SE 576
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Assignment 1
Reflection

Black Box Testing: The basic technique for writing black-box tests is to consider yourself in a position where you don't know the implementation of the program, then how do we write test cases keeping this in mind.

White Box Testing: The basic technique for writing white-box tests is to consider yourself having knowledge of the implementation of the program. Keeping this mind, we have to write test cases for testing internal structures, performance, etc.

Black Box testing over White Box testing:

1) For black-box testing, tests are written to test if the program is fulfilling all the requirements so even without having the knowledge of underlying implementation, I can confidently say if the program is successfully covering all the requirements.
2) No matter how many times the underlying code changes, our program should fulfill the requirements. Black-box tests would not change on source code changes so these tests help us to check the stability of the production release without re-writing our tests.
3) In my black-box tests, I have checked if it works for all the data types so, in case of added functionality, I am able to easily check what data type newer functionality is covering without changing the test code.
4) Further, if I want to automate my tests using tools like Jenkins, black-box tests would be quicker than the white box tests keeping the overall build-time less.
5) The black-box test cases can easily be replicated for testing similar functionalities in other programs, ultimately saves the cost and effort. However, the same can not be said for white-box tests.

White Box testing over Black Box testing:

1) Black Box tests don't cover the cross-cutting concerns which white box testing covers in either the path coverage or branch coverage. In this HW, white-box tests are able to test scenarios of non-sorted arrays and null arrays.
2) From the developers' perspective, maintaining the code quality is standard. White box tests check the quality of code and help to improve our code. However, black-box tests do not help developers in this prospect.
3) White Box tests become more important as our system becomes more complex. With a large complex system, testing every type of input stream would not depict much in terms of stability whereas white-box tests would alleviate this concern with its various coverages.
4) For this Assignment, while testing my program using white-box tests using unsorted integer array, I was able to discover IndexOufOfBoundException, and fixed the problem easily. However, the total time for finding and fixing bugs in black-box testing is exponentially more than that of a white box testing.
5) For this Assignment, I have to write a minimal number of tests to achieve 100% code coverage, 100% branch coverage, and 100% path coverage whereas black-box testing took more tests to achieve the same.