Standard Glossary of Terms Used in Software Testing

Version 3.01

Terms Used in the
Advanced Level - Test Analyst
Syllabus

International Software Testing Qualifications Board

ISTQB Glossary Report - Advanced Test Analyst

acceptance criteria

Ref: IEEE 610

The exit criteria that a component or system must satisfy in order to be accepted by a user, customer, or other authorized entity.

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acceptance testing

Ref: After IEEE 610   **See Also:** user acceptance testing

Formal testing with respect to user needs, requirements, and business processes conducted to determine whether or not a system satisfies the acceptance criteria and to enable the user, customers or other authorized entity to determine whether or not to accept the system.

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accessibility testing

Ref: Gerrard

Testing to determine the ease by which users with disabilities can use a component or system.

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accuracy

Ref: ISO 9126   **See Also:** functionality

The capability of the software product to provide the right or agreed results or effects with the needed degree of precision.

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accuracy testing

See Also: accuracy

Testing to determine the accuracy of a software product.

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actor

User or any other person or system that interacts with the system under test in a specific way.

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actual result

Synonyms: actual outcome

The behavior produced/observed when a component or system is tested.

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adaptability

Ref: ISO 9126   **See Also:** portability

The capability of the software product to be adapted for different specified environments without applying actions or means other than those provided for this purpose for the software considered.

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analyzability

Ref: ISO 9126   **See Also:** maintainability

The capability of the software product to be diagnosed for deficiencies or causes of failures in the software, or for the parts to be modified to be identified.

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anomaly

Ref: IEEE 1044   **See Also:** defect, error, fault, failure, incident, problem

Any condition that deviates from expectation based on requirements specifications, design documents, user documents, standards, etc., or from someone's perception or experience. Anomalies may be found during, but not limited to, reviewing, testing, analysis, compilation, or use of software products or applicable documentation.

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attractiveness

Ref: ISO 9126   **See Also:** usability

The capability of the software product to be attractive to the user.

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audit

Ref: IEEE 1028

An independent evaluation of software products or processes to ascertain compliance to standards, guidelines, specifications, and/or procedures based on objective criteria, including documents that specify: (1) the form or content of the products to be produced, (2) the process by which the products shall be produced, (3) how compliance to standards or guidelines shall be measured.

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availability

Ref: IEEE 610

The degree to which a component or system is operational and accessible when required for use. Often expressed as a percentage.

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baseline

Ref: After IEEE 610

A specification or software product that has been formally reviewed or agreed upon, that thereafter serves as the basis for further development, and that can be changed only through a formal change control process.

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black-box test design technique

Synonyms: black-box technique, specification-based technique, specification-based test design technique

Procedure to derive and/or select test cases based on an analysis of the specification, either functional or non-functional, of a component or system without reference to its internal structure.

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black-box testing

Synonyms: specification-based testing

Testing, either functional or non-functional, without reference to the internal structure of the

component or system.

boundary value

An input value or output value which is on the edge of an equivalence partition or at the smallest incremental distance on either side of an edge, for example the minimum or maximum value of a range.

boundary value analysis

See Also: boundary value

A black-box test design technique in which test cases are designed based on boundary values.

branch coverage

The percentage of branches that have been exercised by a test suite. 100% branch coverage implies both 100% decision coverage and 100% statement coverage.

build verification test (BVT)

See Also: regression testing, smoke test

A set of automated tests which validates the integrity of each new build and verifies its key/core functionality, stability and testability. It is an industry practice when a high frequency of build releases occurs (e.g., Agile projects) and it is run on every new build before the build is released for further testing.

capture/playback

A test automation approach, where inputs to the test object are recorded during manual testing in order to generate automated test scripts that could be executed later (i.e. replayed).

capture/playback tool

Synonyms: capture/replay tool, record/playback tool

A type of test execution tool where inputs are recorded during manual testing in order to generate automated test scripts that can be executed later (i.e. replayed). These tools are often used to support automated regression testing.

cause-effect graph

A graphical representation of inputs and/or stimuli (causes) with their associated outputs (effects), which can be used to design test cases.

cause-effect graphing

Ref: BS 7925/2

Synonyms: cause-effect analysis

A black-box test design technique in which test cases are designed from cause-effect graphs.

change management

See Also: configuration management

(1) A structured approach to transitioning individuals and organizations from a current state to a desired future state. (2) Controlled way to effect a change, or a proposed change, to a product or service.

changeability

Ref: ISO 9126   **See Also:** maintainability

The capability of the software product to enable specified modifications to be implemented.

checklist-based testing

An experience-based test design technique whereby the experienced tester uses a high-level list of items to be noted, checked, or remembered, or a set of rules or criteria against which a product has to be verified.

classification tree

See Also: classification tree method

A tree showing equivalence partitions hierarchically ordered, which is used to design test cases in the classification tree method.

classification tree method

Ref: Grochtmann   **See Also:** combinatorial testing

A black-box test design technique in which test cases, described by means of a classification tree, are designed to execute combinations of representatives of input and/or output domains.

co-existence

Ref: ISO 9126   **See Also:** portability

The capability of the software product to co-exist with other independent software in a common environment sharing common resources.

code

Ref: IEEE 610

Computer instructions and data definitions expressed in a programming language or in a form output by an assembler, compiler or other translator.

combinatorial testing

See Also: classification tree method, n-wise testing, pairwise testing, orthogonal array testing

A black-box test design technique in which test cases are designed to execute specific combinations of values of several parameters.

commercial off-the-shelf (COTS)

Synonyms: off-the-shelf software

A software product that is developed for the general market, i.e. for a large number of customers, and that is delivered to many customers in identical format.

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complexity

See Also: cyclomatic complexity

The degree to which a component or system has a design and/or internal structure that is difficult to understand, maintain and verify.

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compliance

Ref: ISO 9126

The capability of the software product to adhere to standards, conventions or regulations in laws and similar prescriptions.

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component

Synonyms: module, unit

A minimal software item that can be tested in isolation.

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component integration testing

Synonyms: link testing

Testing performed to expose defects in the interfaces and interaction between integrated components.

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component testing

Ref: After IEEE 610

Synonyms: module testing, program testing, unit testing

The testing of individual software components.

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compound condition

Synonyms: multiple condition

Two or more single conditions joined by means of a logical operator (AND, OR or XOR), e.g., A>B AND C>1000.

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condition

See Also: condition testing

Synonyms: branch condition

A logical expression that can be evaluated as True or False, e.g., A>B.

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configuration

The composition of a component or system as defined by the number, nature, and

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interconnections of its constituent parts.

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configuration control

Ref: IEEE 610

Synonyms: change control, version control

An element of configuration management, consisting of the evaluation, coordination, approval or disapproval, and implementation of changes to configuration items after formal establishment of their configuration identification.

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configuration management

Ref: IEEE 610

A discipline applying technical and administrative direction and surveillance to identify and document the functional and physical characteristics of a configuration item, control changes to those characteristics, record and report change processing and implementation status, and verify compliance with specified requirements.

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cost of quality

The total costs incurred on quality activities and issues and often split into prevention costs, appraisal costs, internal failure costs and external failure costs.

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coverage

Synonyms: test coverage

The degree, expressed as a percentage, to which a specified coverage item has been exercised by a test suite.

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decision

A program point at which the control flow has two or more alternative routes. A node with two or more links to separate branches.

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decision table

Synonyms: cause-effect decision table

A table showing combinations of inputs and/or stimuli (causes) with their associated outputs and/or actions (effects), which can be used to design test cases.

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decision table testing

Ref: Egler63   **See Also:** decision table

A black-box test design technique in which test cases are designed to execute the combinations of inputs and/or stimuli (causes) shown in a decision table.

