

CSC 161 WEEK 8 TEST STUDY GUIDE

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Exceptions: what is an exception? Give examples of two different exceptions that can be thrown by a Java program.

Recursion: What is recursion? What is the base case of a recursive methods? Be able to write recursive solutions to problems such as those we looked at in class.

The `Comparable` interface and the `Comparator` interface: What are they? How are they similar? How are they different?

Searching arrays for an element. Linear search. Binary Search. Be able to write both linear and binary searches. Be able to write both an iterative version of binary search and a recursive version.

Sorting. How to sort an array by repeatedly finding the maximum value in a subrange of the array and moving that maximum value to the top end of the subrange.

Quicksort. Recursive Quicksort: be able to write the Quicksort method given a *partition()* method. Understand how the partition strategy works.

Collections: The `Collection`, `List`, and `Set` interfaces. How the three interfaces are related. The difference between sets and lists.

The two different ways of implementing lists: `ArrayList` and `LinkedList`. Contiguous allocation and linked allocation. Advantages and disadvantages of contiguous allocation and linked allocation.

How to implement an `ArrayList`: Writing the constructors, and writing the add and remove methods. Difference between the size and capacity of an `ArrayList`

In this test, there will not be as much emphasis on JavaFX. Concentrate on problem solving skills: recursion, searching, sorting,