Технический университет Молдовы

Кафедра Автоматики и Информационных Технологий

# ОТЧЕТ

## ПО ЛАБАРАТОРНОЙ РАБОТЕ №2

*По предмету «Инструменты и среды разработки»*

Работу выполнил:                                              студентка группы TI-155
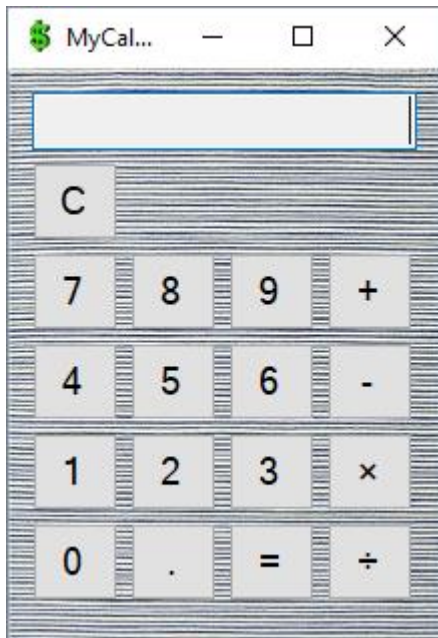
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Проверил:                                                              *Гожин Виктор*

Кишинев 2017

**Задание:**

Создание простого калькулятора на языке программирования C#.

*Basic Level* (nota 5 || 6):

- Realizeaza un simplu GUI calculator care suporta functiile de baza: +, -, /, *.

