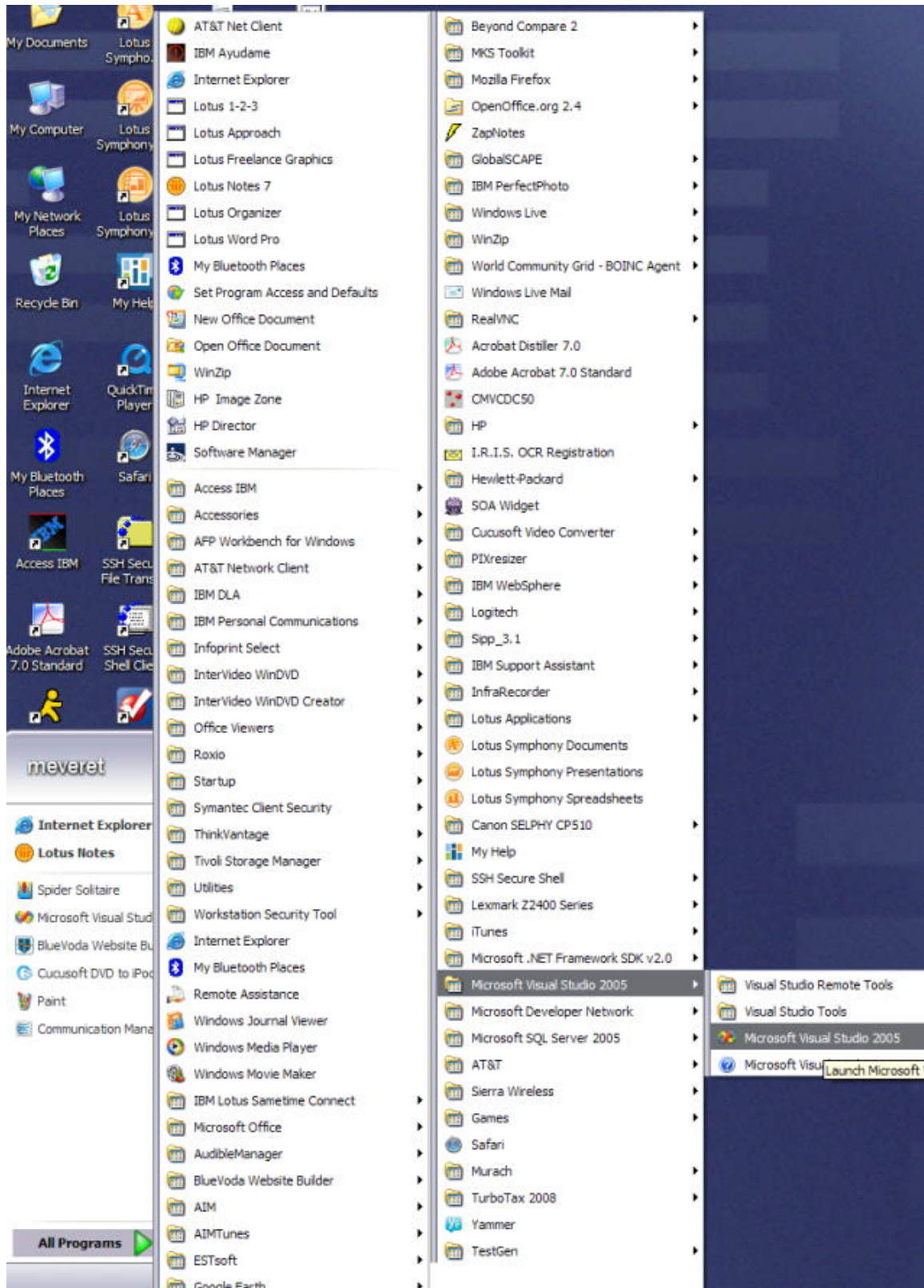
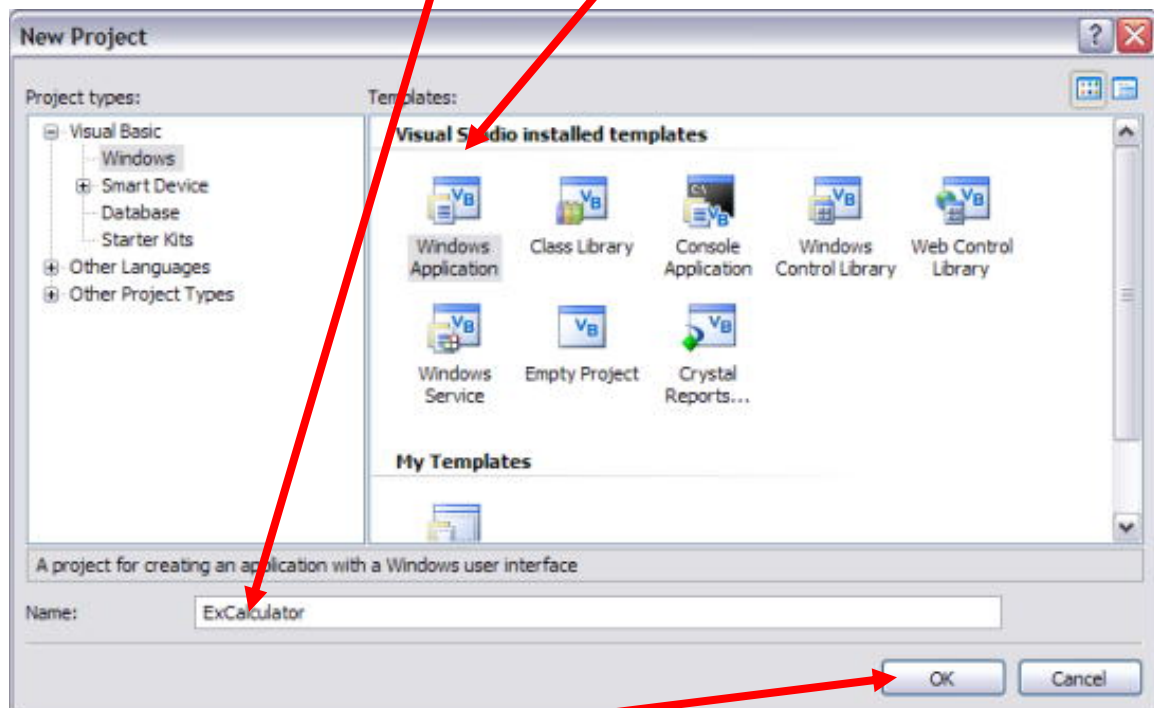
