**LAB NO.: 2 Date:**

**c# programming – variables, operations, conditional logics, loops, functions**

**Objectives:**

In this lab, student will be able to:

* Understand the fundamentals of C# Programming Language.
* Learn how to declare variables, operations, conditional logics, loops & functions.

1. **description**

**Variables** can store numbers, text, dates, times, and they can even point to full-fledged objects. When a variable is declared, it is given a name, and the type of data it will store is specified.

//Declare a string variable named myName.

string myName;

Conditional logic - deciding which action to take based on user input, external conditions, or other information.

To build a condition, any combination of literal values or variables along with logical operators can be used*.*

The comparison operators (<, >, <=, >=) with numeric types and with strings can be used.

C# has three basic types of loops.

* for loop: loop a set number of times
* foreach loop: loop all the items in a collection of data
* while or do…while loop: loop while certain condition holds true

C# provides a foreach block that allows the user to loop through the items in a set of data. Here a variable that represents the required type of data has to be created. The code will then loop until each piece of data in the set has been processed. The variable in the block is read only.

string[] stringArray = {“One”, “Two”, “Three”};

foreach (string element in stringArray )

{

//This code loops 3 times, with element variable set to “One”, then “Two”and then “Three”

Console.WriteLine( element + “ ” ); }

1. **SOLVED EXERCISE:**

**Steps to create a C# Console application:**

1. On the **File** menu, click **New Project**.

The New Project dialog box appears. This dialog box lists the different types of application that Visual C# Express Edition can create.

1. Select **Console Application** as the project type and change the name of the application to Add\_Num. The default location can be changed if required.
2. Click OK.
3. Type the following code in the **Program.cs** file

using System;

namespace Add\_Num

{

class Program

{

static void Main(string[] args)

{

int num1,num2;

Console.WriteLine("Enter the numbers:");

string n1 = Console.ReadLine(); // Readline() method returns string type

string n2 = Console.ReadLine();

int.TryParse(n1, out num1);

int.TryParse(n2, out num2);

int res = num1 + num2;

Console.WriteLine("The result of addition of {0} and {1} is {2}",num1,num2,res);

Console.Read(); // Read() accepts only single character

}

}

}

The last line in the program is Console.Read(); which causes the program to pause until ENTER is pressed. If this line is omitted, the command window will close and the user won't be able to see the output of the program.

1. Run the program.

The first program is now complete and ready to compile and run. To do this, either press F5 or click on the **Start** icon in the toolbar.

VJS Express List Files Start

1. Once the program compiles and runs, the **Console** window opens and the result of addition of two integers is displayed. Press any key to exit the program.

**Output:**

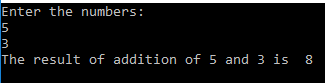


Figure 2.1

**Steps to create a Windows Forms Application:**

1. On the File menu, click New Project.

The New Project dialog box appears. This dialog box lists the different application types that Visual C# Express Edition can create.

1. Select Windows Forms Application as the project type.
2. Change the name of the application if required.
3. Click OK.

Visual C# Express Edition creates a new folder for the project with the same name as the project title, and then displays the new Windows Form, titled Form1 in Designer view. The user can switch between the Designer view and Code view at any time by right-clicking on the design surface or code window and then clicking View Code or View Designer respectively.

1. Drag and drop two TextBoxes, two labels and two buttons in the Designer from the ToolBox. Name the buttons as Submit and Clear by right-clicking the buttons and editing their names from the Properties Window.
2. Paste the following code in the Form1.cs file. Check the id’s of the various controls in the code and change them according to the control id’s. button1\_Click and button2\_Click are the event handlers for the two buttons in the Designer. These event handlers can be generated by simply double-clicking on the buttons in the Designer View.

using System;

namespace WindowsFormsApplication1

{

public partial class Form1 : Form

{

private void button1\_Click(object sender, EventArgs e)

{

double n1;

double.TryParse(TextBox1.Text, out n1);

TextBox2.Text = (n1 \* 2).ToString();

}

private void button2\_Click(object sender, EventArgs e)

{

TextBox1.Text = TextBox2.Text ="";

}

}

}

1. Build and Run the program.

**Output**:

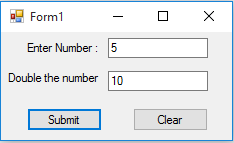


Figure 2.2

1. **LAB EXERCISES:**
2. Write a simple console application to perform arithmetic operations.
3. Develop a simple C# windows application to display the discount to be paid to the customer for the amount for which a customer has purchased goods. The amount is received as an input through a TextBox and discount (20% of the amount) is displayed in a TextBox. Provision should also be made to clear the details of the transactions on the screen, once it is over.
4. Write a Console C# program to realise DateTime.Add member function without using DateTime/TimeStamp instances. The inputs to the program are valid date (in the format "DD:MM:YY:hh:mm:ss") and # of ticks (range from 10000000 - 999999999999) which have to be accepted from the user. The output will be a number which is generated by adding the ticks to the given date. (Note: 1 tick = 100 nano secs)
5. Develop a simple C# windows application to display the names of brands of shuttle badminton racquets using label controls. Use TextBox control to accept the brand name and number of racquets the user wants to purchase. Based on the brand selected calculate and display the cost of purchase to the user. (Eg: Cost/Racquet for some brands are: Yonex- Rs2000, 2Silvers- Rs1000, Cosco- Rs800).
6. **ADDITIONAL EXERCISES:**
7. Develop a simple C# windows application to select two types of accessories namely Hard Disks and Mobiles using CheckBox controls. Under both categories display the manufacturer names using RadioButtonList controls. When any of these is checked by the user the corresponding name of the manufacturer should be listed in the label control.
8. Develop a simple C# windows application to compute the bonus to be paid to an employee on basis of his performance level using a function. Use TextBox to input Salary and ComboBox to select performance level. (Performance Level1 = 0.1 \* Salary, Level2 to Level4 = 0.09\*Salary, Level5 to Level7 = 0.07 \* Salary, Level8 to Level10 = 0.05 \* Salary)