VILNIUS UNIVERSITY
ŠIAULIAI ACADEMY

BACHELOR PROGRAMME SOFTWARE ENGINEERING

Object Oriented Programming

Practical 8 (Eight).

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REPORT ON CREATION OF CALCULATOR USING C#

The report below details how I was able to create the GUI calculator using Windows Form with C#. My code which is divided into two partial forms, namely: **Form1.cs and Form1.Designer.cs.**

Form1.cs is used to hold the logic of calculations and result output. It gives each button the functionality required to do its task.

Form1.Designer.cs is the framework that shows the design of the calculator. How the numbers are printed on boxes, how the boxes are positioned, the dimension of the calculator, the dimension of the screen of the calculator, the size of display of each click of a button, etc.

1. **public Label _DisplayHolder = new Label():** My calculator screen has two display panels. This property display the result of each input of the user that is currently being calculated. It is the smaller display panel at the top right side of the calculator.

2. **public Label _ResultDisplay = new Label():** This property display bigger result at the bottom right side of the calculator screen. It shows the input of the user as the user clicks the button of numbers.

3. **private void DisplayBox():** This method is responsible for holding _DisplayHolder and _ResultDisplay above and calling them to show the displayed results and input of the user.

4. **private void Createbuttons():** This is a method that created the buttons which displays all the inputs the user can click.

5. **private void HandleInputOfNums(object sender, EventArgs e):** This is a function that handles the clicks. The logic of the function divides buttons into numbers and expressions for arithmetic operations. It also categorise the button clicks and apply the needed conditions depending on whether the button clicked was clicked before or after an arithmetic operation.

6. **private void HandleDecimal(string value):** This is a method that is used to ensure that a decimal is added to input of numbers only once, so that a float type number can only be made of a single decimal.

7. **public static bool CovertNum(string something):** This is a function that returns a Boolean value of true or false. It is used by HandleInputOfNums above. It is the primary function to differentiate between a number and a symbol for arithmetic operation.

8. **public void DisplayAtTheTop(string value, string input):** This function is a very simple one that just displays the result of an operation and the next symbol of operation on the calculator.

9. **public void AbortedCalc():** This method is used specifically by the “C” button. It is used to wipe the screen of the calculator and reset all fields. It accepts no variable.

10. **public void SpecialKeys(string value):** This is a list of special keys that can operate singly on a number. The feature for back space, the percentage icon, etc. are defined here.

11. **private void PrepareSecondData(string a, string b):** This is a function that prepares in the second input of the user to be combined with the first input, using the arithmetic operator that the user desires to perform on two numbers.

12. **private void OperatorsFunction(string value, string a, string b):** This function defines all major operator and it is responsible for carrying out the logic of addition, subtraction, division, multiplication, etc.

