

## C# Fundamentals

### 1. Basic Data Types, Control Structures, and MethodsObjective:Requirements:

- Write a console application that calculates the factorial of a given number.
- Read an integer from the user.
- Validate the input (ensure it's a positive integer).
- Use loops (or recursion) to calculate the factorial.
- Display the result in the console.

#### Program code:

```
using System;

class Program
{
    static void Main()
    {
        Console.Write("Enter a positive integer: ");

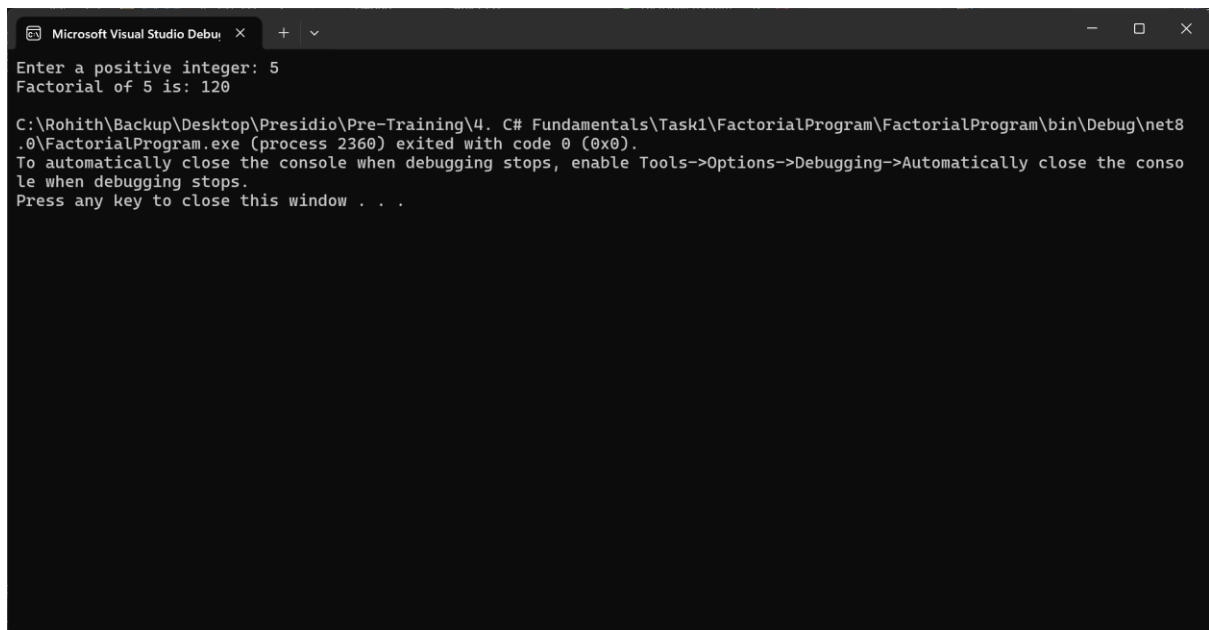
        string input = Console.ReadLine(); // Read user input
        if (int.TryParse(input, out int number) && number >= 0)
        {
            long factorial = CalculateFactorial(number);

            Console.WriteLine($"Factorial of {number} is: {factorial}");
        }
        else
        {
            Console.WriteLine("Invalid input! Please enter a positive integer.");
        }
    }

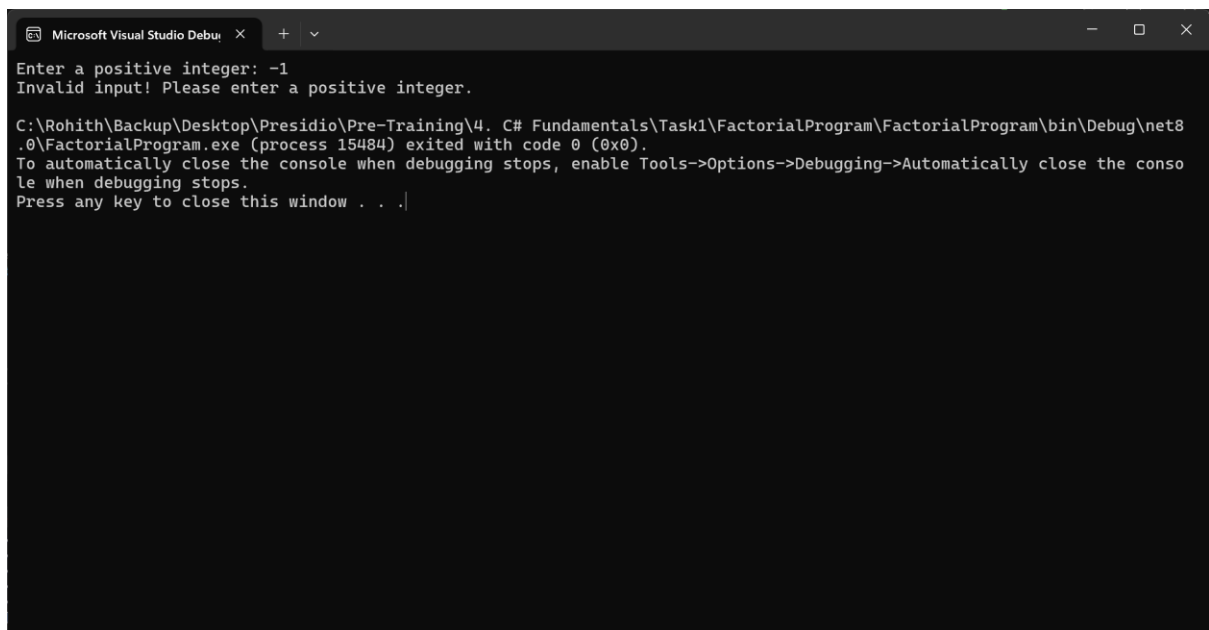
    static long CalculateFactorial(int n)
    {
        long factorial = 1;
```

```
    for (int i = 1; i <= n; i++)  
  
    {  
  
        factorial *= i;  
  
    }  
  
    return factorial;  
  
}  
  
}
```

### Output:



A screenshot of the Visual Studio Debug Console window. The title bar shows 'Microsoft Visual Studio Debug Console'. The console output is as follows:  
Enter a positive integer: 5  
Factorial of 5 is: 120  
  
C:\Rohith\Backup\Desktop\Presidio\Pre-Training\4. C# Fundamentals\Task1\FactorialProgram\FactorialProgram\bin\Debug\net8.0\FactorialProgram.exe (process 2360) exited with code 0 (0x0).  
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.  
Press any key to close this window . . .



A screenshot of the Visual Studio Debug Console window. The title bar shows 'Microsoft Visual Studio Debug Console'. The console output is as follows:  
Enter a positive integer: -1  
Invalid input! Please enter a positive integer.  
  
C:\Rohith\Backup\Desktop\Presidio\Pre-Training\4. C# Fundamentals\Task1\FactorialProgram\FactorialProgram\bin\Debug\net8.0\FactorialProgram.exe (process 15484) exited with code 0 (0x0).  
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.  
Press any key to close this window . . .|