Variables and Data Types

Declaration of variables

Dim keyword used:

Syntax:

Dim var_name As Data_Type

e.g:

Dim name As String

Data types

- Boolean Data Type
- Byte Data Type
- Char Data Type
- Date Data Type
- Decimal Data Type
- Double Data Type
- Integer Data Type
- Long Data Type
- Object Data Type
- SByte Data Type
- Short Data Type
- Single Data Type
- String Data Type
- UInteger Data Type
- ULong Data Type
- UShort Data Type

Data Types

The following table summarizes Visual Basic's elementary data types.

Type	Size	Values
Boolean	2 bytes	`True` or `False`
Byte	1 byte	0 to 255 (unsigned byte)
SByte	1 byte	-128 to 127 (signed byte)
Char	2 bytes	0 to 65,535 (unsigned character)
Short	2 bytes	-32,768 to 32,767
UShort	2 bytes	0 through 65,535 (unsigned short)
Integer	4 bytes	-2,147,483,648 to 2,147,483,647
UInteger	4 bytes	0 through 4,294,967,295 (unsigned integer)
Long	8 bytes	-9,223,372,036,854,775,808 to 9,223,372,036,854,775,807
ULong	8 bytes	0 through 18,446,744,073,709,551,615 (unsigned long)
Decimal	16 bytes	0 to +/-79,228,162,514,264,337,593,543,950,335 with no decimal point. 0 to +/-7.9228162514264337593543950335 with 28 places

Continued...

Type	Size	Values
Single	4 bytes	-3.4028235E+38 to -1.401298E-45 (negative values) 1.401298E-45 to 3.4028235E+38 (positive values)
Double	8 bytes	-1.79769313486231570E+308 to -4.94065645841246544E-324 (negative values) 4.94065645841246544E-324 to 1.79769313486231570E+308 (positive values)
String	variable	Depending on the platform, a string can hold approximately 0 to 2 billion Unicode characters
Date	8 bytes	January 1, 0001 0:0:00 to December 31, 9999 11:59:59 pm
Object	4 bytes	Points to any type of data
Structure	variable	Structure members have their own ranges

Types of Operators

- Arithmetic Operators
- Comparison Operators
- Logical and Bitwise
- Bit Shift Operator

Arithmetic Operators

Operator	Description	Example
^	Raises one operand to the power of another	B^A will give 49
+	Adds two operands	A + B will give 9
-	Subtracts second operand from the first	A - B will give -5
*	Multiplies both operands	A * B will give 14
/	Divides one operand by another and returns a floating point result	B / A will give 3.5
\	Divides one operand by another and returns an integer result	B \ A will give 3
MOD	Modulus Operator and remainder of after an integer division	B MOD A will give 1

Comparison Operators

Operator	Description	Example
=	Checks if the values of two operands are equal or not; if yes, then condition becomes true.	(A = B) is not true.
<>	Checks if the values of two operands are equal or not; if values are not equal, then condition becomes true.	(A <> B) is true.
>	Checks if the value of left operand is greater than the value of right operand; if yes, then condition becomes true.	(A > B) is not true.
<	Checks if the value of left operand is less than the value of right operand; if yes, then condition becomes true.	(A < B) is true.
>=	Checks if the value of left operand is greater than or equal to the value of right operand; if yes, then condition becomes true.	(A >= B) is not true.

