

Homework #7
Testing
Due In Lab, October 22, 2003

Name: _____

Lab Time: _____

Grade: _____/10

Testing

1. What is the definition of *exhaustive testing*? (1 pt.)

2. What are the three components of a test case? (1 pt.)

3. How does one determine if a test case passes or fails? (2 pts.)

Quick Sort

Now you will familiarize yourself with the quick sort program that you will be testing in lab 7. You can find the program in `~csci3308/arch/$ARCH/bin`. There are two programs named `quick-okay` and `quick-bugs`. `Quick-okay` is a correct version for you to understand how the program works. `Quick-bugs` is a buggy version that you will be testing.

Run `quick-okay`. It will not print a prompt. Type in some integers (both positive and negative) separated by whitespace, including spaces, tabs, and new-lines. When you are finished, start a new line and send an end-of-file character by typing Control-d. The program will then print your numbers both unsorted and sorted. Use `quick-okay` until you understand how it works.

Try using `quick-bugs` for a while and you may see some incorrect output. Now think of two test cases for use in testing this program. What is the input?

What is the expected output? Each test case should also have documentation saying what it is testing.

4. Test Case 1 (3 pts.)

5. Test Case 2 (3 pts.)

How Do I Choose Test Cases?

Software engineering has developed several techniques to help software developers select test cases for a software system. We will be learning about these techniques in the coming weeks. A key problem is that even if a program runs correctly for one input, there might still be a bug that makes the program incorrect for another input. How many test cases should you have? What should they be? You want your test cases to be complete in the sense that if the program passes all of your tests it should be bug free. There are several metrics for measuring the completeness of a test set; we will examine a few in lecture. This week you should understand what a test case is, and what it means for a test to pass or fail. Therefore, you can use any criteria (or even no criteria!) to choose your two test cases above.