

# Notes on Chapter 6 - Testing and Debugging

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A curated list of important points for my reference.

## 1. **Black Box Testing** Intrigano

- Black box is referred to a box covered in Black such that we can't see inside of it.
- Here the test suite is designed without actually looking at the code.
  - (a) Can be done by someone other than implementer
  - (b) Will avoid inherent biases of implementer, exposing potential bugs more easily
  - (c) Testing designed without knowledge of implementation, thus can be reused even if implementation changed.

## 2. **Glass Box Testing** Intrigano

- Complementary to black box testing.
- Since the name itself implies we can actually see inside the box or the code.
  - (a) Use code directly to guide design of test cases
  - (b) Glass box test suite is **path-complete** if every potential path through the code is tested atleast once.
    - i. Not always possible if loop can be exercised arbitrary times, or recursion can be arbitrarily deep.
  - (c) even a path complete test suite can have a bug, depending on choice of samples.
- Rules of thumb for glass box testing
  - (a) exercise both branches of all if statements
  - (b) ensure each except clause is executed
  - (c) for each for loop, have tests where

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- i. loop is not entered
  - ii. body of loop executed exactly once
  - iii. body of loop executed more than once
- (d) For each While loop
  - i. same cases as for loops
  - ii. cases that catch all ways to exit loop
- (e) For recursive functions, test with no recursive calls, once recursive call, and more than one recursive call.