**ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ**

**МОСКОВСКИЙ ПОЛИТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ**

**Факультет информационных технологий**
**Кафедра Информатики и информационных технологий**

**направление подготовки 09.03.02 «Информационные системы и технологии»,**
**профиль «Цифровая трансформация»**

# ЛАБОРАТОРНАЯ РАБОТА №2

**Дисциплина:** Технологии прикладного программирования

**Выполнил:** студент группы 231-337

Сильченко Александр Алексеевич

**Дата, подпись** 08/02/2024 _____

(Дата) (Подпись)

**Проверила:** Полубояринова А.С._____

**(Оценка)**

**Дата, подпись** _____ _____

(Дата) (Подпись)

**Замечания:**

_____

_____

**Москва**

**2024**

# Текст задачи

Разработать калькулятор (кнопочный) выполняющий 4 простых действия:

1. Умножение
2. Деление
3. Сложение
4. Вычитание

# Код вёрстки окон и код программной логики

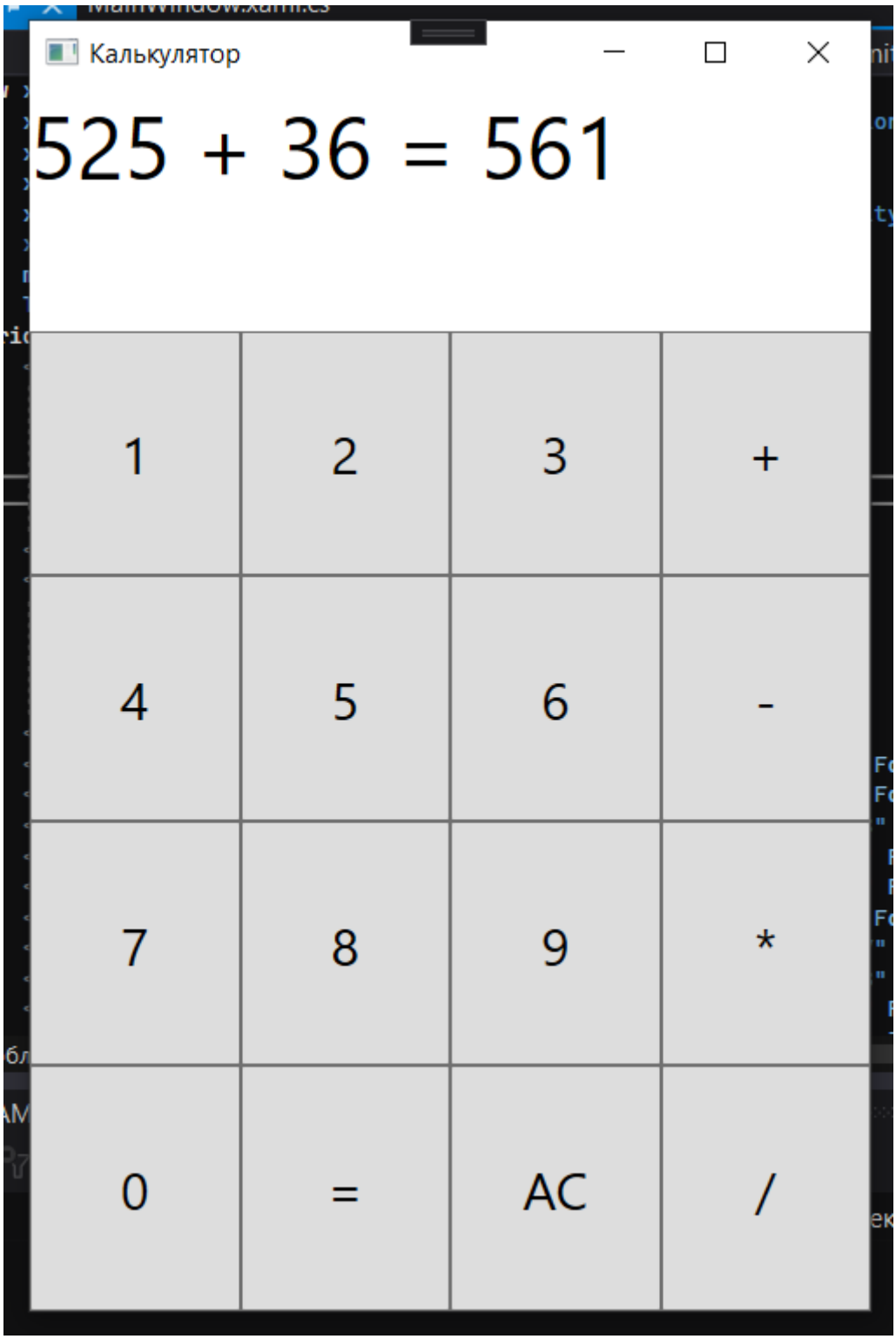
```
<Window x:Class="Калькулятор.MainWindow"
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
        xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
        xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
        xmlns:local="clr-namespace:Калькулятор"
        mc:Ignorable="d"
        Title="Калькулятор" Height="600" Width="400">
    <Grid ShowGridLines="False">
        <Grid.RowDefinitions>
            <RowDefinition/>
            <RowDefinition/>
            <RowDefinition/>
            <RowDefinition/>
            <RowDefinition/>
        </Grid.RowDefinitions>
        <Grid.ColumnDefinitions>
            <ColumnDefinition/>
            <ColumnDefinition/>
            <ColumnDefinition/>
            <ColumnDefinition/>
        </Grid.ColumnDefinitions>
        <Button x:Name="one" Grid.Column="0" Grid.Row="1" Content="1" FontSize="24" Click="Numbers"/>
        <Button x:Name="two" Grid.Column="1" Grid.Row="1" Content="2" FontSize="24" Click="Numbers"/>
        <Button x:Name="three" Grid.Column="2" Grid.Row="1" Content="3" FontSize="24" Click="Numbers"/>
        <Button x:Name="four" Grid.Column="0" Grid.Row="2" Content="4" FontSize="24" Click="Numbers"/>
        <Button x:Name="five" Grid.Column="1" Grid.Row="2" Content="5" FontSize="24" Click="Numbers"/>
        <Button x:Name="six" Grid.Column="2" Grid.Row="2" Content="6" FontSize="24" Click="Numbers"/>
        <Button x:Name="seven" Grid.Column="0" Grid.Row="3" Content="7" FontSize="24" Click="Numbers"/>
        <Button x:Name="eight" Grid.Column="1" Grid.Row="3" Content="8" FontSize="24" Click="Numbers"/>
        <Button x:Name="nine" Grid.Column="2" Grid.Row="3" Content="9" FontSize="24" Click="Numbers"/>
        <Button x:Name="zero" Grid.Column="0" Grid.Row="4" Content="0" FontSize="24" Click="Numbers"/>