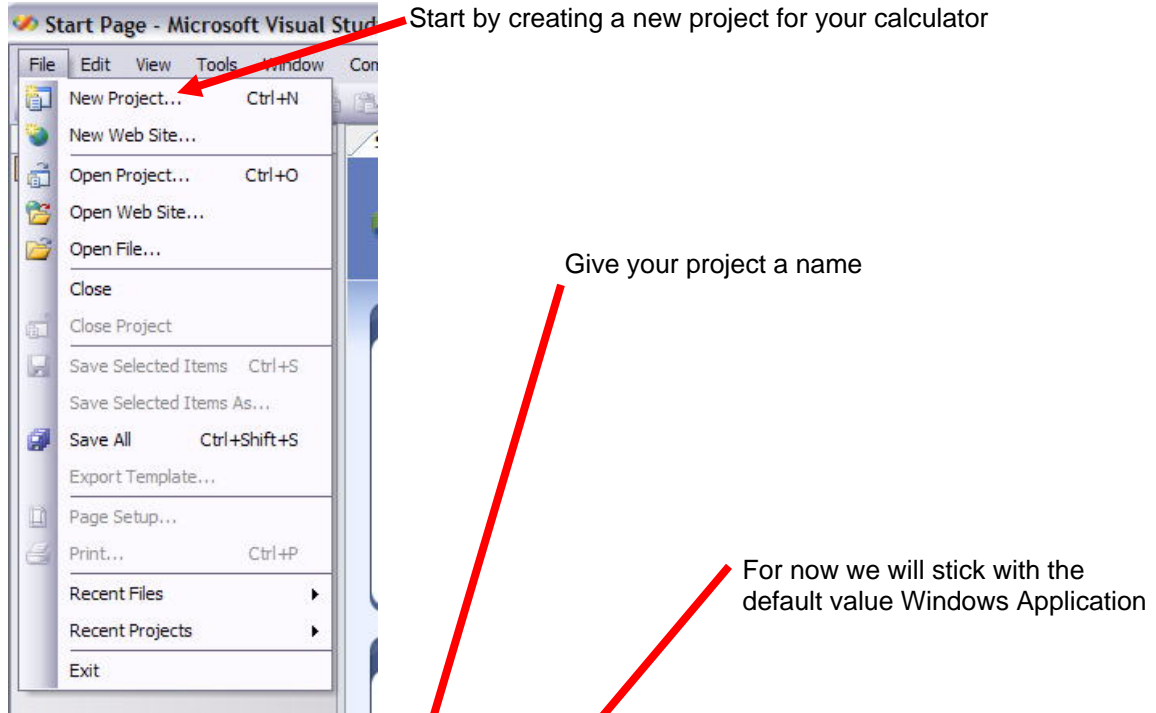


