## 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 № 3

Дисциплина: Технология прикладного программирования

Тема: Калькулятор улучшенный

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

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	Дата, подпись 1		14.02.2023	
	Проверил:			
	(Фамилия И.О., степен	(Фамилия И.О., степень, звание)		
	Дата, подпись		_	
	(,	Дата)	(Подпись)	
амечания:				

## Лабораторная работа №3 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();
            radioButton1.IsChecked = true;
        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;
            string res = textBox1.Text;
            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));
            res += " = " + textBox1.Text + '\n';
            if (Convert.ToBoolean(checkBox1.IsChecked)) listBox1.Items.Add(res);
```

```
private void radioButton1_CheckedChanged(object sender, EventArgs e)
            button19.Visibility = Visibility.Visible;
            button20.Visibility = Visibility.Visible;
            checkBox1.Visibility = Visibility.Visible;
            listBox1.Visibility = Visibility.Visible;
        private void radioButton2_CheckedChanged(object sender, EventArgs e)
            button19.Visibility = Visibility.Hidden;
            button20.Visibility = Visibility.Hidden;
            checkBox1.Visibility = Visibility.Hidden;
            listBox1.Visibility = Visibility.Hidden;
        private void button20_Click(object sender, EventArgs e)
            listBox1.Items.RemoveAt(listBox1.Items.Count - 1);
        private void button19_Click(object sender, EventArgs e)
            listBox1.Items.Clear();
        }
<Window x:Class="LAB 2.MainWindow"</pre>
        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="631" Width="1198"
Icon="/cover1__w820.jpg" FontSize="26">
    <Grid x:Name="grid1" Height="610" VerticalAlignment="Top">
        <Button x:Name="button1" Content="C" HorizontalAlignment="Left"</pre>
Margin="580,149,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button1 Click"/>
        <Button x:Name="button2" Content="0" HorizontalAlignment="Left"</pre>
Margin="580,262,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button2 Click"/>
```

```
<Button x:Name="button3" Content="+" HorizontalAlignment="Left"</pre>
Margin="580,375,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button3_Click"/>
        <Button x:Name="button4" Content="-" HorizontalAlignment="Left"</pre>
Margin="580,488,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button4_Click"/>
        <TextBox x:Name="textBox1" HorizontalAlignment="Left" Margin="8,55,0,0"
Text="TextBox" TextWrapping="Wrap" VerticalAlignment="Top" Width="697"
Height="73"/>
        <Button x:Name="button5" Content="=" HorizontalAlignment="Left"</pre>
Margin="439,488,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button5_Click"/>
        <Button x:Name="button6" Content="/" HorizontalAlignment="Left"</pre>
Margin="439,149,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button6_Click"/>
        <Button x:Name="button7" Content="X" HorizontalAlignment="Left"</pre>
Margin="439,262,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button7 Click"/>
        <Button x:Name="button18" Content="Кнопка&#xD;&#xA;Веселья"
HorizontalAlignment="Left" Margin="439,375,0,0" VerticalAlignment="Top" Height="95"
Width="125" Click="button18 Click"/>
        <Button x:Name="button8" Content="7" HorizontalAlignment="Left"</pre>
Margin="8,149,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button8 Click"/>
        <Button x:Name="button9" Content="0" HorizontalAlignment="Left"</pre>
Margin="8,488,0,0" VerticalAlignment="Top" Height="95" Width="404"
Click="button9_Click"/>
        <Button x:Name="button10" Content="8" HorizontalAlignment="Left"</pre>
Margin="148,149,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button10 Click"/>
        <Button x:Name="button11" Content="9" HorizontalAlignment="Left"</pre>
Margin="288,149,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button11 Click" />
        <Button x:Name="button12" Content="4" HorizontalAlignment="Left"</pre>
Margin="8,262,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button12 Click"/>
        <Button x:Name="button13" Content="5" HorizontalAlignment="Left"</pre>
Margin="148,262,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button13_Click"/>
        <Button x:Name="button14" Content="6" HorizontalAlignment="Left"</pre>
Margin="288,262,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button14_Click" />
        <Button x:Name="button15" Content="1" HorizontalAlignment="Left"</pre>
Margin="8,375,0,0" VerticalAlignment="Top" Height="95" Width="125"
Click="button15 Click"/>
        <Button x:Name="button16" Content="2" HorizontalAlignment="Left"</pre>
Margin="148,375,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button16 Click"/>
        <Button x:Name="button17" Content="3" HorizontalAlignment="Left"</pre>
Margin="288,375,0,0" VerticalAlignment="Top" Height="95" Width="124"
Click="button17 Click"/>
```

```
<ListBox x:Name="listBox1" Margin="728,55,17,188"/>
        <Button x:Name="button19" Content="Очистить" HorizontalAlignment="Left"
Margin="728,435,0,0" VerticalAlignment="Top" Height="48" Width="212"
Click="button19 Click"/>
        <Button x:Name="button20" Content="2" HorizontalAlignment="Left"</pre>
Margin="971,434,0,0" VerticalAlignment="Top" Height="48" Width="212"
Click="button20 Click"/>
        <RadioButton x:Name="radioButton1" Content="Видно"
HorizontalAlignment="Left" Margin="728,502,0,0" VerticalAlignment="Top"
Checked="radioButton1 CheckedChanged"/>
        <RadioButton x:Name="radioButton2" Content="He видно"
HorizontalAlignment="Left" Margin="728,547,0,0" VerticalAlignment="Top"
Checked="radioButton2 CheckedChanged"/>
        <CheckBox x:Name="checkBox1" Content="Записывать&#xD;&#xA;историю"
HorizontalAlignment="Left" Margin="971,502,0,0" VerticalAlignment="Top"
RenderTransformOrigin="0.526,2.02" IsChecked="True" Height="79"/>
        <Label Content="Текущая операция" HorizontalAlignment="Left"
Margin="8,5,0,0" VerticalAlignment="Top"/>
        <Label Content="История Операций" HorizontalAlignment="Left"
Margin="728,10,0,0" VerticalAlignment="Top"/>
    </Grid>
</Window>
```

Пример работы:



