DEFINITION:

BLACK BOX TESTING :

Black Box Testing is a software testing method in which the internal structure/design/implementation of the item being tested is not known to the tester. Only the external design and structure are tested.

WHITE BOX TESTING :

White Box Testing is a software testing method in which the internal structure/design/implementation of the item being tested is known to the tester. Implementation and impact of the code are tested.

Differences between Black Box Testing & White Box Testing:

BLACK BOX TESTING	WHITE BOX TESTING
• It is a way of software testing in which the internal structure or the program or the code is hidden and nothing is known about it.	• It is a way of testing the software in which the tester has knowledge about the internal structure or the code or the program of the software.
• Implementation of code is not needed for black box testing.	• Code implementation is necessary for white box testing.
• It is mostly done by software testers.	• It is mostly done by software developers.
• No knowledge of implementation is needed.	• Knowledge of implementation is required.
• It can be referred to as outer or external software testing.	• It is the inner or the internal software testing.
• It is a functional test of the software.	• It is a structural test of the software.

• This testing can be initiated based on the requirement specifications document.	• This type of testing of software is started after a detail design document.
• No knowledge of programming is required	• It is mandatory to have knowledge of programming.
• It is the behavior testing of the software.	• It is the logic testing of the software.
• It is applicable to the higher levels of testing of software.	• It is generally applicable to the lower levels of software testing.
• It is also called closed testing.	• It is also called as clear box testing.
• It is least time consuming.	• It is most time consuming.
• It is not suitable or preferred for algorithm testing.	• It is suitable for algorithm testing.
• Can be done by trial and error ways and methods.	• Data domains along with inner or internal boundaries can be better tested.
Black-box test design techniques- • Decision table testing • All-pairs testing • Equivalence partitioning • Error guessing	**White-box test design techniques-** • Control flow testing • Data flow testing • Branch testing
• **Types of Black Box Testing:** • Functional Testing • Non-functional testing • Regression Testing	• **Types of White Box Testing:** • Path Testing • Loop Testing • Condition testing
• It is less exhaustive as compared to white box testing.	• It is comparatively more exhaustive than black box testing.
• **Example:** Search something on google by using keywords	• **Example:** By input to check and verify loops

BLACK BOX TESTING:

Advantages	Disadvantages
Well suited and efficient for large code segments.	Limited coverage, since only a selected number of test scenarios is actually performed.
Code access is not required.	Inefficient testing, due to the fact that the tester only has limited knowledge about an application.
Clearly separates user's perspective from the developer's perspective through visibly defined roles.	Blind coverage, since the tester cannot target specific code segments or error prone areas.
Large numbers of moderately skilled testers can test the application with no knowledge of implementation, programming language, or operating systems.	The test cases are difficult to design.

WHITE BOX TESTING:

Advantages	Disadvantages
As the tester has knowledge of the source code, it becomes very easy to find out which type of data can help in testing the application effectively.	Due to the fact that a skilled tester is needed to perform white-box testing, the costs are increased
It helps in optimizing the code.	. Sometimes it is impossible to look into every nook and corner to find out hidden errors that may create problems, as many paths will go untested.
Extra lines of code can be removed which can bring in hidden defects.	It is difficult to maintain white-box testing, as it requires specialized tools like code analyzers and debugging tools..
Due to the tester's knowledge about the code, maximum coverage is attained during test scenario writing.	Due to the tester's knowledge about the code, maximum coverage is attained during test scenario writing.