

INFS3204/7204 Practical 1 – Buggy Calculator

The goal of this practical is to explore the basics of ASP.NET Web Applications and C# programming language. All practicals will have to be developed with **Microsoft Visual Studio 2010** using **C#** as the programming language. No other languages will be accepted. This practical contributes to 10% of your overall grade. You must present this practical to your lab tutor during your scheduled lab session in week 4.

This practical is divided into 3 tasks:

- Creating an ASP.Net Web Application using **Web Form** (2 Marks)
- Performing **buggy** basic calculator operations (3 Marks)
- Creating a base-10 to base-2 number conversion (5 Marks)

Preparation

Before attempting to do this practical, you should have a basic knowledge of how to use **Microsoft Visual Studio 2010** to create ASP.NET Web Forms, as well as a basic knowledge of programming with **C#**. **Please note** that you need to choose .NET Framework **4** for your practicals. You also need to have Windows 7 installed on your computer.

Hints: Please be advised that the design and implementation of this practical is totally up to you. However, you may need to ensure that you are familiar with the concept of ‘Recursive Functions’ and defining ‘Global Variables’ to implement some parts of this practical.

Microsoft Visual Studio 2010 Free Download: If you would like to install the Microsoft Visual Studio 2010 on your own computer, as a student, you can download it for free from the following link:

<https://www.dreamspark.com/Student/Default.aspx>

Task 1: Creating an ASP.NET Web Application (2 Marks)

Create a Buggy Calculator Web Application with Web Form, which consists of the following elements:

- Two **TextBoxes** for the user's inputs
- A **DropDownList** for the user's choice of operation
- Two **Labels** that indicate the result's base system (i.e. base-10 or base-2)
- Two **TextBoxes** for displaying the result in two different base systems
- A **Button** to submit the form and get the result

Your final application should look like the example below. However, you may decide to design and implement this application more interestingly, to be chosen as one of the students who will be given a chance to have a demonstration in week 12.

Please note that you are **not** required to validate the user's input for this practical.

The screenshot shows a web application with a blue header bar containing the text "My ASP.NET APPLICATION". Below the header is a navigation bar with "Home" and "About" links. The main content area has a heading "WELCOME TO BUGGY CALCULATOR!". Below this, there is a form for a calculator. It includes a text box with the value "123", a "Calculate" button, a dropdown menu with a plus sign selected, and two empty text boxes for the result. The text "= BASE10:" and "= BASE2:" are placed between the result boxes. The dropdown menu is open, showing options for addition (+), subtraction (-), multiplication (*), and division (/).

Task 2: Performing buggy basic calculator operations (3 Marks)

In order to complete this task, you need to implement the basic calculator operations (i.e. +, -, *, /). When user enters two numbers and clicks on the Calculate button, the result of the operation should be displayed in the base-10 output TextBox.

Please note that this calculator is supposed to be buggy! This means that it first reverses the input numbers, and then performs the operations on them (You may like to implement a separate 'reversing' function).

For example, if user inputs 34+56, it calculates 43+65=108. Please see the following picture:

My ASP.NET APPLICATION

Home About

WELCOME TO BUGGY CALCULATOR!

34 + 56 = BASE10: 108 = BASE2: 1101100

Calculate

Task 3: Creating a base-10 to base-2 number conversion (5 Marks)

In this task, you need to implement a base-10 to base-2 convertor (you may like to implement a separate function for this). When the buggy calculation is done, the result needs to be converted from base-10 to base-2 system and be displayed in the base-2 output TextBox.

For example, as you can see in the above picture, the base-2 conversion of 108 is 1101100.