

# PRACTICE 14: TEST BEFORE LOOPS\*

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## Abstract

Questions, exercises, problems, etc. that support this chapter in the "Programming Fundamentals - A Modular Structured Approach using C++" collection/textbook.

## 1 Learning Objectives

With 100% accuracy during a: memory building activity, exercises, lab assignment, problems, or timed quiz/exam; the student is expected to:

1. Define the terms on the definitions as listed in the modules associated with this chapter.
2. Identify which selection control structures are test before iteration.
3. Be able to write pseudo code or flowcharting for the while control structure.
4. Be able to write C++ source code for the while control structure.

## 2 Memory Building Activities

Link to: MBA 14<sup>1</sup>

## 3 Exercises

### Exercise 1

*(Solution on p. 3.)*

**Evaluate the following items using increment or decrement:**

1. True or false: `x = x - 1`; and `x -= 1`; and `x-`; and `-x`; all accomplish decrement.
2. Given: `int y = 26`; and `int z`; what values will y and z have after: `z = y++`;
3. Given: `double x = 4.44`; and `int y`; what values will x and y have after: `y = -x`;
4. As an expression: `10 / ++(money * 4)` Is this ok? Why or why not?

## 4 Miscellaneous Items

Link to: Animated gif showing a while loop<sup>2</sup>

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<sup>1</sup>See the file at <<http://cnx.org/content/m20643/latest/index.html>>

<sup>2</sup>See the file at <[http://cnx.org/content/m20643/latest/while\\_flow.gif](http://cnx.org/content/m20643/latest/while_flow.gif)>

## 5 Lab Assignment

### 5.1 Creating a Folder or Sub-Folder for Chapter 14 Files

Depending on your compiler/IDE, you should decide where to download and store source code files for processing. Prudence dictates that you create these folders as needed prior to downloading source code files. A suggested sub-folder for the **Bloodshed Dev-C++ 5 compiler/IDE** might be named:

- Chapter\_14 within the folder named: Cpp\_Source\_Code\_Files

If you have not done so, please create the folder(s) and/or sub-folder(s) as appropriate.

### 5.2 Download the Lab File(s)

Download and store the following file(s) to your storage device in the appropriate folder(s). You may need to right click on the link and select "Save Target As" in order to download the file.

Download from Connexions: Lab\_14\_Pseudocode.txt<sup>3</sup>

### 5.3 Detailed Lab Instructions

Read and follow the directions below carefully, and perform the steps in the order listed.

- Create a source code file from the Lab\_14\_Pseudocode.txt file. Name it: Lab\_14.cpp
- Build (compile and run) your program.
- After you have successfully written this program, if you are taking this course for college credit, follow the instructions from your professor/instructor for submitting it for grading.

## 6 Problems

### 6.1 Problem 14a – Instructions

Flowchart the following pseudocode:

#### Example 1: pseudocode

```
Assign counter a value of zero
While counter is less than 5
    Display "I love cookies!"
    Increment counter
Endwhile
```

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<sup>3</sup>See the file at <[http://cnx.org/content/m20643/latest/Lab\\_14\\_Pseudocode.txt](http://cnx.org/content/m20643/latest/Lab_14_Pseudocode.txt)>

## Solutions to Exercises in this Module

### Solution to Exercise (p. 1)

#### Answers:

1. true
2. y is: 27 and z is: 26
3. x is: 3.44 and y is: 3 Note: truncation of 3.44 to 3 upon demotion to integer data type.
4. Not ok. Error, the item incremented must have Lvalue attributes, usually a variable. Because of the parentheses, it is an expression not a variable.