

**федеральное государственное автономное образовательное
учреждение высшего образования**



**МОСКОВСКИЙ ПОЛИТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ
(ВЫСШАЯ ШКОЛА ПЕЧАТИ И МЕДИАИНДУСТРИИ)
(Факультет информационных технологий)**

*(Институт Принтмедиа и информационных технологий)
Кафедра Информатики и информационных технологий*

направление подготовки

09.03.02 «Информационные системы и технологии»

ЛАБОРАТОРНАЯ РАБОТА № 2

Дисциплина: Технология прикладного программирования

Тема: Калькулятор

Выполнил(а): студент(ка) группы 221-377

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(Фамилия И.О.)

Дата, подпись 14.02.2023

Проверил: _____
(Фамилия И.О., степень, звание) **(Оценка)**

Дата, подпись _____
(Дата) (Подпись)

Замечания: _____

Москва 2023

Лабораторная работа №2

Листинг:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Data;
using System.Windows.Documents;
using System.Windows.Input;
using System.Windows.Media;
using System.Windows.Media.Imaging;
using System.Windows.Navigation;
using System.Windows.Shapes;

namespace LAB_2
{
    /// <summary>
    /// Interaction logic for MainWindow.xaml
    /// </summary>
    public partial class MainWindow : Window
    {
        public MainWindow()
        {
            InitializeComponent();
            textBox1.Clear();
        }

        private void Form1_Load(object sender, EventArgs e)
        {
        }

        private void button15_Click(object sender, EventArgs e)
        {
            this.textBox1.AppendText("1");
        }

        private void button18_Click(object sender, EventArgs e)
        {
            Random rnd = new Random();
            foreach (Button item in grid1.Children.OfType<Button>())
            {
                item.Background = new
SolidColorBrush(Color.FromArgb(Convert.ToByte(rnd.Next(1, 255)),
Convert.ToByte(rnd.Next(1, 255)), Convert.ToByte(rnd.Next(1, 255)),
Convert.ToByte(rnd.Next(1, 255))));
            }
        }
    }
}
```

```
}

private void button16_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("2");
}

private void button17_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("3");
}

private void button12_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("4");
}

private void button13_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("5");
}

private void button14_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("6");
}

private void button8_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("7");
}

private void button10_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("8");
}

private void button11_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("9");
}

private void button9_Click(object sender, EventArgs e)
{
    this.textBox1.AppendText("0");
}

private void button1_Click(object sender, EventArgs e)
{
    this.textBox1.Clear();
}
```

```

    }

    private void button2_Click(object sender, EventArgs e)
    {
        textBox1.Text = textBox1.Text.Remove(textBox1.Text.Length - 1);
    }

    private void button6_Click(object sender, EventArgs e)
    {
        if (textBox1.Text.Length == 0 || textBox1.Text.Length == 1 &&
!Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]))
        {
            this.textBox1.AppendText("");
        }
        else if (Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]) &&
textBox1.Text.Length >= 1)
        {
            this.textBox1.AppendText("*");
        }
        else
        {
            textBox1.Text = textBox1.Text.Substring(0, textBox1.Text.Length -
1);
            this.textBox1.AppendText("*");
        }
    }

    private void button7_Click(object sender, EventArgs e)
    {
        if (textBox1.Text.Length == 0 || textBox1.Text.Length == 1 &&
!Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]))
        {
            this.textBox1.AppendText("");
        }
        else if (Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]) &&
textBox1.Text.Length >= 1)
        {
            this.textBox1.AppendText("/");
        }
        else
        {
            textBox1.Text = textBox1.Text.Substring(0, textBox1.Text.Length -
1);
            this.textBox1.AppendText("/");
        }
    }

    private void button3_Click(object sender, EventArgs e)
    {
        if (textBox1.Text.Length == 0 || textBox1.Text.Length == 1 &&
!Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]))

```