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defect

Synonyms: bug, fault, problem

A flaw in a component or system that can cause the component or system to fail to perform its

required function, e.g., an incorrect statement or data definition. A defect, if encountered during execution, may cause a failure of the component or system.

defect management

Ref: After IEEE 1044

Synonyms: problem management

The process of recognizing, investigating, taking action and disposing of defects. It involves recording defects, classifying them and identifying the impact.

defect management tool

See Also: incident management tool

Synonyms: bug tracking tool, defect tracking tool

A tool that facilitates the recording and status tracking of defects and changes. They often have workflow-oriented facilities to track and control the allocation, correction and re-testing of defects and provide reporting facilities.

defect report

Ref: After IEEE 829

Synonyms: bug report, problem report

A document reporting on any flaw in a component or system that can cause the component or system to fail to perform its required function.

defect taxonomy

Synonyms: bug taxonomy

A system of (hierarchical) categories designed to be a useful aid for reproducibly classifying defects.

defect type

Synonyms: defect category

An element in a taxonomy of defects. Defect taxonomies can be identified with respect to a variety of considerations, including, but not limited to: Phase or development activity in which the defect is created, e.g., a specification error or a coding error, Characterization of defects, e.g., an "off-by-one" defect, Incorrectness, e.g., an incorrect relational operator, a programming language syntax error, or an invalid assumption, Performance issues, e.g., excessive execution time, insufficient availability.

defect-based test design technique

See Also: defect taxonomy

Synonyms: defect-based technique

A procedure to derive and/or select test cases targeted at one or more defect types, with tests being developed from what is known about the specific defect type.

deliverable

Any (work) product that must be delivered to someone other than the (work) product's author.

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domain

The set from which valid input and/or output values can be selected.

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domain analysis

See Also: boundary value analysis, equivalence partitioning

A black-box test design technique that is used to identify efficient and effective test cases when multiple variables can or should be tested together. It builds on and generalizes equivalence partitioning and boundary values analysis.

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driver

Ref: After TMap

Synonyms: test driver

A software component or test tool that replaces a component that takes care of the control and/or the calling of a component or system.

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dynamic testing

Testing that involves the execution of the software of a component or system.

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effectiveness

See Also: efficiency

The capability of producing an intended result.

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efficiency

Ref: ISO 9126

(1) The capability of the software product to provide appropriate performance, relative to the amount of resources used, under stated conditions. (2) The capability of a process to produce the intended outcome, relative to the amount of resources used.

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embedded iterative model

A development lifecycle sub-model that applies an iterative approach to detailed design, coding and testing within an overall sequential model. In this case, the high-level design documents are prepared and approved for the entire project but the actual detailed design, code development and testing are conducted in iterations.

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entry criteria

Ref: Gilb and Graham

The set of generic and specific conditions for permitting a process to go forward with a defined task, e.g., test phase. The purpose of entry criteria is to prevent a task from starting which would

entail more (wasted) effort compared to the effort needed to remove the failed entry criteria.

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equivalence partition

Synonyms: equivalence class

A portion of an input or output domain for which the behavior of a component or system is assumed to be the same, based on the specification.

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equivalence partitioning

Synonyms: partition testing

A black-box test design technique in which test cases are designed to execute representatives from equivalence partitions. In principle, test cases are designed to cover each partition at least once.

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error

Ref: After IEEE 610

Synonyms: mistake

A human action that produces an incorrect result.

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error guessing

A test design technique where the experience of the tester is used to anticipate what defects might be present in the component or system under test as a result of errors made, and to design tests specifically to expose them.

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error tolerance

Ref: After IEEE 610

The ability of a system or component to continue normal operation despite the presence of erroneous inputs.

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exit criteria

Ref: After Gilb and Graham

Synonyms: completion criteria, test completion criteria

The set of generic and specific conditions, agreed upon with the stakeholders for permitting a process to be officially completed. The purpose of exit criteria is to prevent a task from being considered completed when there are still outstanding parts of the task which have not been finished. Exit criteria are used to report against and to plan when to stop testing.

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expected result

Synonyms: expected outcome, predicted outcome

The behavior predicted by the specification, or another source, of the component or system under specified conditions.

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experience-based test design technique

Synonyms: experience-based technique

Procedure to derive and/or select test cases based on the tester's experience, knowledge and intuition.

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experience-based testing

Testing based on the tester's experience, knowledge and intuition.

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exploratory testing

Ref: After Bach

An informal test design technique where the tester actively controls the design of the tests as those tests are performed and uses information gained while testing to design new and better tests.

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fail

Synonyms: test fail

A test is deemed to fail if its actual result does not match its expected result.

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failure

Ref: After Fenton

Deviation of the component or system from its expected delivery, service or result.