TEST REPORT SHOWN BELOW

Figure 1:
Welcome Screen of the Calculator

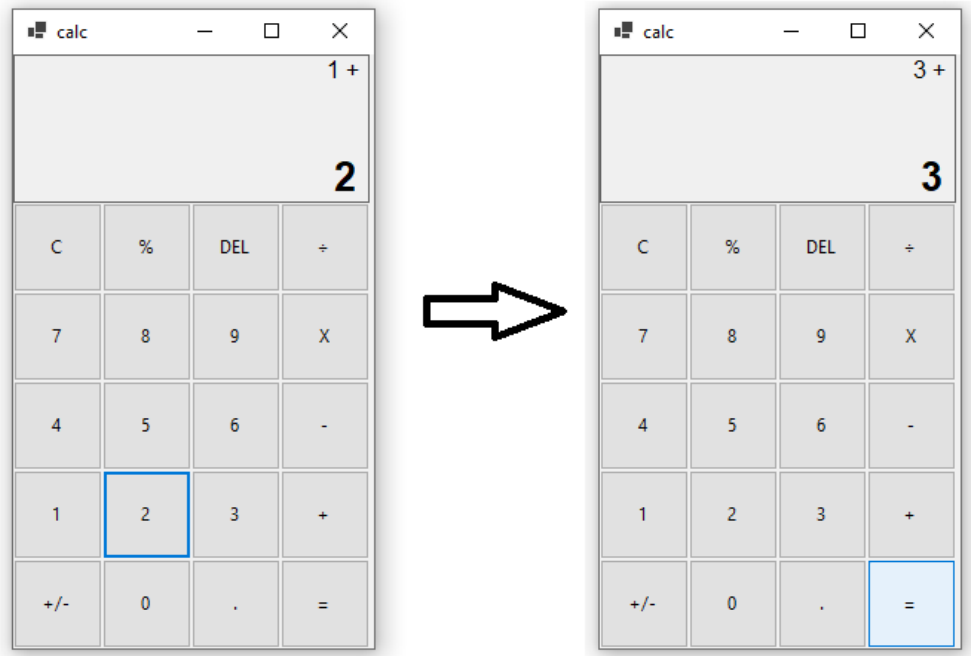

Figure 2: The left screen becomes the right after equality sign is pressed

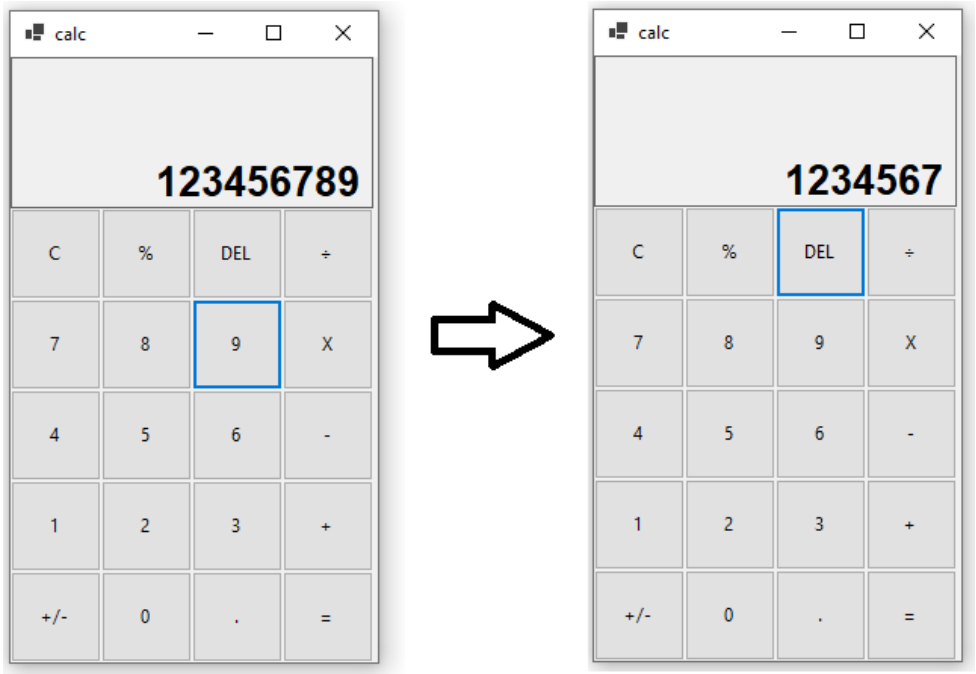

Figure 3: The numbers 8 and 9 cleared after the DEL button is pressed twice

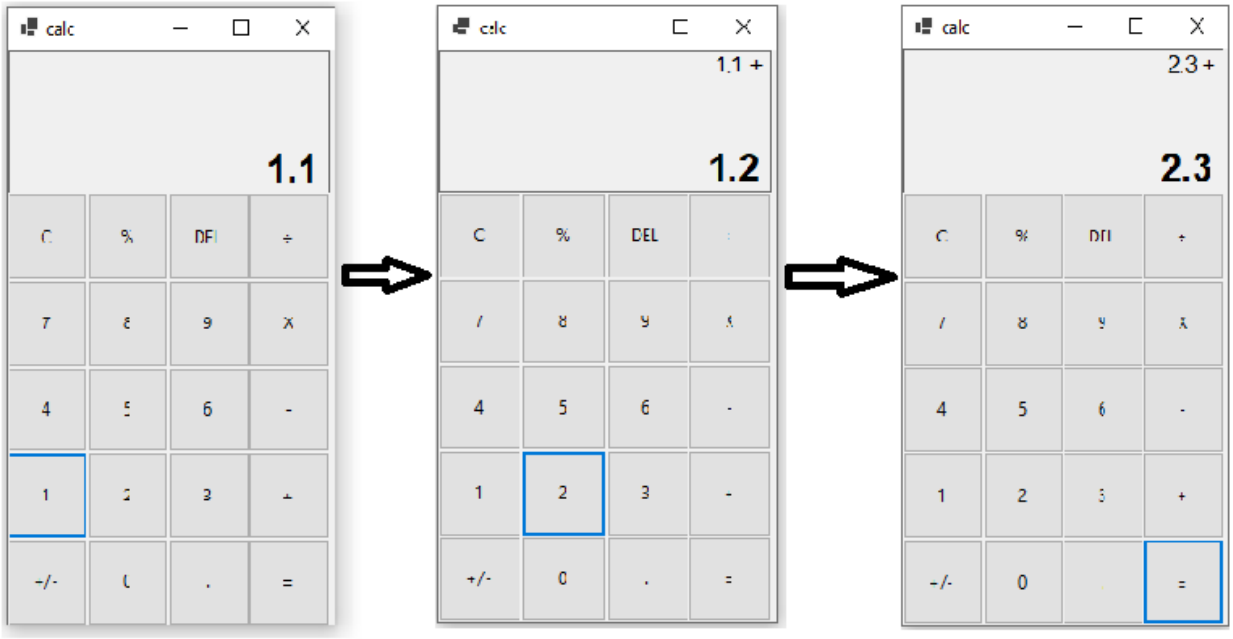

Figure 4: Result of Adding two Decimal numbers 1.1 and 1.2