```

        {
            this.textBox1.AppendText("");
        }
        else if (Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]) &&
textBox1.Text.Length >= 1)
        {
            this.textBox1.AppendText("+");
        }
        else
        {
            textBox1.Text = textBox1.Text.Substring(0, textBox1.Text.Length -
1);
            this.textBox1.AppendText("+");
        }
    }

    private void button4_Click(object sender, EventArgs e)
    {
        if (textBox1.Text.Length == 0)
        {
            this.textBox1.AppendText("-");
        }
        else if (textBox1.Text.Length == 1 &&
!Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]))
        {
            textBox1.Text = textBox1.Text.Substring(0, textBox1.Text.Length -
1);
            this.textBox1.AppendText("-");
        }
        else if (textBox1.Text.Length == 1)
        {
            this.textBox1.AppendText("-");
        }
        else if (textBox1.Text.Length == 2 &&
Char.IsDigit(textBox1.Text[textBox1.Text.Length - 1]))
        {
            this.textBox1.AppendText("-");
        }
        else if (Char.IsDigit(textBox1.Text[textBox1.Text.Length - 2]) &&
textBox1.Text.Length >= 2)
        {
            this.textBox1.AppendText("-");
        }
        else
        {
            textBox1.Text = textBox1.Text.Substring(0, textBox1.Text.Length -
1);
            this.textBox1.AppendText("-");
        }
    }
}

```

```

private void button5_Click(object sender, EventArgs e)
{
    string first = "";
    string second = "";
    char x = '0';
    bool flag = true;
    bool flag2 = true;
    foreach (char ch in textBox1.Text)
    {
        if ((Char.IsDigit(ch) || ch == '-' && flag2) && flag)
        {
            first += ch;
            flag2 = false;
        }
        else if (!Char.IsDigit(ch) && flag)
        {
            x = ch;
            flag = false;
        }
        else
        {
            second += ch;
        }
    }
    if (x == '+')
    {
        textBox1.Text = Convert.ToString(Convert.ToInt32(first) +
Convert.ToInt32(second));
    }
    else if (x == '-')
    {
        textBox1.Text = Convert.ToString(Convert.ToInt32(first) -
Convert.ToInt32(second));
    }
    else if (x == '/')
    {
        textBox1.Text = Convert.ToString(Convert.ToInt32(first) /
Convert.ToInt32(second));
    }
    else if (x == '*')
    {
        textBox1.Text = Convert.ToString(Convert.ToInt32(first) *
Convert.ToInt32(second));
    }
}
}

```

```

<Window x:Class="LAB_2.MainWindow"
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
        xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
        xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
        xmlns:local="clr-namespace:LAB_2"
        mc:Ignorable="d"

        Title="Калькулятор KGBT++" Height="568" Width="725"
Icon="/cover1__w820.jpg" FontSize="26">
    <Grid x:Name="grid1" Height="558" VerticalAlignment="Top">
        <Button x:Name="button1" Content="C" HorizontalAlignment="Left"
Margin="582,104,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button1_Click"/>
        <Button x:Name="button2" Content="÷" HorizontalAlignment="Left"
Margin="582,217,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button2_Click"/>
        <Button x:Name="button3" Content="+" HorizontalAlignment="Left"
Margin="582,330,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button3_Click"/>
        <Button x:Name="button4" Content="-" HorizontalAlignment="Left"
Margin="582,443,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button4_Click"/>
        <TextBox x:Name="textBox1" HorizontalAlignment="Left" Margin="10,10,0,0"
Text="TextBox" TextWrapping="Wrap" VerticalAlignment="Top" Width="697"
Height="73"/>
        <Button x:Name="button5" Content="=" HorizontalAlignment="Left"
Margin="441,443,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button5_Click"/>
        <Button x:Name="button6" Content="/" HorizontalAlignment="Left"
Margin="441,104,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button6_Click"/>
        <Button x:Name="button7" Content="X" HorizontalAlignment="Left"
Margin="441,217,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button7_Click"/>
        <Button x:Name="button18" Content="Кнопка&#xD;&#xA;Веселья"
HorizontalAlignment="Left" Margin="441,330,0,0" VerticalAlignment="Top" Height="95"
Width="125" Click="button18_Click"/>
        <Button x:Name="button8" Content="7" HorizontalAlignment="Left"
Margin="10,104,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button8_Click"/>
        <Button x:Name="button9" Content="0" HorizontalAlignment="Left"
Margin="10,443,0,0" VerticalAlignment="Top" Height="95" Width="404"
Click="button9_Click"/>
        <Button x:Name="button10" Content="8" HorizontalAlignment="Left"
Margin="150,104,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button10_Click"/>
        <Button x:Name="button11" Content="9" HorizontalAlignment="Left"
Margin="290,104,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button11_Click" />

```


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        <Button x:Name="button12" Content="4" HorizontalAlignment="Left"
Margin="10,217,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button12_Click"/>
        <Button x:Name="button13" Content="5" HorizontalAlignment="Left"
Margin="150,217,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button13_Click"/>
        <Button x:Name="button14" Content="6" HorizontalAlignment="Left"
Margin="290,217,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button14_Click" />
        <Button x:Name="button15" Content="1" HorizontalAlignment="Left"
Margin="10,330,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button15_Click"/>
        <Button x:Name="button16" Content="2" HorizontalAlignment="Left"
Margin="150,330,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button16_Click"/>
        <Button x:Name="button17" Content="3" HorizontalAlignment="Left"
Margin="290,330,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button17_Click"/>

    </Grid>
</Window>