**Let us start simple; we will build a simple calculator that kind of works.**



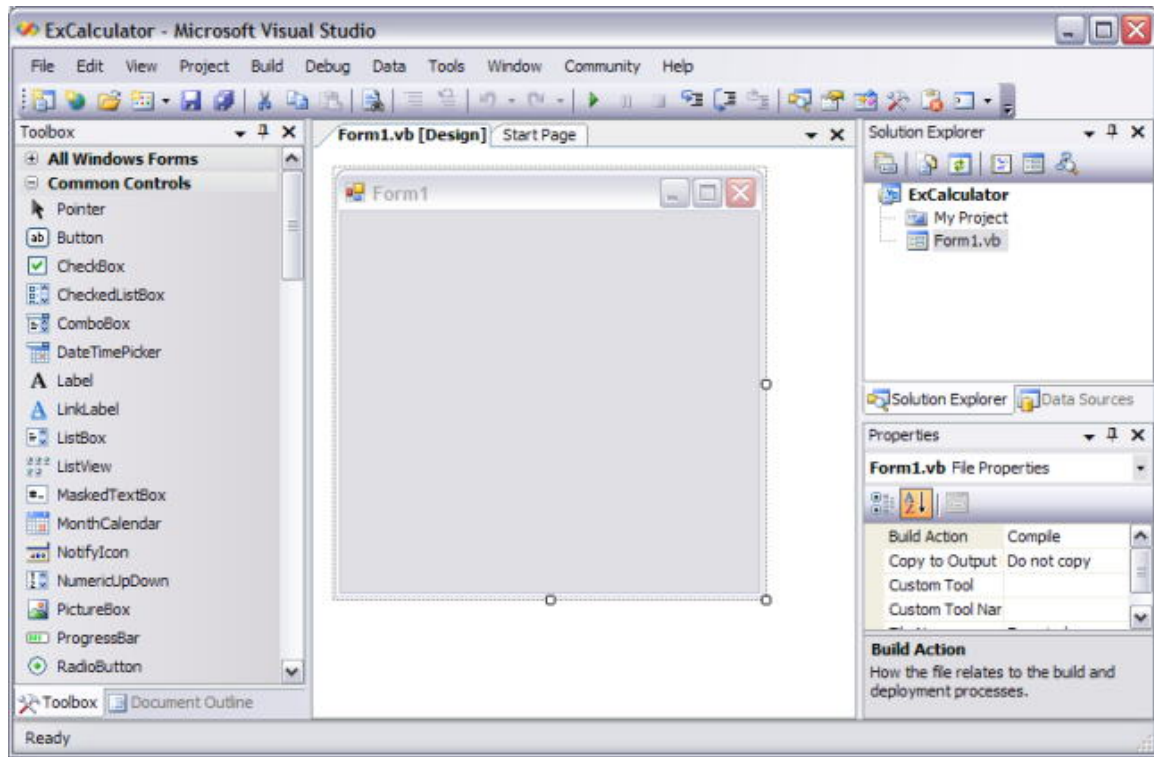
## **STEP1: Start Visual Studio on the Windows machine**