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failure mode

Ref: IEEE 610

The physical or functional manifestation of a failure. For example, a system in failure mode may be characterized by slow operation, incorrect outputs, or complete termination of execution.

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false-negative result

Synonyms: false-pass result

A test result which fails to identify the presence of a defect that is actually present in the test object.

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false-positive result

Synonyms: false-fail result

A test result in which a defect is reported although no such defect actually exists in the test object.

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fault attack

See Also: negative testing

Synonyms: attack

Directed and focused attempt to evaluate the quality, especially reliability, of a test object by

attempting to force specific failures to occur.

feature
Ref: After IEEE 1008

Synonyms: software feature

An attribute of a component or system specified or implied by requirements documentation (for example reliability, usability or design constraints).

formal review

A review characterized by documented procedures and requirements, e.g., inspection.

functional testing
See Also: black-box testing

Testing based on an analysis of the specification of the functionality of a component or system.

functionality
Ref: ISO 9126

The capability of the software product to provide functions which meet stated and implied needs when the software is used under specified conditions.

heuristic evaluation

A usability review technique that targets usability problems in the user interface or user interface design. With this technique, the reviewers examine the interface and judge its compliance with recognized usability principles (the "heuristics").

high-level test case
See Also: low-level test case

Synonyms: abstract test case, logical test case

A test case without concrete (implementation level) values for input data and expected results. Logical operators are used: instances of the actual values are not yet defined and/or available.

incident
Ref: After IEEE 1008

Synonyms: deviation, software test incident, test incident

Any event occurring that requires investigation.

incremental development model

A development lifecycle where a project is broken into a series of increments, each of which delivers a portion of the functionality in the overall project requirements. The requirements are prioritized and delivered in priority order in the appropriate increment. In some (but not all) versions of this lifecycle model, each subproject follows a mini V-model with its own design, coding and testing phases.

indicator

Ref: ISO 14598

A measure that can be used to estimate or predict another measure.

input

A variable (whether stored within a component or outside) that is read by a component.

insourced testing

Testing performed by people who are co-located with the project team but are not fellow employees.

inspection

Ref: After IEEE 610, IEEE 1028   **See Also:** peer review

A type of peer review that relies on visual examination of documents to detect defects, e.g., violations of development standards and non-conformance to higher level documentation. The most formal review technique and therefore always based on a documented procedure.

installability

Ref: ISO 9126 .   **See Also:** portability

The capability of the software product to be installed in a specified environment.

integration

The process of combining components or systems into larger assemblies.

integration testing

See Also: component integration testing, system integration testing

Testing performed to expose defects in the interfaces and in the interactions between integrated components or systems.

interface testing

An integration test type that is concerned with testing the interfaces between components or systems.

interoperability

Ref: After ISO 9126   **See Also:** functionality

The capability of the software product to interact with one or more specified components or systems.

interoperability testing

See Also: functionality testing

Synonyms: compatibility testing

Testing to determine the interoperability of a software product.

keyword-driven testing

See Also: data-driven testing

Synonyms: action word-driven testing

A scripting technique that uses data files to contain not only test data and expected results, but also keywords related to the application being tested. The keywords are interpreted by special supporting scripts that are called by the control script for the test.

learnability

Ref: ISO 9126   **See Also:** usability

The capability of the software product to enable the user to learn its application.

level test plan

See Also: test plan

A test plan that typically addresses one test level.

lifecycle model

Ref: CMMI   **See Also:** software lifecycle

A partitioning of the life of a product or project into phases.

low-level test case

See Also: high-level test case

Synonyms: concrete test case

A test case with concrete (implementation level) values for input data and expected results. Logical operators from high-level test cases are replaced by actual values that correspond to the objectives of the logical operators.

maintainability

Ref: ISO 9126

The ease with which a software product can be modified to correct defects, modified to meet new requirements, modified to make future maintenance easier, or adapted to a changed environment.

maintenance

Ref: IEEE 1219

Modification of a software product after delivery to correct defects, to improve performance or other attributes, or to adapt the product to a modified environment.

maintenance testing

Testing the changes to an operational system or the impact of a changed environment to an

operational system.

