CSC 260.002 Study Guide for Midterm 2 Tentative Exam Date: Thursday, October 27

This exam covers material from chapters 6-8 (and file I/O from chapter 12) of the textbook, power point notes for these chapters, sample programs posted to the website, and programming assignments 5-7. The exam is a paper-and-pencil exam, not on-line. It is closed book and closed note. Know the material listed below for each chapter by being able to write code that uses the items listed, read code and understand what the code does, and read code to determine if it is syntactically correct. Also be able to answer "concept" questions related to the items listed.

Chapter 6

Know what modularity is and why we want to write our program using methods. Know how to write methods (including return types, return statements, parameters and local variables), and method calls. Know how parameters are passed in Java. See also chapter 7 on passing arrays. Know what the run-time stack is and what activation records are. Know what is meant by scope and the scope of variables which are parameters versus local variables. Know what overloaded methods are and why you might want to use them.

Chapter 7

Know what an array is, how to declare and instantiate one, how to initialize one and what the .length operation does. Know the difference between an array's size and the number of elements stored in an array. Know how to input into an array using a while loop where you have to count the number of elements as they are entered. Know how passing an array as a parameter differs from passing a primitive data type as a parameter. Know the difference between a counting for loop and an iterator for loop (foreach). Know what happens when assigning one array to another (array2 = array1;) versus copying an array. Know how to do common array operations: filling an array with input values, outputting an array, searching an array for items that meet a criteria or searching for a particular item. For the latter, know the sequential search. You will not need to implement the binary search on the exam but understand how it works and why we might prefer it. Know what sorting is. Know how bubble sort and selection sort work (you will not have to implement either sort but you may need to apply one or both to an array to show how the array is sorted). Know what array doubling is and how to do it.

Chapter 8 & 12

Know how to declare and instantiate multi-dimensional arrays. You will not have to implement any code with multi-dimensional arrays otherwise. Know how to input data from disk file into an array (a 1-D array) using Scanner/File classes including the need for adding throws IOException. You will not need to do anything with outputting to a disk file.