

Software Testing Notebook

For the next three weeks, you will be working on a small-scale testing effort, known as the testing notebook. We call this project “the testing notebook” because at the end of the three weeks, you will have constructed the parts of a report that a quality assurance team in industry would create to report the results of testing a software system under development.

So, imagine that you are a tester for a small software company. You will be given a program that has been written by someone else, and that has not yet been extensively tested. Your job is to test the program for two purposes:

1. Discover test cases for which the program fails.
2. Give some level of confidence about the situations in which the program works correctly.

You already know what a test case is. You will now learn how to choose test cases, and how to determine how many test cases are “enough.”

During the first week, you will be writing black-box test cases that test the functional capabilities of the program as described by the program’s specification. In functional testing, a test set is “complete,” when all of the functionality of a program is tested.

During the second week, you will be writing white-box test cases based on your knowledge of the program’s source code. This type of testing is also known as structural testing. In structural testing, a test set is “complete,” when your test set executes each line of the source code at least once, as well as covering the true branch and the false branch of each if statement, as well as testing the loops in the program a given number of times.

During the third week, you will be creating a shell script to automate running the tests you developed in the first two weeks. Your script will not only run all test cases, but it will generate a report listing which test cases passed and which test cases failed. You will also start correcting bugs in the program and generating reports to show the program passing more and more test cases, until all tests have been passed.

A worksheet will be released each week, providing more detail about your specific tasks. Each worksheet will be released on Monday of the respective week (perhaps earlier) and will be due on Friday of that week.

The testing notebook is worth 200 points, with the following breakdown:

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| Worksheet 1 | 75 |
| Worksheet 2 | 50 |
| Worksheet 3 | 75 |
| Total | 200 |