Intro to Computing Lab 7 October 7, 2009

Objectives: You will gain experience using C++:

- defining functions
- parameter passing using both pass-by-value and pass-by-reference
- function overloading
- stubs and driver functions

Download the following file to your desktop: http://www.cs.uni.edu/~fienup/cs051f09/labs/lab7.zip
Extract this file by right-clicking on lab7.zip icon and selecting Extract All.

Part A: Yesterday in lecture, we developed a function that takes two integer parameters and returns a random integer that is between them. The `randomIntegerFunction` folder you downloaded and extracting in lab7.zip contains a Visual Studio C++ project file: randomIntegerFunction.sln. Double-click on it to start this project in Visual Studio. The body of the `if` statement contains three assignment statements to exchange the value of two integer variable. This is somethings referred to as a "swapping" two values.

a) Your first task is to create a **new project** `SwapFunction` that contains:

- a `swap` function that takes two integer parameters and exchanges their values
- a main function that acts as a driver function for your `swap` function. Recall that a *driver* function is a function that tests a function by simple calling it with appropriate test data and checks to see if the function being tested produces the expected results.

b) Once you have your `swap` function thoroughly tested, copy it to the `randomIntegerFunction` project and integrate it as part of the `randomInteger` function, i.e., call it inside of the `if` statement instead of three assignment statements.

After you have both programs for Part A complete and working correctly, raise your hand and we'll check your work.

Part B: Outside of Visual Studio, copy your folder containing the `SwapFunction` project, and rename the copy of the folder `SwapOverload`.
a) Make several new versions of the `swap` function (i.e., overload it) that takes different types of parameter: two doubles, two floats, and two unsigned ints. Include in the body of each function a "cout" statement to print the type of swap called, e.g.,

```
cout << "swapping doubles " << param1 << " and " << param2 << endl;
```

b) Write a menu-driven driver (main) function to repeatedly call these swaps based on the menu choice.

After you have your program for Part B complete and working correctly, raise your hand and we'll check your work.

Nothing needs to turned in for this lab. Make sure that you log off the computer before you leave.