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MCA

SOFTWARE TESTING

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SOFTWARE TESTING

Unit -2

Different approaches to Testing

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White Box Testing

- White box testing, also known as clear box testing, glass box testing, or structural testing, is a software testing method where the internal structure, design, and implementation details of the software being tested are known to the tester. In white box testing, the tester has access to the source code of the application, and the testing is done at the code level.
- Key characteristics and aspects of white box testing include:

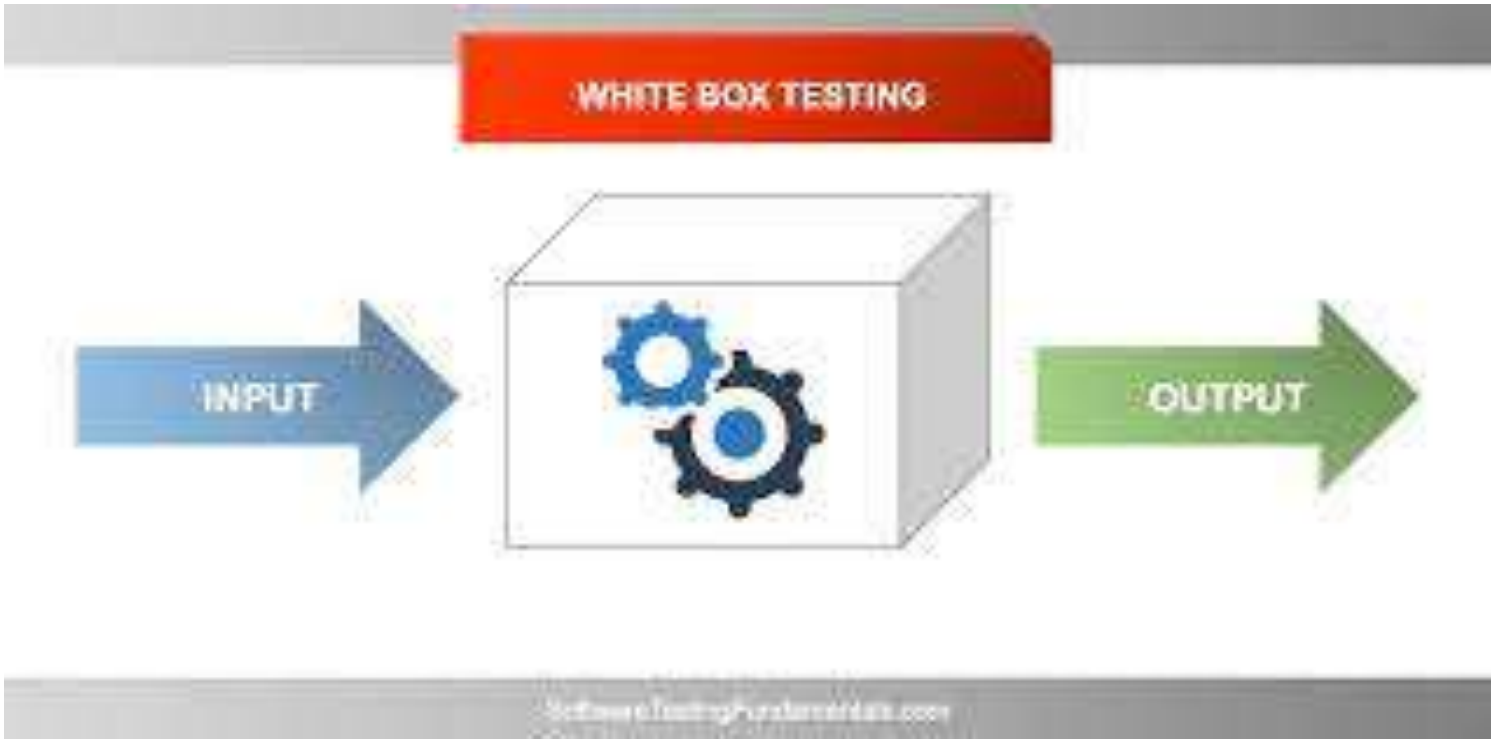
1. **Code Coverage:** White box testing aims to ensure that every line of code is executed at least once during the testing process. This helps in identifying any dead code or code that is not exercised by the test cases.

2. Test Case Design: Test cases in white box testing are designed based on the internal logic of the code. Testers use techniques such as control flow testing, data flow testing, and path testing to design test cases that cover different paths and conditions in the code.

3. Focus on Internal Logic: The testing process involves evaluating the internal logic, data structures, and algorithms used in the software. This helps in uncovering errors or vulnerabilities that may not be apparent from a user's perspective.

4. Unit Testing: White box testing is often associated with unit testing, where individual units or components of the software are tested in isolation. This ensures that each part of the software functions as intended.

5. Automation: White box testing is well-suited for automation, as it involves the execution of a large number of test cases at the code level. Automated testing tools can be used to facilitate this process.


WHITE BOX TESTING
INPUT
OUTPUT

Advantages

1.Thorough Test Coverage:

- **Advantage:** White box testing allows for thorough coverage of the internal logic, code paths, and branches of the software.

2. Early Detection of Defects:

- **Advantage:** White box testing can help in the early detection of defects during the development phase.

3. Optimized Code Structure:

- **Advantage:** White box testing encourages developers to write optimized and efficient code.

4. Verification of Security Measures:

- **Advantage:** White box testing is effective for verifying security measures and ensuring that sensitive data is appropriately handled.

Disadvantages

1.Limited External Perspective:

- **Disadvantage:** White box testing may have a limited external perspective, focusing primarily on the internal logic of the application.

2. Dependency on Implementation Knowledge:

- **Disadvantage:** White box testing relies on testers' knowledge of the internal implementation details.

3. Time-Consuming:

- **Disadvantage:** White box testing can be time-consuming, especially for large and complex systems.

4. Not Always Feasible for Black-Box Components:

- **Disadvantage:** White box testing is not always feasible for components where the source code is not available (e.g., third-party libraries).

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THANK YOU