

Lab Assignment 5 - 02/12/2009

Name: _____

Section: 8:00 11:00 12:30 6:30

Problem 1: Practice with Loops

Below are four code segments, including a variable initialization and a loop. Write the value that the requested variable contains after the loop has completed.

<pre>int n, m; n = 1; for (m = 1; m <= 5; m++) { n = n*m; } What is n? _____</pre>	<pre>double x, y; x = 64.0L; do { y = sqrt(x); } while (y > 10); What is y? _____</pre>
<pre>int a, b; a = 5; while (a < 100) { b = a+2; a = b * a; } What is b? _____</pre>	<pre>int e = 1, f = 1, g; for (g = 0; g < 10; g++) { int temp = f; e = f; f = temp + e; } What is f? _____</pre>

Problem 2: Programming Loops

Download `loops.zip` from the lecture outline. Expand it into your Z: drive and open `loops.c`. There are blanks in the implementations of the functions `squares` and `exponents` where you need to insert a loop structure.

ONLY WRITE CODE WHERE INSTRUCTED BY THE COMMENTS.

- `squares` takes an integer n and outputs all the squares $1^2, 2^2, 3^2, \dots, n^2$. The output code is written, but the loop is missing. Hint: Use a `for` loop and calculate the square of the conditional variable.
- `exponents` takes a decimal b and an integer m and outputs all powers of b from 0 to m : $b^0, b^1, b^2, \dots, b^m$. The output code is written, but the loop is missing. Hint: keep a counter of the current power, and use the `pow` function.

To check your work, type the command `testLoops`. This will run your program with the input `20 2.5`. Show the instructor the output. (Hint: if `testLoops` outputs nothing, then you did it right!)

Bonus: Write the `exponents` function without using the `pow` function. Show the instructor your code if you have done the bonus.