

COMP 10066

Week 2 Lecture

Exploratory and Black Box Testing

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Recorded by Karen Laurin

Exploratory Testing

- Exploratory testing is often thought of as a black box testing technique
- Instead, those who have studied it consider it a test approach that can be applied to any test technique, at any stage in the development process.
- The key is not the test technique nor the item being tested or reviewed; the key is the active engagement of the tester, and the tester's responsibility for managing his or her time.

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Black Box Testing

- Testing that is done where access to the program source code is not available and/or needed.

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Black Box Testing

- The test technique is executed by applying an input that will produce a known response that can be evaluated for correctness.
 - Correctness can be evaluated against either a known (expected) response/result that has been specified in the requirements
 - OR Confirmed against a known standard response/result.
 - Independent/External validation

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Test to Pass

- Normal data that a user would enter into an application.
- User is using the program as expected
 - Not in a malicious manner or attempt to break it
- Normal Data definition
 - For domain specific applications, the user has knowledge or has been provided with this knowledge.
 - Example: Postal code in Canada vs Zip code in U.S.
 - Application may guide user on normal data
- It is expected that the program will accept AND produce the correct output based on Test to Pass data.

Test to Fail

- Data sets that are not acceptable.
- User is not using the program as expected
- It is expected that the program will NOT accept or use the data and that it will not impact prior calculated results or impact the program in other ways.
- An error message or correct guidance is expected

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Test Case Outcome / Result

- A test case has a successful or not successful outcome
- Successful Test Case
 - Expected Result matches the Actual Result
- Not Successful Test Case
 - Expected Result does not match the Actual Result
 - Need to investigate and confirm issue
 - Leads to more test cases
 - Once issue is confirmed, then a bug would need to be raised
- Both Test to Pass and Test to Fail will have an outcome (Successful or Not Successful)

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Test Cases

- Each Test Data set (input) will form the basis of a single Test Case.
- Things to think about when creating test cases
 - How many Test Cases do we need?
 - When do we stop testing?
 - What do we emphasize?
 - Test to Pass
 - Test to Fail

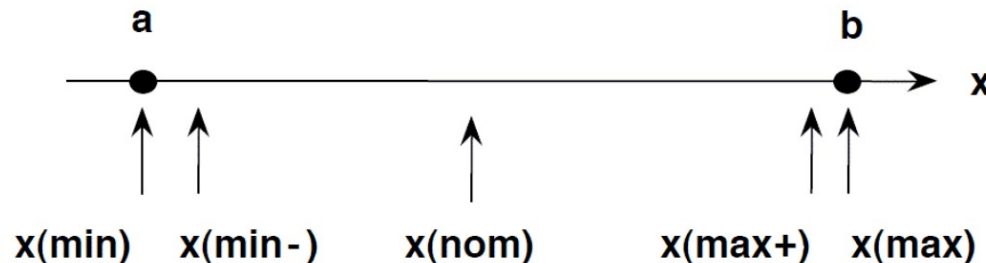
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Boundary Testing

- It is not feasible to test every single input value
- Bugs are more likely to occur at the bounds of a input value
- Example: More likely to have a bug at the bounds of an array
 - try to access array length instead of array length-1 to get the last element
- Therefore, when selecting values to test, it is important to test at and around the bounds



Boundary Analysis and Equivalence Partitioning

- Given a single input, which has a valid range of 1 to 10
- Determine the best values to use in testing, to ensure good data coverage
- Don't forget to think of test to pass and test to fail test cases

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Boundary Analysis and Equivalence Partitioning

- Given a single input, which has a valid range of 1 to 10
- Select test data in each partition, at the boundaries

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