## **STEP 2: Create a new project**

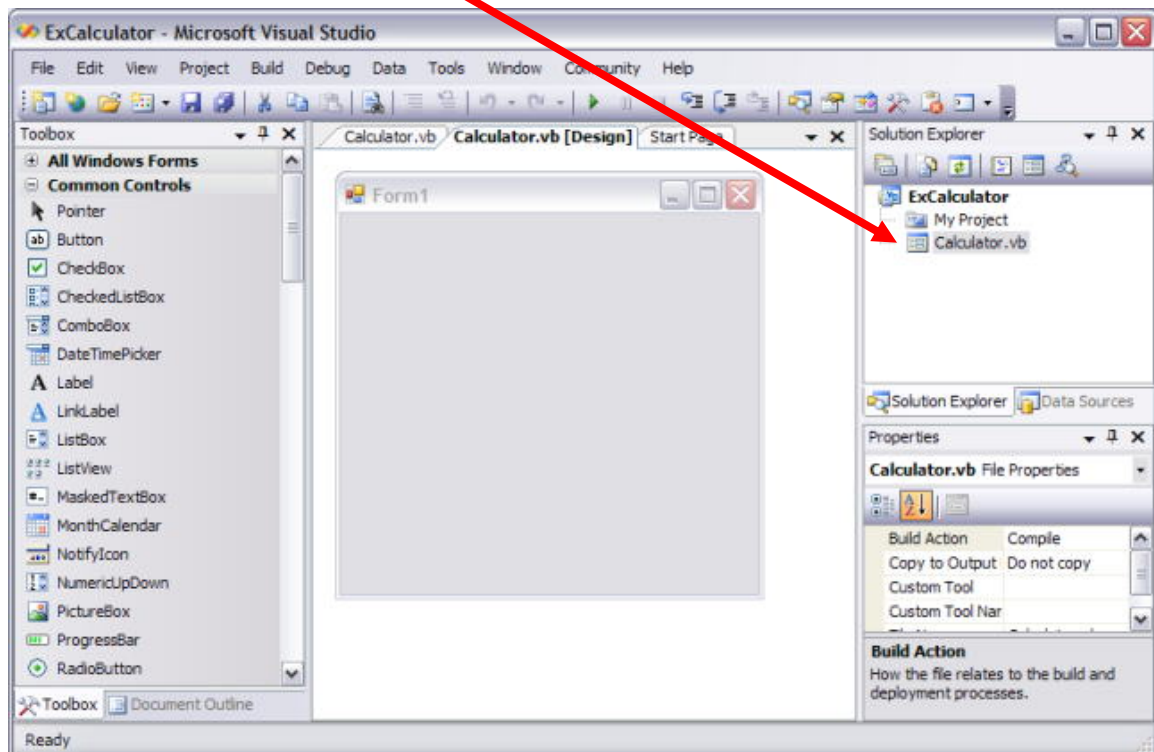


Press OK

**STEP 3: You get a Form with your new project let's work with it**



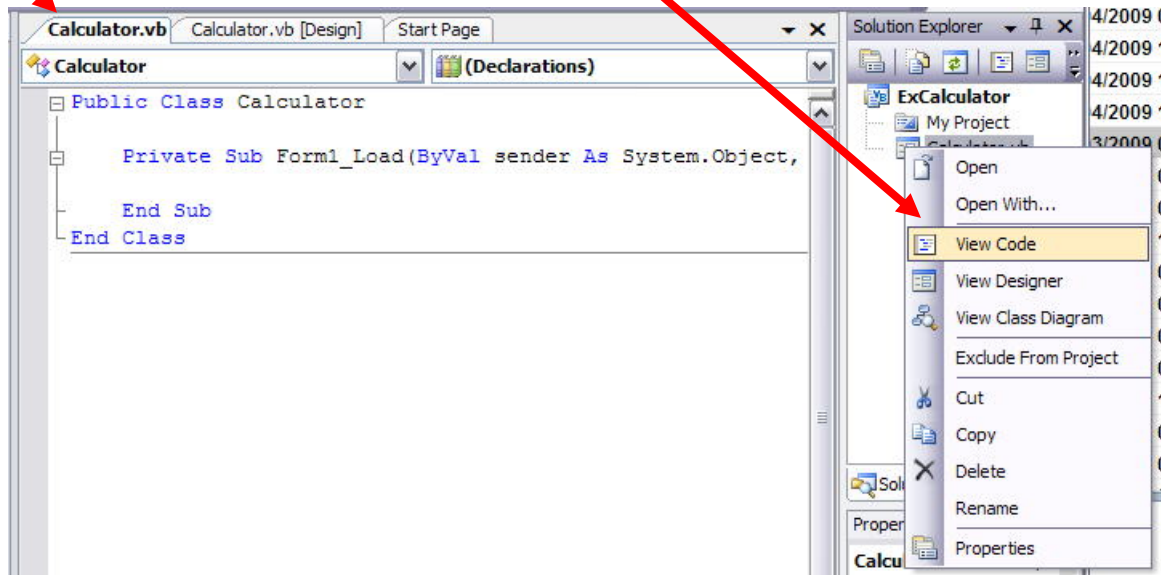
First thing is to name your form from the solution explorer



