



**Bahria University, Islamabad**

**Department of Software Engineering**

**Visual Programming-Lab (Fall-2025)**

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**Lab Journal: 02**

**Date: 9/18/2025**

Task No:	Task Wise Marks		Documentation Marks		Total Marks (20)
	Assigned	Obtained	Assigned	Obtained	
1	3		5		
2	3				
3	3				
4	3				
5	3				

**Comments:**

**Signature**

## **Lab No: 02 - Lab Title: Getting Started with C#**

### **Introduction**

In this lab, we explored the basics of programming in C# through console applications. The main focus was on understanding C# data types (Boolean, integral, floating-point, decimal, and string), as well as handling simple input and output with type conversion and formatting. Additionally, we studied and implemented control structures such as if, switch, while, do-while, and for loops. The exercises provided practical practice in using these concepts to perform tasks such as tax calculation, building a calculator, and generating number/character patterns.

### **Tools Used**

Visual Studio

### Task 2.1:

Create a Console application for tax calculation. Accept money as input from the user and calculate the tax using the following table. Display the output to the user.

Money	Percentage	Total Tax
Less than 10,000	5%	?
10,000 to 100,000	8%	?
More than 100,000	8.5%	?

### Code for Task 2.1

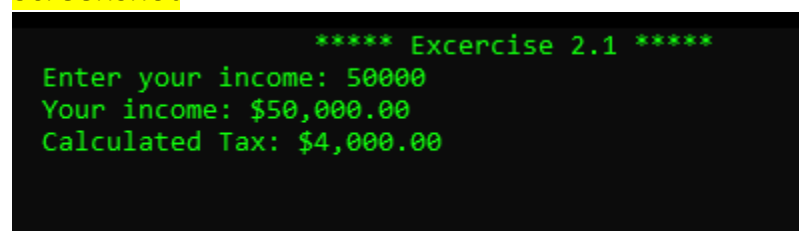
```
using System;

class TaxCalculation
{
    static void Main(string[] args)
    {
        Console.WriteLine("\t\t\t ***** Excercise 2.1 ***** \n");
        Console.WriteLine("\tEnter your income: ");
        double income = Convert.ToDouble(Console.ReadLine());
        double tax = 0;

        if (income < 10000)
        {
            tax = income * 0.05; // 5%
        }
        else if (income >= 10000 && income <= 100000)
        {
            tax = income * 0.08; // 8%
        }
        else
        {
            tax = income * 0.085; // 8.5%
        }

        Console.WriteLine($"\tYour income: {income:C}");
        Console.WriteLine($"\tCalculated Tax: {tax:C}");
        Console.ReadLine();
    }
}
```

### Screenshot



## Task 2.2:

Create a console application named Calculator. Display the respective menu to the user and input two numbers from the user, on which the respective operations could be performed.