Logical and Bitwise

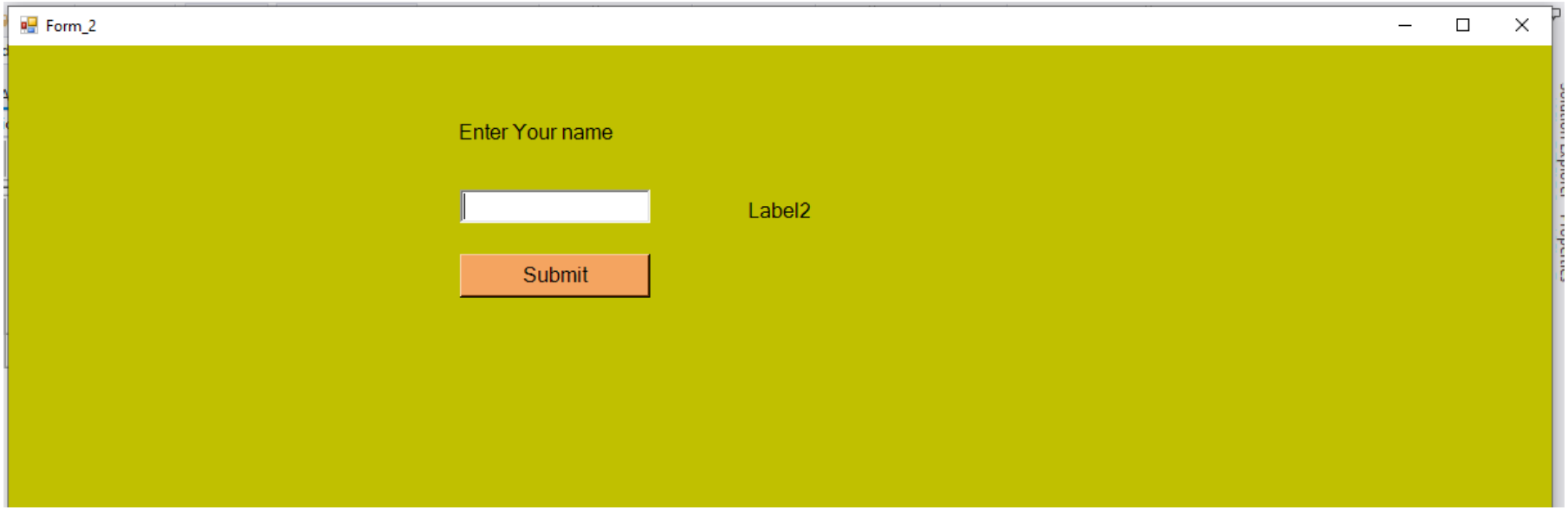
Operator	Description	Example
And	The And Operator represents, whether both the operands are true; the result is True.	(A And B), result = False
Or	It is an Or Operator that returns a true value; if anyone operand is true from both the operands.	(A Or B), result = True
Not	The Not Operator is used to reverse the logical condition. For example, if the operand's logic is True, it reveres the condition and makes it False.	Not A Or Not(A And B) is True
Xor	It is an Exclusive OR Operator that represents, whether both the expression is true or false, the result is True; otherwise, the result is False.	A Xor B is True

AndAlso	It is a logical AND Operator that performs short-circuit operation on the variables, and if both the operands are true, the result is True else the result is False.	A AndAlso B = False
OrElse	It is a logical OR Operator that perform short-circuit operation on Boolean data. If anyone of the operand is true, the result is True else the result is False.	A OrElse B = True
IsFalse	The IsFalse Operator is used to determine whether an expression is False.	
IsTrue	The IsTrue Operator is used to determine whether an expression is True.	

Bit Shift Operator

Operator	Description
AND	The Binary AND Operator are used to copy the common binary bit in the result if the bit exists in both operands.
OR	The Binary OR Operator is used to copy a common binary bit in the result if the bit found in either operand.
XOR	The Binary XOR Operator in VB.NET, used to determine whether a bit is available to copy in one operand instead of both.
Not	The binary NOT Operator is also known as the binary Ones' Compliment Operator, which is used to flip binary bits. This means it converts the bits from 0 to 1 or 1 to 0 binary bits.
<<	The Binary Left Shift Operator is used to shift the bit to the left side.
>>	The Binary Right Shift Operator is used to shift the bit to the right side.