Файл Form1.Design.cs

```csharp
namespace RedCell.App.Calculator.Example
{
    partial class Form1
    {
        /// <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()
        {
            System.ComponentModel.ComponentResourceManager resources = new
System.ComponentModel.ComponentResourceManager(typeof(Form1));

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

            this.button2 = new System.Windows.Forms.Button();

            this.button3 = new System.Windows.Forms.Button();
```

```csharp
            this.button4 = new System.Windows.Forms.Button();

            this.button5 = new System.Windows.Forms.Button();

            this.button6 = new System.Windows.Forms.Button();

            this.button7 = new System.Windows.Forms.Button();

            this.button8 = new System.Windows.Forms.Button();

            this.button9 = new System.Windows.Forms.Button();

            this.button10 = new System.Windows.Forms.Button();

            this.button11 = new System.Windows.Forms.Button();

            this.button12 = new System.Windows.Forms.Button();

            this.button13 = new System.Windows.Forms.Button();

            this.button14 = new System.Windows.Forms.Button();

            this.button15 = new System.Windows.Forms.Button();

            this.button16 = new System.Windows.Forms.Button();

            this.button17 = new System.Windows.Forms.Button();

            this.button1 = new System.Windows.Forms.Button();

            this.SuspendLayout();

            //

            // Display

            //

            this.Display.Anchor =
((System.Windows.Forms.AnchorStyles)(((System.Windows.Forms.AnchorStyles.Top |
System.Windows.Forms.AnchorStyles.Left)

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

            this.Display.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

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

            this.Display.Name = "Display";

            this.Display.ReadOnly = true;

            this.Display.Size = new System.Drawing.Size(192, 29);

            this.Display.TabIndex = 0;

            this.Display.TextAlign = System.Windows.Forms.HorizontalAlignment.Right;

            //

            // button2

            //

            this.button2.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button2.Location = new System.Drawing.Point(12, 92);

            this.button2.Name = "button2";
```

```csharp
            this.button2.Size = new System.Drawing.Size(43, 39);

            this.button2.TabIndex = 1;

            this.button2.Text = "7";

            this.button2.UseVisualStyleBackColor = true;

            this.button2.Click += new System.EventHandler(this.Number_Pressed);

            //

            // button3

            //

            this.button3.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button3.Location = new System.Drawing.Point(61, 92);

            this.button3.Name = "button3";

            this.button3.Size = new System.Drawing.Size(43, 39);

            this.button3.TabIndex = 2;

            this.button3.Text = "8";

            this.button3.UseVisualStyleBackColor = true;

            this.button3.Click += new System.EventHandler(this.Number_Pressed);

            //

            // button4

            //

            this.button4.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button4.Location = new System.Drawing.Point(110, 92);

            this.button4.Name = "button4";

            this.button4.Size = new System.Drawing.Size(43, 39);

            this.button4.TabIndex = 2;

            this.button4.Text = "9";

            this.button4.UseVisualStyleBackColor = true;

            this.button4.Click += new System.EventHandler(this.Number_Pressed);

            //

            // button5

            //

            this.button5.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button5.Location = new System.Drawing.Point(12, 137);

            this.button5.Name = "button5";

            this.button5.Size = new System.Drawing.Size(43, 39);

            this.button5.TabIndex = 1;
```

```csharp
            this.button5.Text = "4";

            this.button5.UseVisualStyleBackColor = true;

            this.button5.Click += new System.EventHandler(this.Number_Pressed);

            //

            // button6

            //

            this.button6.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button6.Location = new System.Drawing.Point(61, 137);

            this.button6.Name = "button6";

            this.button6.Size = new System.Drawing.Size(43, 39);

            this.button6.TabIndex = 2;

            this.button6.Text = "5";

            this.button6.UseVisualStyleBackColor = true;

            this.button6.Click += new System.EventHandler(this.Number_Pressed);

            //

            // button7

            //

            this.button7.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button7.Location = new System.Drawing.Point(110, 137);

            this.button7.Name = "button7";

            this.button7.Size = new System.Drawing.Size(43, 39);

            this.button7.TabIndex = 2;

            this.button7.Text = "6";

            this.button7.UseVisualStyleBackColor = true;

            this.button7.Click += new System.EventHandler(this.Number_Pressed);

            //

            // button8

            //

            this.button8.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button8.Location = new System.Drawing.Point(12, 182);

            this.button8.Name = "button8";

            this.button8.Size = new System.Drawing.Size(43, 39);

            this.button8.TabIndex = 1;

            this.button8.Text = "1";

            this.button8.UseVisualStyleBackColor = true;
```

```csharp
            this.button8.Click += new System.EventHandler(this.Number_Pressed);
            //
            // button9
            //
            this.button9.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.button9.Location = new System.Drawing.Point(61, 182);
            this.button9.Name = "button9";
            this.button9.Size = new System.Drawing.Size(43, 39);
            this.button9.TabIndex = 2;
            this.button9.Text = "2";
            this.button9.UseVisualStyleBackColor = true;
            this.button9.Click += new System.EventHandler(this.Number_Pressed);
            //
            // button10
            //
            this.button10.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.button10.Location = new System.Drawing.Point(110, 182);
            this.button10.Name = "button10";
            this.button10.Size = new System.Drawing.Size(43, 39);
            this.button10.TabIndex = 2;
            this.button10.Text = "3";
            this.button10.UseVisualStyleBackColor = true;
            this.button10.Click += new System.EventHandler(this.Number_Pressed);
            //
            // button11
            //
            this.button11.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
            this.button11.Location = new System.Drawing.Point(12, 227);
            this.button11.Name = "button11";
            this.button11.Size = new System.Drawing.Size(43, 39);
            this.button11.TabIndex = 1;
            this.button11.Text = "0";
            this.button11.UseVisualStyleBackColor = true;
            this.button11.Click += new System.EventHandler(this.Number_Pressed);
            //
```

```csharp
// button12
//
this.button12.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
this.button12.Location = new System.Drawing.Point(61, 227);
this.button12.Name = "button12";
this.button12.Size = new System.Drawing.Size(43, 39);
this.button12.TabIndex = 2;
this.button12.Text = ".";
this.button12.UseVisualStyleBackColor = true;
this.button12.Click += new System.EventHandler(this.Number_Pressed);
//
// button13
//
this.button13.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
this.button13.Location = new System.Drawing.Point(110, 227);
this.button13.Name = "button13";
this.button13.Size = new System.Drawing.Size(43, 39);
this.button13.TabIndex = 2;
this.button13.Text = "=";
this.button13.UseVisualStyleBackColor = true;
this.button13.Click += new System.EventHandler(this.Operator_Pressed);
//
// button14
//
this.button14.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
this.button14.Location = new System.Drawing.Point(159, 92);
this.button14.Name = "button14";
this.button14.Size = new System.Drawing.Size(43, 39);
this.button14.TabIndex = 2;
this.button14.Text = "+";
this.button14.UseVisualStyleBackColor = true;
this.button14.Click += new System.EventHandler(this.Operator_Pressed);
//
// button15
//
```

```csharp
            this.button15.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button15.Location = new System.Drawing.Point(159, 137);

            this.button15.Name = "button15";

            this.button15.Size = new System.Drawing.Size(43, 39);

            this.button15.TabIndex = 2;

            this.button15.Text = "-";

            this.button15.UseVisualStyleBackColor = true;

            this.button15.Click += new System.EventHandler(this.Operator_Pressed);

            //

            // button16

            //

            this.button16.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button16.Location = new System.Drawing.Point(159, 182);

            this.button16.Name = "button16";

            this.button16.Size = new System.Drawing.Size(43, 39);

            this.button16.TabIndex = 2;

            this.button16.Text = "×";

            this.button16.UseVisualStyleBackColor = true;

            this.button16.Click += new System.EventHandler(this.Operator_Pressed);

            //

            // button17

            //

            this.button17.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));

            this.button17.Location = new System.Drawing.Point(159, 227);

            this.button17.Name = "button17";

            this.button17.Size = new System.Drawing.Size(43, 39);

            this.button17.TabIndex = 2;

            this.button17.Text = "÷";

            this.button17.UseVisualStyleBackColor = true;

            this.button17.Click += new System.EventHandler(this.Operator_Pressed);

            //

            // button1

            //

            this.button1.Font = new System.Drawing.Font("Microsoft Sans Serif", 14.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)(0)));
```

```csharp
            this.button1.Location = new System.Drawing.Point(12, 47);

            this.button1.Name = "button1";

            this.button1.Size = new System.Drawing.Size(43, 39);

            this.button1.TabIndex = 1;

            this.button1.Text = "C";

            this.button1.UseVisualStyleBackColor = true;

            this.button1.Click += new System.EventHandler(this.Operator_Pressed);

            //

            // Form1

            //

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

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

            this.BackColor = System.Drawing.Color.PowderBlue;

            this.BackgroundImage =
((System.Drawing.Image)(resources.GetObject("$this.BackgroundImage")));

            this.ClientSize = new System.Drawing.Size(216, 286);

            this.Controls.Add(this.button17);

            this.Controls.Add(this.button16);

            this.Controls.Add(this.button13);

            this.Controls.Add(this.button15);

            this.Controls.Add(this.button10);

            this.Controls.Add(this.button14);

            this.Controls.Add(this.button7);

            this.Controls.Add(this.button4);

            this.Controls.Add(this.button12);

            this.Controls.Add(this.button9);

            this.Controls.Add(this.button6);

            this.Controls.Add(this.button3);

            this.Controls.Add(this.button11);

            this.Controls.Add(this.button8);

            this.Controls.Add(this.button5);

            this.Controls.Add(this.button2);

            this.Controls.Add(this.button1);

            this.Controls.Add(this.Display);

            this.Icon = ((System.Drawing.Icon)(resources.GetObject("$this.Icon")));

            this.Name = "Form1";

            this.Text = "MyCalculator";
```

```csharp
            this.Load += new System.EventHandler(this.Form1_Load);

            this.ResumeLayout(false);

            this.PerformLayout();


        }


        #endregion

        private System.Windows.Forms.TextBox Display;

        private System.Windows.Forms.Button button2;

        private System.Windows.Forms.Button button3;

        private System.Windows.Forms.Button button4;

        private System.Windows.Forms.Button button5;

        private System.Windows.Forms.Button button6;

        private System.Windows.Forms.Button button7;

        private System.Windows.Forms.Button button8;

        private System.Windows.Forms.Button button9;

        private System.Windows.Forms.Button button10;

        private System.Windows.Forms.Button button11;

        private System.Windows.Forms.Button button12;

        private System.Windows.Forms.Button button13;

        private System.Windows.Forms.Button button14;

        private System.Windows.Forms.Button button15;

        private System.Windows.Forms.Button button16;

        private System.Windows.Forms.Button button17;

        private System.Windows.Forms.Button button1;
    }
}
```

