

C# Programming Homework 04

Chapter 04, C# Step by Step

Readings

Read chapter 4 in the *C# Step by Step* book.

Discussion Questions

Answer the discussion questions in writing for chapter 4.

1. What are all possible values of *Boolean expression*?
2. List the equality operators. List the relational operators. List the logical operators. How are they the same? How are they different?
3. What is the general concept of *short circuiting*? This question has a short and simple answer and you do not need to have a detailed response.
4. What are the difference in how *short circuiting* works for `&&` and `||`?
5. Look at the list of operators. What operator has the highest precedence? Which has the lowest?
6. In an *if* or *else* construction using multiple lines of code, what effect does the use of curly braces have?
7. In a *switch* statement, what happens if you omit *break*?
8. The four keywords in a switch statement are *switch*, *case*, *break*, and *default*. Explain what each keyword does.
9. Look at the source listing below. It contains two methods: `recurr1()` and `recurr2()`. There is a significant difference between the two methods. What is it?
10. (Not in book) What is a *recursive* method? Using a language you know (such as English), write a recursive method that adds up the integers in a list of integers. The input to the method is a list of integers and the output is a scalar value representing a sum.
11. (Not in book) Read a short summary of *De Morgan's laws*.
 - (a) Explain how this statement, "It's not snowing or raining," is the same as this statement, "It's not snowing and it's not raining."
 - (b) Explain how this statement, "I'm not running and walking," is the same as this statement, "I'm not running or I'm not walking."

```

1  using System;
2
3  namespace Recur_ch03_text
4  {
5      class Program
6      {
7          static void Main(string[] args)
8          {
9              int initial = 5;
10             Console.WriteLine($"Calling recur1({initial})");
11             int recur = recur1(initial);
12             Console.WriteLine($"recur1 is {recur}");
13             Console.WriteLine($"Calling recur2({initial})");
14             recur = recur2(1, initial);
15             Console.WriteLine($"recur2 is {recur}");
16         }
17
18         private static int recur1(int initial)
19         {
20             if (initial <= 1)
21                 return 1;
22             else
23                 return initial * recur1(--initial);
24         }
25
26         private static int recur2(int product, int initial)
27         {
28             if (initial <= 1)
29                 return product;
30             else
31                 return recur2(product * initial, --initial);
32         }
33     }
34 }

```