        <Button x:Name="equals" Grid.Column="1" Grid.Row="4" Content="=" FontSize="24" Click="Result"/>
        <Button x:Name="AC" Grid.Column="2" Grid.Row="4" Content="AC" FontSize="24" Click="del"/>

        <Button x:Name="plus" Grid.Column="3" Grid.Row="1" Content="+" FontSize="24" Click="Action"/>
        <Button x:Name="minus" Grid.Column="3" Grid.Row="2" Content="-" FontSize="24" Click="Action"/>
        <Button x:Name="multi" Grid.Column="3" Grid.Row="3" Content="*" FontSize="24" Click="Action"/>
        <Button x:Name="division" Grid.Column="3" Grid.Row="4" Content="/" FontSize="24" Click="Action"/>

        <TextBlock x:Name="Input_block" Grid.Column="0" Grid.ColumnSpan="4" Text="0" FontSize="40"
TextWrapping="Wrap"/>
    </Grid>
</Window>
```

```
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 Калькулятор
{

    public partial class MainWindow : Window
    {
        public MainWindow()
        {
            InitializeComponent();
        }

        float meaning = 0;
        float meaning_2 = 0;
        int count = 0;
        bool view = true;
        bool view_1 = true;
        string action;

        private void Numbers(object sender, RoutedEventArgs e)
        {
            if (count == 346784)
            {
                Input_block.Text = "0"; count = 0;
            }
            //  обнуление после '='
            var data = sender as Button;
            if (Input_block.Text != "0" && view == true)
            {
                Input_block.Text = Input_block.Text + data.Content.ToString();
            }
            else
            {
                if (meaning != 0 && view_1 == true)
                {
                    Input_block.Text = meaning.ToString() + " " + action + " " + data.Content.ToString();
                    view_1 = false;
                }
                else if (meaning != 0 && view_1 == false)
                {
                    Input_block.Text = Input_block.Text + data.Content.ToString();
                }
                else
                {
                    Input_block.Text = data.Content.ToString();
                    view = true;
                }
            }
            // работа с выводом
            if (count == 0)
            {
                if (meaning == 0)
                {
                    meaning = float.Parse(data.Content.ToString());
                }
                else
                {
                    meaning = float.Parse(meaning.ToString() + data.Content.ToString());
                }
            }
            else
```

```
    {
        if (meaning_2 == 0)
        {
            meaning_2 = float.Parse(data.Content.ToString());
        }
        else
        {