Now that we have a form with a descriptive name, let's take a look at the code that exists so far:

If you right click on the Calculator.vb file and choose View Code:

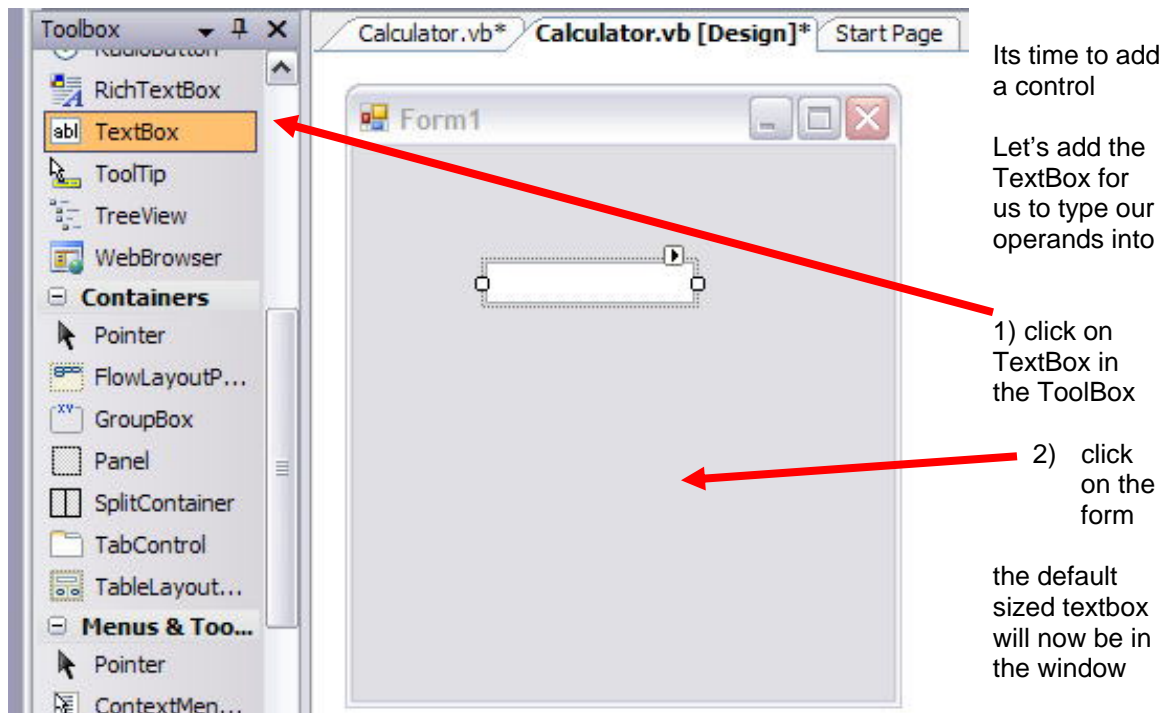
You get the code editor to open up



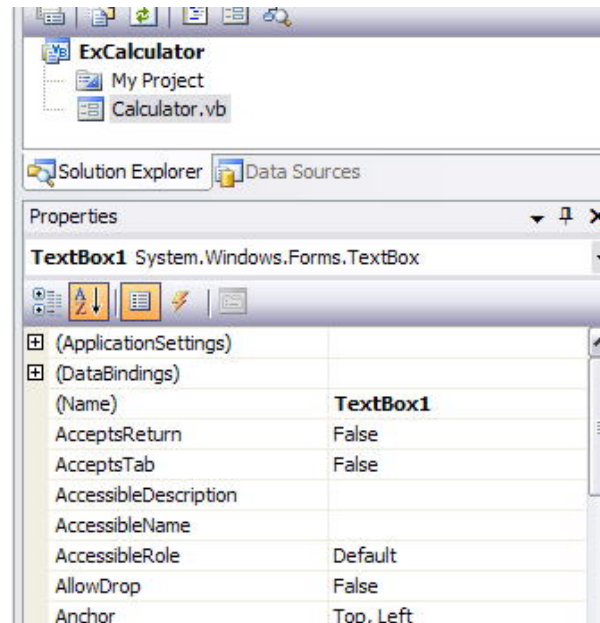
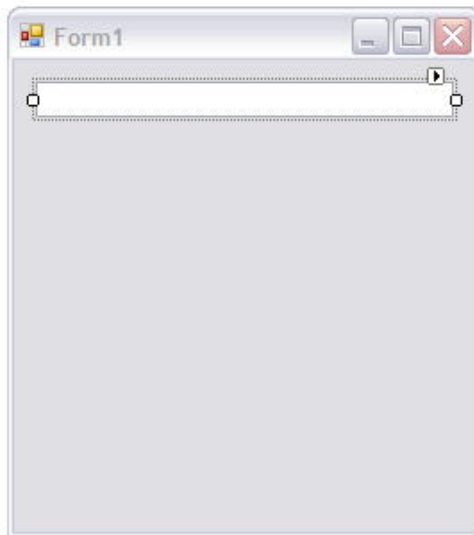
Notice the little bit of code that has been generated for you:

- 1) you have a Class and a Subroutine that you will learn about later in your project

Let's click on the Calculator [Design] Tab to go back to the design view



Move and resize your textbox in the design editor to a place you would like to see a calculator have its text box control



I put mine on top centered.

