

### Disadvantages of White Box Testing

1. **Need for Programming Knowledge and Source Code Access:** Testers must possess programming skills and have access to the source code to conduct effective testing.
2. **Overemphasis on Internal Mechanisms:** Testers might concentrate too heavily on the software's internal workings, potentially overlooking external issues.
3. **Testing Bias:** Familiarity with the internal code may lead testers to have a biased perspective on the software's performance and functionality.
4. **Test Case Redundancy:** When code is redesigned or rewritten, it necessitates the creation of new test cases, leading to additional overhead.
5. **Dependency on Tester Expertise:** Effective white box testing requires testers to have extensive knowledge of the code and programming languages, unlike black box testing.
6. **Inability to Identify Missing Functionalities:** This method cannot detect functionalities that are missing, as it only tests the existing code.
7. **Higher Risk of Production Errors:** There is an increased likelihood of errors making it into production, as the focus may be too narrow on the code rather than the overall system.

### Advantages of White Box Testing

1. **Thorough Testing:** White box testing provides in-depth coverage since it tests the entire codebase and its underlying structures.
2. **Code Optimization:** This approach helps optimize the code by identifying and eliminating errors and redundant lines.
3. **Early Defect Detection:** Testing can begin at an earlier phase of development since it does not rely on an external interface, unlike black box testing.
4. **Integration with SDLC:** White box testing can be seamlessly integrated into the Software Development Life Cycle (SDLC), facilitating early and ongoing quality assurance.
5. **Detection of Complex Defects:** Testers can identify intricate defects that might be missed by other testing methods.
6. **Comprehensive Test Cases:** It allows for the creation of more thorough and effective test cases that encompass all possible code paths.
7. **Adherence to Coding Standards:** Testers can ensure that the code aligns with coding standards and is optimized for optimal performance.