

this.Controls.Add(this.BTNSurnameIn);

this.Controls.Add(this.TBChar);

this.Controls.Add(this.LBLCharOut);

this.Controls.Add(this.BTNCharIn);

this.Controls.Add(this.TBAscii);

this.Controls.Add(this.LBLAsciiOut);

this.Controls.Add(this.TBAsciiIn);

this.Controls.Add(this.TBStrLen);

this.Controls.Add(this.LBLStrLenOut);

this.Controls.Add(this.BTNStrLenIn);

this.Controls.Add(this.TBDecimalInput);

this.Controls.Add(this.LBLDecimalOut);

this.Controls.Add(this.BTNDecimalIn);

this.Name = "HW5A";

this.Text = "Form1";

this.Load += new System.EventHandler(this.HW5A\_Load);

this.ResumeLayout(false);

this.PerformLayout();

}

#endregion

private System.Windows.Forms.Button BTNDecimalIn;

private System.Windows.Forms.Label LBLDecimalOut;

private System.Windows.Forms.TextBox TBDecimalInput;

private System.Windows.Forms.TextBox TBStrLen;

private System.Windows.Forms.Label LBLStrLenOut;

private System.Windows.Forms.Button BTNStrLenIn;

private System.Windows.Forms.TextBox TBAscii;

private System.Windows.Forms.Label LBLAsciiOut;

private System.Windows.Forms.Button TBAsciiIn;

private System.Windows.Forms.TextBox TBChar;

private System.Windows.Forms.Label LBLCharOut;

private System.Windows.Forms.Button BTNCharIn;

private System.Windows.Forms.TextBox TBSurname;

private System.Windows.Forms.Label LBLSurnameOut;

private System.Windows.Forms.Button BTNSurnameIn;

}

}

## Code file:

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Text;

using System.Windows.Forms;

namespace Homework\_5.\_1

{

public partial class HW5A : Form

{

public HW5A()

{

InitializeComponent();

}

private void HW5A\_Load(object sender, EventArgs e)

{

}

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

{

decimal decimalVal = decimal.Round(Convert.ToDecimal(TBDecimalInput.Text));//converts input value to decimal and rounds it, before outputting to LBL as string. could shorten to one statement

LBLDecimalOut.Text = decimalVal.ToString();

}

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

{

int stringInputLen = (TBStrLen.Text).Length;

LBLStrLenOut.Text = stringInputLen.ToString();

}

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

{

byte[] charInput = Encoding.ASCII.GetBytes(TBAsciiIn.Text);//takes the input from tb and converts it into a list of ascii codes, output is the first one. could add more outputs.

LBLAsciiOut.Text = charInput[0].ToString();

}

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

{

}

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

{

char asciiCodeInput = (char)Convert.ToInt32(TBChar.Text);//inputs the ascii code and converts to int, then converts that to char and outputs as string.

LBLCharOut.Text = asciiCodeInput.ToString();

}

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

{

string surnameInput = TBSurname.Text;

LBLSurnameOut.Text = surnameInput.ToUpper();

}

}

}

## Screenshot of running program:

Graphical user interface, application, Word

Description automatically generated

Question 5.2 - Write a program that fulfils the criteria for exercise 9.2 from the VB book - can be in either VB or C#

## Code file:

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;

namespace Homework\_5.\_2

{

public partial class HW5B : Form

{

int total = 0;

int numOfMrks = 0;

public HW5B()

{

InitializeComponent();

}

private void HW5B\_Load(object sender, EventArgs e)

{

}

private void processOneNumber(int examMrk, ref int mrksTotal, ref int mrksCount)//subprogram to add inputted marks to the total and to increment the num of inputs

{

mrksTotal += examMrk;

mrksCount++;

}

private void calcMean(int mrksTotal, int mrksCount, ref double avg)

{

avg = mrksTotal / mrksCount;//takes mean from values calculated in processonenumber()

}

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

{

int num = 0;

num = Convert.ToInt32(TBinput.Text);

marksList.Items.Add(num);//adds input to listbox

processOneNumber(num, ref total, ref numOfMrks);

BTNmean.Enabled = true;

TBinput.Text = "";

TBinput.Focus();

}

private void BTNmean\_Click(object sender, EventArgs e)//on click of mean button calculates the mean and then makes mean information visible to user, additionally disables ok button again until new input.

{

double mean = 0;

calcMean(total, numOfMrks, ref mean);

TBmean.Text = mean.ToString();

TBmean.Visible = true;

LBLMean.Visible = true;

BTNok.Enabled = false;

}

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

{

System.Windows.Forms.Application.Exit();

}

private void TBinput\_TextChanged(object sender, EventArgs e)//re-enables ok button after an input is entered.

{

BTNok.Enabled = true;

}

}

}

## Screenshot of running program:

Graphical user interface, application

Description automatically generated