Notice the properties window: Since the textbox has focus, since it is the control that is highlighted, the properties window shows the available properties for the textbox control.

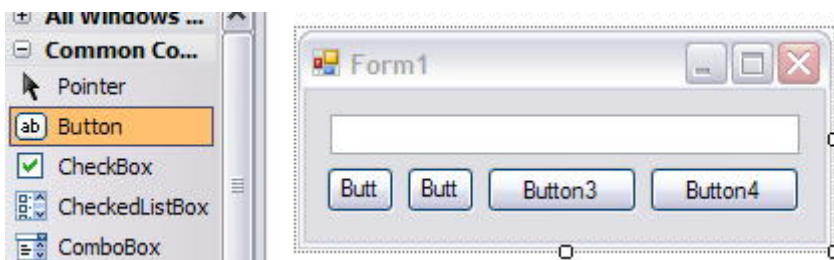
NOTE: for this first exercise we are not following proper naming conventions, in the future we will incorporate naming into our controls and code.

The simplest calculator I can think of has:

- 1) 1 text box
- 2) 1 equals button
- 3) 1 plus button
- 4) A number 1 button
- 5) A number 2 button

If we can make that work, we can do the rest.

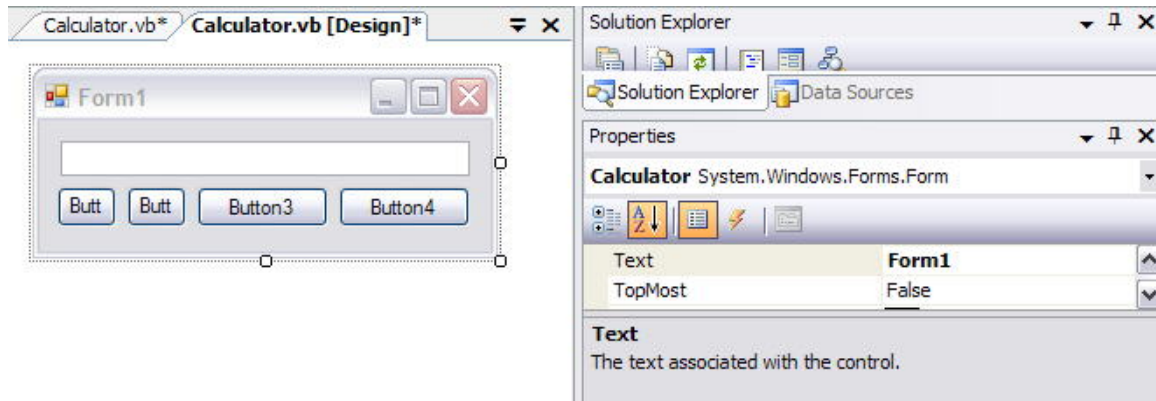
Add the remaining five items to the design of your form the same way we added the textbox. Click on the button and click on the form or double click a button for each of the new controls. Size and arrange your buttons however you would like to see your calculator.



