CMPSC 111
Introduction to Computer Science I
Fall 2016

Quiz 2 Study Guide
Delivered: Monday, November 21, 2016
Quiz: Friday, December 2, 2016, 11:00 am

Introduction

This course will have its second quiz on Friday, November 21, 2016 from 11:00 to 11:50 am. The quiz will be "closed notes" and "closed book" and it will cover the following materials. Please review the "Course Schedule" on the Web site for the course to see the content and slides that we have covered to this date. Students may post questions about this material to our Slack team.

- All previous chapters in Lewis & Loftus (e.g., "Data and Expressions")
- Chapter Five in Lewis & Loftus, Sections 5.1–5.6 (i.e., "Conditionals and Loops")
- Chapter Six in Lewis & Loftus, Sections 6.1–6.4 (i.e., "More Conditionals and Loops")
- Chapter Eight in Lewis & Loftus, Sections 8.1–8.4 (i.e., "Arrays")
- Chapter Eleven in Lewis & Loftus, Sections 11.1–11.6 (i.e., "Exceptions")
- Using the basic commands in the Linux operating system; editing in `gvim`, compiling and executing programs in Linux; knowledge of the basic commands for using `git` and Bitbucket.

The quiz will be a mix of questions that have a form such as fill in the blank, short answer, true/false, and completion. The emphasis will be on the following topics:

- Fundamental concepts in computing and the Java language (e.g., definitions and background)
- Practical laboratory techniques (e.g., editing, compiling, and running programs; effectively using files and directories; correctly using Bitbucket through the command-line `git` program)
- Understanding Java programs (e.g., given a short, perhaps even one line, source code segment written in Java, understand what it does and be able to precisely describe its output).
- Composing Java statements and programs, given a description of what should be done. Students should be completely comfortable writing short source code statements that are in nearly-correct form as Java code. While your program may contain small syntactic errors, it is not acceptable to "make up" features of the Java programming language that do not exist in the language itself—so, please do not call a "`solveQuestionThree()`" method!

No partial credit will be given for questions that are true/false, completion, or fill in the blank. Minimal partial credit may be awarded for the questions that require a student to write a short answer. You are strongly encouraged to write short, precise, and correct responses to all of the questions. When you are taking the quiz, you should do so as a "point maximizer" who first responds to the questions that you are most likely to answer correctly for full points. Please keep the time limitation in mind as you are absolutely required to submit the examination at the end of the class period unless you have written permission for extra time from a member of the Learning Commons. Students who do not submit their quiz on time will have their overall point total reduced. Finally, you must complete the entire quiz while adhering to the Honor Code.

Detailed Review of Content

The listing of topics in the following subsections is not exhaustive; rather, it serves to illustrate the types of concepts that students should study as they prepare for the quiz. Please see the course instructor during office hours if you have questions about any of the content listed in this section.

Chapter Five
- The meaning and purpose of boolean expressions in conditional logic
- The different logical operators available for use in boolean expressions
- The overall structure and purpose of `if` statements in Java
- How to use a truth table to understand the meaning of `if` statements
- Best practices for comparing variables of different data types
- The meaning and purpose of looping constructs in the Java language
- The overall structure and purpose of `while` statements in Java
- How `break` and `continue` statements work in looping constructs

Chapter Six
- The meaning and purpose of `switch` statements in the Java language
- The purpose of the `default` case in a `switch` statement
- The overall structure and purpose of `do` statements in the Java language
- The meaning and purpose of `for` loops in the Java programming language
- How to use a `while` loop and an `Iterator` to iterate through an `ArrayList` instance
- Best practices for picking a specific looping construct for a problem requiring iteration

Chapter Eight
- An example of a problem that is best solved through the use of an array
- The types of technical diagrams that are best suited to visualizing an array
- The benefits and drawbacks associated with using arrays in a Java program
- The means by which you define and use arrays in the Java programming language
- The key characteristics of the array data structure (e.g., stores a single type of data)
- The meaning of the word "index" and how it connects to the array data structure
- The meaning and purpose of arrays bounds checking in the Java programming language
- How arrays are used to accept command-line arguments as input to a program

Chapter Eleven
- The purpose of exception handling in the Java programming language
- How Java programs use `try-catch` blocks to support exception handling
- The distinction between caught and uncaught exceptions in Java programs
- The different types of exceptions that can be "thrown" by a Java program
- How stack traces and line numbers support the debugging of Java programs