Black Box Testing vs. White Box Testing

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1. Black Box Testing

- **Definition**: Testing without knowing the internal structure of the software.
- **Goal**: Check if the software meets user requirements and behaves as expected.
- **Focus**: On inputs and expected outputs (not on how the software processes the inputs).
- **Examples**:
  - **Functional Testing**: Checking if features work as described.
  - **User Interface Testing**: Making sure buttons, links, etc., work for the user.
- **Who Uses It**: Testers who may not need to know how the code is written.
- **Advantages**:
  - No need to understand the code.
  - Simulates real user experience.

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2. White Box Testing

- **Definition**: Testing with knowledge of the internal structure and code.
- **Goal**: Test the internal workings of the software, like how code executes.
- **Focus**: On the code, paths, logic, and data flow.
- **Examples**:
  - **Unit Testing**: Testing small pieces of code, like functions or classes.
  - **Code Coverage Testing**: Ensuring all lines and branches of code are tested.
- **Who Uses It**: Testers or developers who understand the code and logic.
- **Advantages**:
  - Finds hidden errors in the code logic.
  - Improves code quality and efficiency.

Key Differences

Aspect	**Black Box Testing**	**White Box Testing**
Knowledge Needed	No knowledge of code	Requires knowledge of code
Focus	Inputs and outputs	Code structure, paths, and logic

Aspect	Black Box Testing	White Box Testing
Who Does It	Testers or end-users	Developers or testers with coding knowledge
Examples	Functional Testing, UI Testing	Unit Testing, Code Coverage Testing

Summary:

- **Black Box Testing** is like testing from the outside, ensuring features work for users.
- **White Box Testing** is like testing from the inside, ensuring code logic and paths are correct.

These two methods together give a complete view of software quality and reliability.