This is what my form looks like after adding 4 buttons and resizing everything to easily fit on this page.

### ***STEP 3: Work with properties to turn the form into a recognizable calculator***

Without knowing too much about properties, we are going to go into the properties window and change the visible name of our form and buttons.



Whatever you click on the left the properties for it show up on the right. I clicked on the form itself and looked down through the list of properties until I found a match of Form1.

Change the Text property set to Form1 to a name you like: My Calculator

Do the same thing for the buttons:

- Button1 becomes 1
- Button2 becomes 2
- Button3 becomes plus
- Button4 becomes equals

First highlight a button and scroll through the properties for the Text property, change the buttons text property to represent what the button is going to do when it is clicked.

Do the same for all buttons.



OK, it looks good but if we executed the program the buttons would not do anything. Onto the next step.

## ***STEP 4: Add some working but very incomplete logic to our calculator***

Double click on Button1 and the code editor will appear.

The event handler for the Button is automatically added. It still needs logic but the structure is there.

```
Public Class Calculator
    Private Sub Form1_Load(ByVal sender As System.Object, ByVal e As
        System.EventArgs) Handles MyBase.Load

        End Sub

    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As
        System.EventArgs) Handles Button1.Click

        End Sub
End Class
```

### **Module Level Variables**

Let's add to module level variables, I may call them global variables:

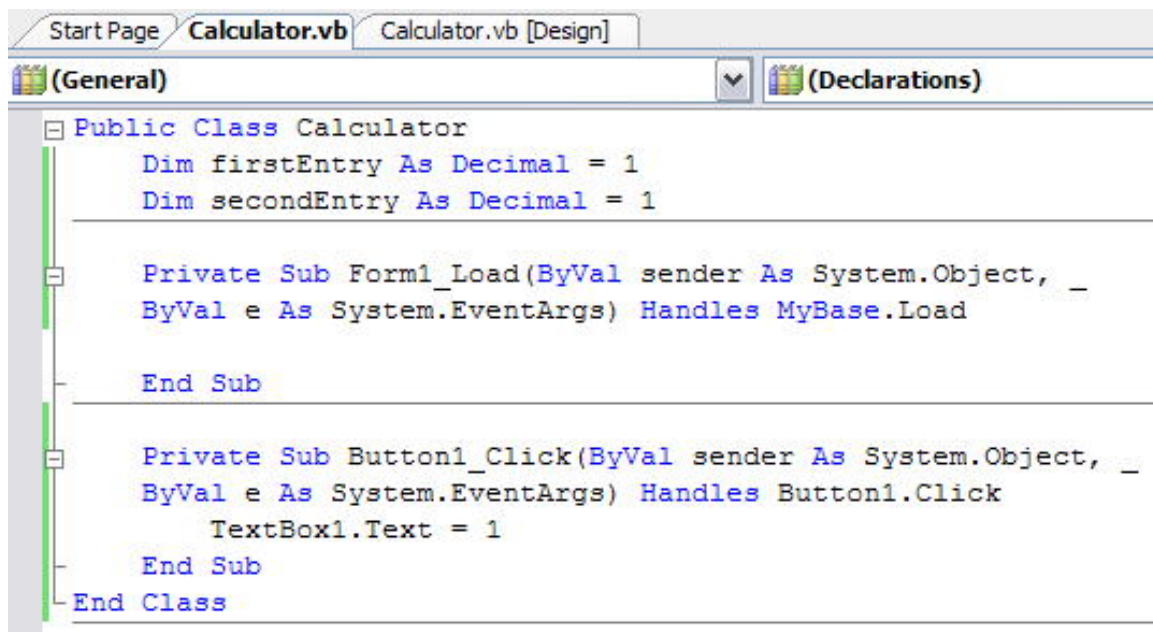
```
Dim firstEntry As Decimal = 1
Dim secondEntry As Decimal = 1
```

These go above any of the Subroutines and below the class statement.