Figure 5: Result of pressing "C" to clear the screen

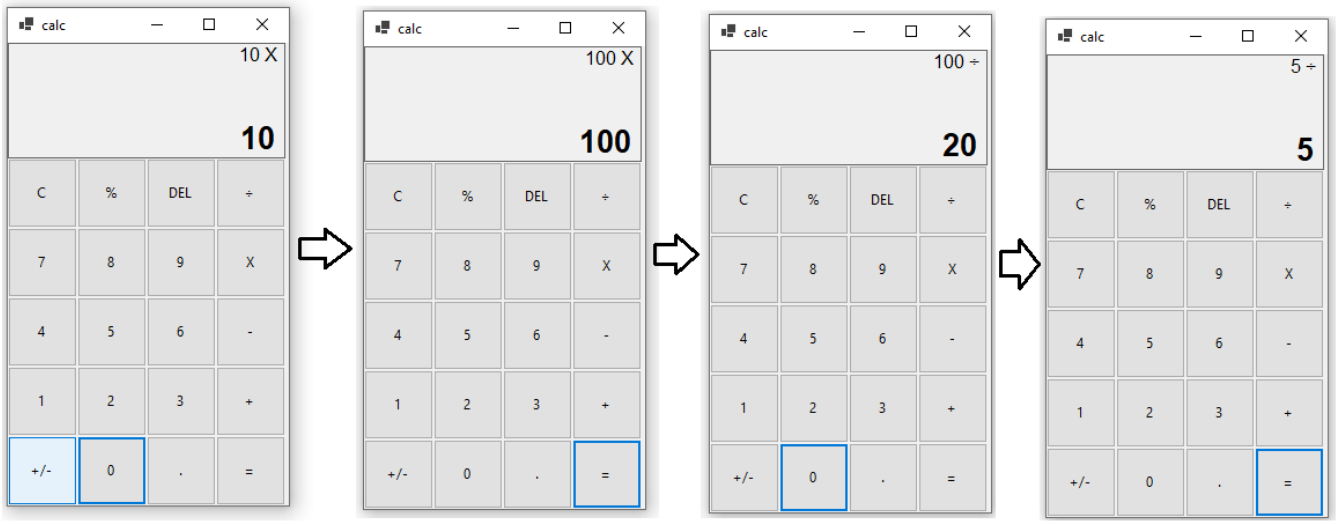

Figure 6: Result of Multiplying 10 by 10 and dividing by 20 in the 3rd screen. The answer is provided in screen 4

In conclusion: The Windows Form is a very good tool for application development. C# makes the communication of each part of the code very flexible to work with.