```

Пример работы:

7	8	9	X	C
4	5	6	/	
1	2	3	Кнопка веселья	+
0			=	-

7	8	9	X	C
4	5	6	/	
1	2	3	Кнопка веселья	+
0			=	-

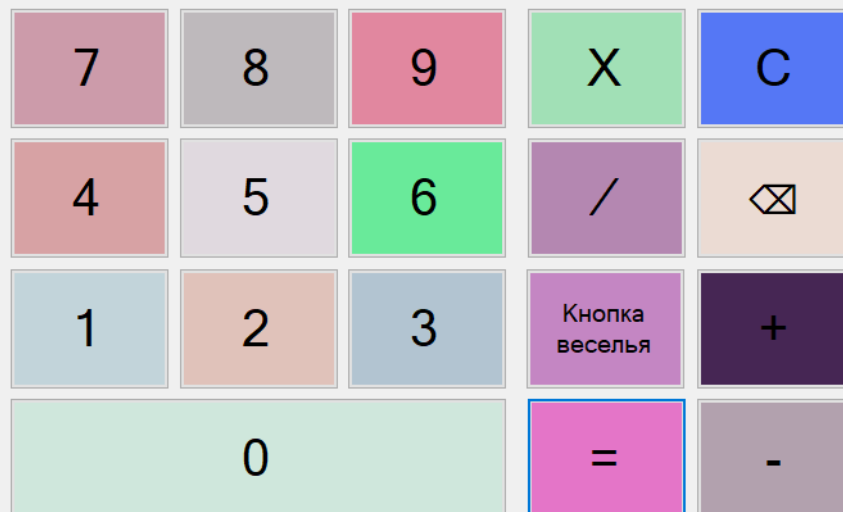
-95--8

7	8	9	X	C
4	5	6	/	
1	2	3	Кнопка веселья	+
0			=	-

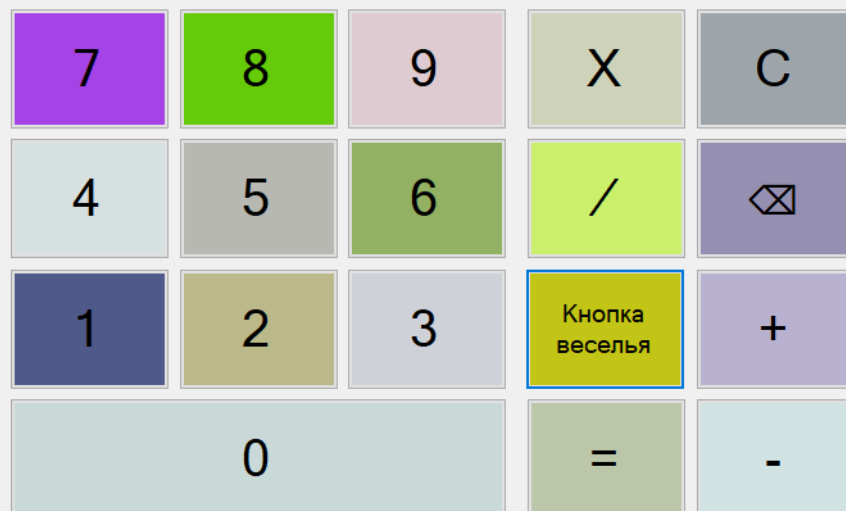
-87



-1044



-57/17



-3