            meaning_2 = float.Parse(meaning_2.ToString() + data.Content.ToString());
        }
    }
    // работа с переменными

}

private void del(object sender, RoutedEventArgs e)
{
    Input_block.Text = "0";
    meaning = 0; meaning_2 = 0; count = 0;
}

private void Result(object sender, RoutedEventArgs e)
{
    Input_block.Text = meaning.ToString();
    switch(action.Substring(0, Math.Min(1, action.Length)))
    {
        case "+":
            Input_block.Text = (meaning + meaning_2).ToString();
            break;
        case "-":
            Input_block.Text = (meaning - meaning_2).ToString();
            break;
        case "*":
            Input_block.Text = (meaning * meaning_2).ToString();
            break;
        case "/":
            if (meaning_2 == 0)
            {
                Input_block.Text = "Здесь вам не пределы!";
            }
            else
            {
                Input_block.Text = (meaning / meaning_2).ToString();
            }
            break;
    }
    count = 346784;
    meaning = 0; meaning_2 = 0;
}

private void Action(object sender, RoutedEventArgs e)
{
    var data = sender as Button;
    if (count != 0)
    {
        switch (action.Substring(0, Math.Min(1, action.Length)))
        {
            case "+":
                Input_block.Text = Input_block.Text + " = " +(meaning + meaning_2).ToString();
                meaning = meaning + meaning_2;
                meaning_2 = 0;
                break;
            case "-":
                Input_block.Text = Input_block.Text + " = " + (meaning - meaning_2).ToString();
                meaning = meaning - meaning_2;
                meaning_2 = 0;
                break;
```

```
                case "*":
                    Input_block.Text = Input_block.Text + " = " + (meaning * meaning_2).ToString();
                    meaning = meaning * meaning_2;
                    meaning_2 = 0;
                    break;
                case "/":
                    if (meaning_2 == 0)
                    {
                        Input_block.Text = "Здесь вам не пределы!";
                    }
                    else
                    {
                        Input_block.Text = Input_block.Text + " = " + (meaning / meaning_2).ToString();
                        meaning = meaning / meaning_2;
                        meaning_2 = 0;
                    }
                    break;
            }
            view = false;
            view_1 = true;
        }
        else
        {
            Input_block.Text = Input_block.Text + " " + data.Content.ToString() + " ";
        }
        action = data.Content.ToString();
        count++;
    }
  }
}
```


Калькулятор
525 + 36 = 561
1
2
3
+
4
5
6
-
7
8
9
*
0
=
AC
/