Design Page out put:

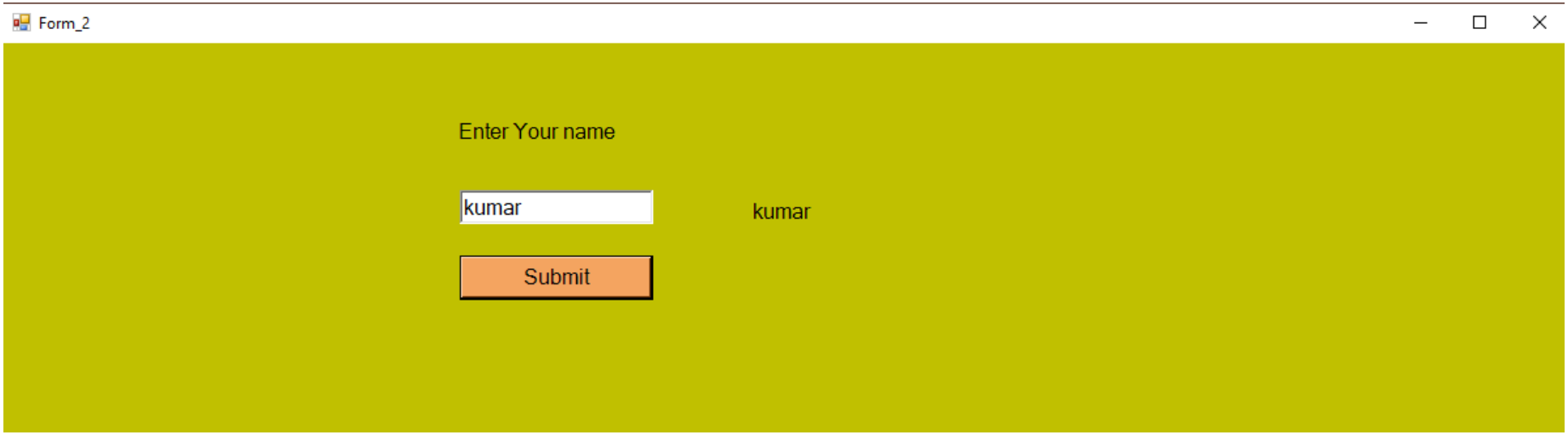


Code behind Part in Vb.Net:

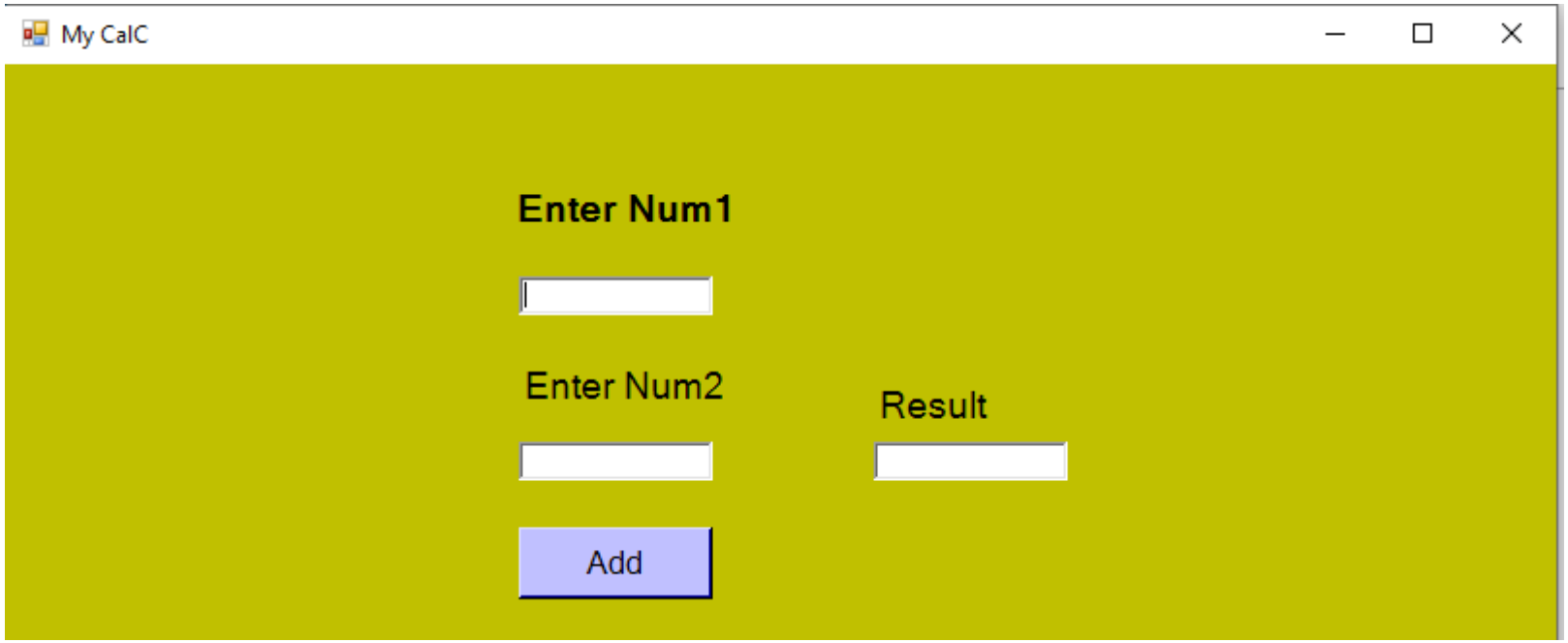
```
Public Class Form_2
    Private Sub Button1_Click(sender As Object, e As
EventArgs) Handles Button1.Click
        Dim name As String = TextBox1.Text
        Label2.Text = name

    End Sub
End Class
```