### **Button1 Event Handler**

Let's add something so that when the Button1 is clicked something happens:

```
TextBox1.Text = 1
```



```
Start Page Calculator.vb Calculator.vb [Design]
(General) (Declarations)
Public Class Calculator
    Dim firstEntry As Decimal = 1
    Dim secondEntry As Decimal = 1

    Private Sub Form1_Load(ByVal sender As System.Object, _
        ByVal e As System.EventArgs) Handles MyBase.Load

        End Sub

    Private Sub Button1_Click(ByVal sender As System.Object, _
        ByVal e As System.EventArgs) Handles Button1.Click
        TextBox1.Text = 1
    End Sub
End Class
```

## Button2 Event Handler

Double click on button 2 and the code editor will appear with the event handler subroutine started and the cursor in a position to add the code for the click event.

```
TextBox1.Text = 1
```

## Button 3 Event Handler

Double click on button 3 and the code editor will appear with the event handler subroutine started and the cursor in a position to add the code for the click event.

```
TextBox1.Text = firstEntry + secondEntry
```

## Button4 Event Handler

Double click on button 4 and the code editor will appear with the event handler subroutine started and the cursor in a position to add the code for the click event.

```
TextBox1.Text = firstEntry + secondEntry
```

```
Public Class Calculator
```

```
    Dim firstEntry As Decimal = 1
```

```
    Dim secondEntry As Decimal = 1
```

```
    Private Sub Form1_Load(ByVal sender As System.Object, _  
        ByVal e As System.EventArgs) Handles MyBase.Load
```

```
    End Sub
```

```
    Private Sub Button1_Click(ByVal sender As System.Object, _  
        ByVal e As System.EventArgs) Handles Button1.Click
```

```
        TextBox1.Text = 1
```

```
    End Sub
```

```
    Private Sub Button2_Click(ByVal sender As System.Object, _  
        ByVal e As System.EventArgs) Handles Button2.Click
```

```
        TextBox1.Text = 1
```

```
    End Sub
```

```
    Private Sub Button3_Click(ByVal sender As System.Object, _  
        ByVal e As System.EventArgs) Handles Button3.Click
```

```
        TextBox1.Text = firstEntry + secondEntry
```

```
    End Sub
```

```
    Private Sub Button4_Click(ByVal sender As System.Object, _  
        ByVal e As System.EventArgs) Handles Button4.Click
```

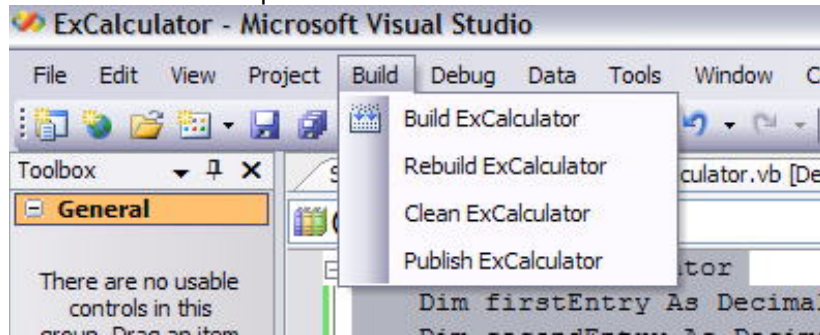
```
        TextBox1.Text = firstEntry + secondEntry
```

```
    End Sub
```

```
End Class
```

## ***STEP 5: Build and run the project***

Click on the Build drop down menu



Choose build ExCalculator

If there are not any errors nothing really happens the mouse pointer comes back and you are ready to run the project.

Several ways to run it:

- 1) push the icon that looks like a triangle or play button
- 2) go to Debug and click Start Debugging
- 3) press F5