Файл Form1.cs

```csharp
using System;
using System.Windows.Forms;

namespace RedCell.App.Calculator.Example
{
    public partial class Form1 : Form
    {
        private double accumulator = 0;
        private char lastOperation;

        public Form1()
        {
            InitializeComponent();
        }

        private void Operator_Pressed(object sender, EventArgs e)
        {   // .Нажат оператор - произвести последнюю операциб и сохранить новый оператор

            char operation = (sender as Button).Text[0];
            if (operation == 'C')
            {
                accumulator = 0;
            }
            else
            {
                double currentValue = double.Parse(Display.Text);
                switch (lastOperation)
                {
                    case '+': accumulator += currentValue; break;
                    case '-': accumulator -= currentValue; break;
                    case '×': accumulator *= currentValue; break;
                    case '÷': accumulator /= currentValue; break;
                    default: accumulator = currentValue; break;
                }
            }

            lastOperation = operation;
            Display.Text = operation == '=' ? accumulator.ToString() : "0";
        }

        private void Number_Pressed(object sender, EventArgs e)
        {
            // Вывести это на дисплей
            string number = (sender as Button).Text;
            Display.Text = Display.Text == "0" ? number : Display.Text + number;
        }

        private void Form1_Load(object sender, EventArgs e)
        {

        }
    }
}
```

Файл Program.cs

```csharp
using System;
using System.Windows.Forms;

namespace RedCell.App.Calculator.Example
{
```

```
static class Program
{
    /// <summary>
    /// The main entry point for the application.
    /// </summary>
    [STAThread]
    static void Main()
    {
        Application.EnableVisualStyles();
        Application.SetCompatibleTextRenderingDefault(false);
        Application.Run(new Form1());
    }
}
}
```

**Вывод:**

В ходе проделанной работы я познакомилась с языком программирования C#. Созданный мной калькулятор позволяет выполнять элементарные арифметические функции такие как: сложение и вычитание, умножение и деление. При делении на ноль результат бесконечность.