### Menu

**Press 1 for add**

**Press 2 for subtraction**

**Press 3 for multiplication**

**Press 4 for Division**

**Press 5: for exit**

## Code

```
using System;

class Calculator
{
    static void Main(string[] args)
    {
        int choice;
        do
        {
            Console.WriteLine("\t***** Excercise 2.2 *****");
            Console.WriteLine("\n=== Simple Calculator ===");
            Console.WriteLine("1. Addition");
            Console.WriteLine("2. Subtraction");
            Console.WriteLine("3. Multiplication");
            Console.WriteLine("4. Division");
            Console.WriteLine("5. Exit");
            Console.Write("Enter your choice: ");
            choice = Convert.ToInt32(Console.ReadLine());

            if (choice >= 1 && choice <= 4)
            {
                Console.Write("Enter first number: ");
                double num1 =
Convert.ToDouble(Console.ReadLine());

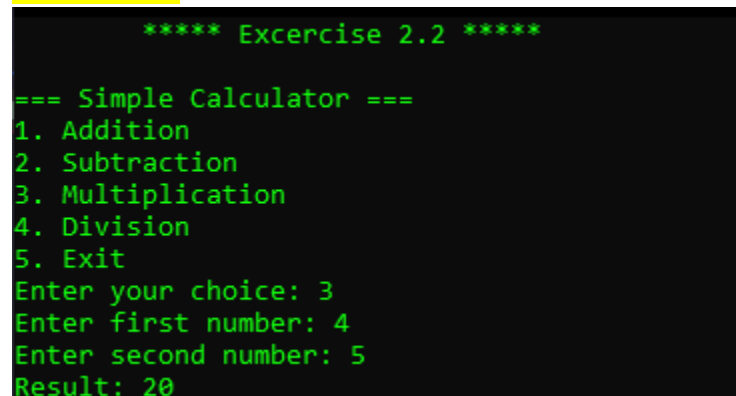
                Console.Write("Enter second number: ");
                double num2 =
Convert.ToDouble(Console.ReadLine());

                switch (choice)
                {
                    case 1:
                        Console.WriteLine($"Result: {num1 +
num2}");
                        break;
```

```
        case 2:
            Console.WriteLine($"Result: {num1 -
num2}");
            break;
        case 3:
            Console.WriteLine($"Result: {num1 *
num2}");
            break;
        case 4:
            if (num2 != 0)
                Console.WriteLine($"Result: {num1
/ num2}");
            else
                Console.WriteLine("Error! Division
by zero.");
            break;
    }
}
} while (choice != 5);

Console.WriteLine("Exiting Calculator. Goodbye!");
}
}
```

## Screenshot



```
***** Exercice 2.2 *****
=== Simple Calculator ===
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Exit
Enter your choice: 3
Enter first number: 4
Enter second number: 5
Result: 20
```

### Task 2.3:

#### Exercise 2.3

Create a console application which, print the the character "x" in the following pattern.

```
xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxx
xxxxxxx
xxxxxx
xxx
x
```

### Code

```
using System;

class UpsideDownTriangle
{
    static void Main(string[] args)
    {
        Console.Write("\t *****Excersice 2.3 ***** \n");
        Console.Write("Enter number of rows: ");
        int rows = Convert.ToInt32(Console.ReadLine());

        for (int i = rows; i >= 1; i--) // rows decreasing
        {
            // print leading spaces
            for (int space = rows - i; space > 0; space--)
            {
                Console.Write(" ");
            }

            // print stars
            for (int j = 1; j <= i; j++)
            {
                Console.Write("* ");
            }

            Console.WriteLine();
        }

        Console.ReadLine();
    }
}
```

## Screenshot

```
*****Excercise 2.3 *****
Enter number of rows: 9
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

## Task 2.4:

### Exercise 2.4

Create a console application which prints numbers from (1-15) in the following pattern using For Loop.

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

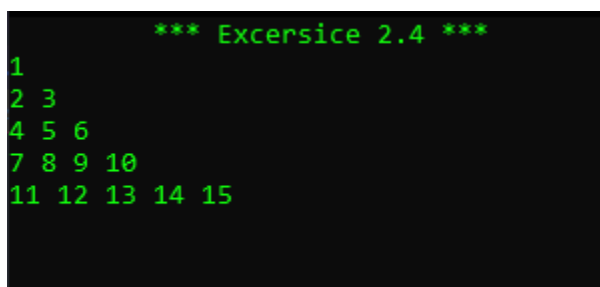
## Code

```
using System;

class NumberPattern
{
    static void Main(string[] args)
    {
        Console.WriteLine("\t *** Excercise 2.4 ***\n");
        int num = 1;

        for (int row = 1; row <= 5; row++) // 5 rows
        {
            for (int col = 1; col <= row; col++)
            {
                Console.Write(num + " ");
                num++;
            }
            Console.WriteLine();
        }
        Console.ReadLine();
    }
}
```

## Screenshot



## Conclusion

This lab strengthened my understanding of C# fundamentals by combining data types, input/output handling, and control structures in real applications. I learned how to take user input, perform calculations, and display formatted output. Through exercises like tax calculation, a calculator app, and number patterns, I practiced writing structured programs using conditional statements and loops. Overall, this lab improved my problem-solving skills in C# and built a strong foundation for more advanced programming tasks.