After click on submit button input ouput:



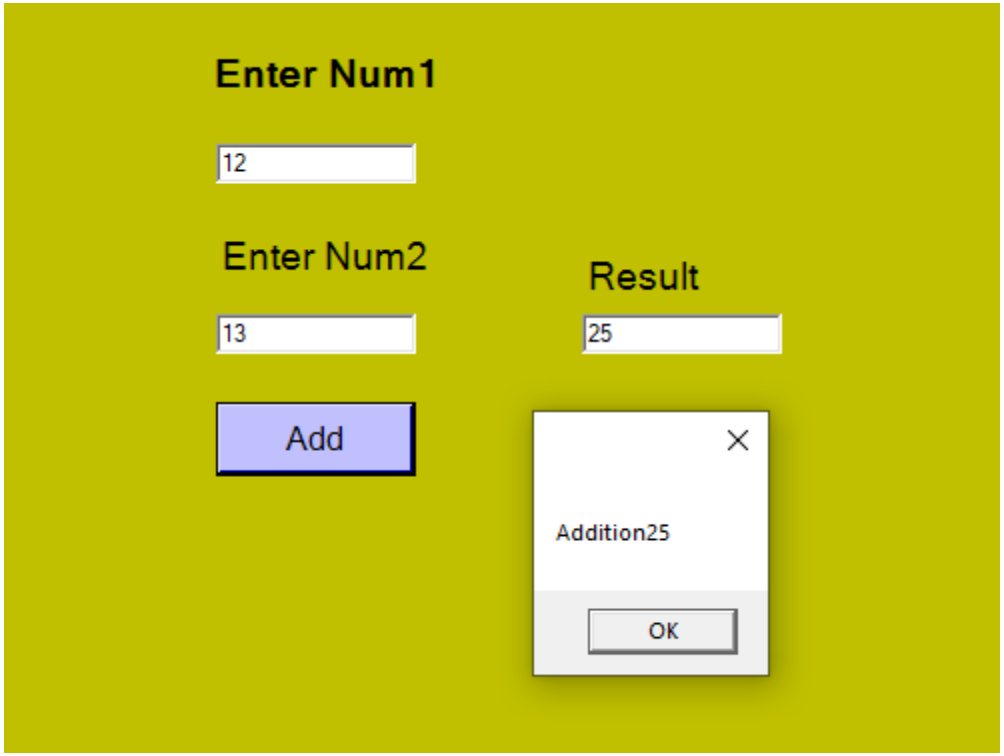
Example: Addition of two number design output



Coding

```
Public Class Form1
    Private Sub Button1_Click(sender As Object, e As EventArgs)
Handles Button1.Click
        Dim num1, num2, num3 As Integer
        num1 = Integer.Parse(TextBox1.Text)
        num2 = Integer.Parse(TextBox2.Text)
        num3 = num1 + num2
        TextBox3.Text = num3
        MessageBox.Show("Addition" & num3)
    End Sub
End Class
```

Output result:



Thank You