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maturity

Ref: ISO 9126   **See Also:** Capability Maturity Model Integration, Test Maturity Model integration, reliability

(1) The capability of an organization with respect to the effectiveness and efficiency of its processes and work practices. (2) The capability of the software product to avoid failure as a result of defects in the software.

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measure

Ref: ISO 14598

The number or category assigned to an attribute of an entity by making a measurement.

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measurement

Ref: ISO 14598

The process of assigning a number or category to an entity to describe an attribute of that entity.

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metric

Ref: ISO 14598

A measurement scale and the method used for measurement.

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milestone

A point in time in a project at which defined (intermediate) deliverables and results should be ready.

N-switch coverage

Ref: Chow

Synonyms: Chow's coverage metrics

The percentage of sequences of N+1 transitions that have been exercised by a test suite.

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non-functional requirement

A requirement that does not relate to functionality, but to attributes such as reliability, efficiency, usability, maintainability and portability.

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non-functional testing

Testing the attributes of a component or system that do not relate to functionality, e.g., reliability, efficiency, usability, maintainability and portability.

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operability

Ref: ISO 9126   **See Also:** usability

The capability of the software product to enable the user to operate and control it.

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orthogonal array

A 2-dimensional array constructed with special mathematical properties, such that choosing any two columns in the array provides every pair combination of each number in the array.

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orthogonal array testing

See Also: combinatorial testing, n-wise testing, pairwise testing

A systematic way of testing all-pair combinations of variables using orthogonal arrays. It significantly reduces the number of all combinations of variables to test all pair combinations.

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output

A variable (whether stored within a component or outside) that is written by a component.

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pairwise testing

See Also: combinatorial testing, n-wise testing, orthogonal array testing

A black-box test design technique in which test cases are designed to execute all possible discrete combinations of each pair of input parameters.

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pass

Synonyms: test pass

A test is deemed to pass if its actual result matches its expected result.

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pass/fail criteria

Ref: IEEE 829

Decision rules used to determine whether a test item (function) or feature has passed or failed a test.

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path

Synonyms: control flow path

A sequence of events, e.g., executable statements, of a component or system from an entry point to an exit point.

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performance

Ref: After IEEE 610   **See Also:** efficiency

Synonyms: time behavior

The degree to which a system or component accomplishes its designated functions within given constraints regarding processing time and throughput rate.

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performance testing

See Also: efficiency testing

Testing to determine the performance of a software product.

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phase containment

The percentage of defects that are removed in the same phase of the software lifecycle in which they were introduced.

portability

Ref: ISO 9126

The ease with which the software product can be transferred from one hardware or software environment to another.

portability testing

Synonyms: configuration testing

Testing to determine the portability of a software product.

precondition

Environmental and state conditions that must be fulfilled before the component or system can be executed with a particular test or test procedure.

priority

The level of (business) importance assigned to an item, e.g., defect.

PRISMA

A systematic approach to risk-based testing that employs product risk identification and analysis to create a product risk matrix based on likelihood and impact. Term is derived from Product RISk MAnagement.

process

Ref: ISO 12207

A set of interrelated activities, which transform inputs into outputs.

process improvement

Ref: CMMI

A program of activities designed to improve the performance and maturity of the organization's processes, and the result of such a program.

product risk

See Also: risk

A risk directly related to the test object.

project

Ref: ISO 9000

A project is a unique set of coordinated and controlled activities with start and finish dates undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources.

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project risk

See Also: risk

A risk related to management and control of the (test) project, e.g., lack of staffing, strict deadlines, changing requirements, etc.

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quality

Ref: After IEEE 610

The degree to which a component, system or process meets specified requirements and/or user/customer needs and expectations.

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quality attribute

Ref: IEEE 610

Synonyms: quality characteristic, software product characteristic, software quality characteristic

A feature or characteristic that affects an item's quality.

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random testing

A black-box test design technique where test cases are selected, possibly using a pseudo-random generation algorithm, to match an operational profile. This technique can be used for testing non-functional attributes such as reliability and performance.

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recoverability

Ref: ISO 9126   **See Also:** reliability

The capability of the software product to re-establish a specified level of performance and recover the data directly affected in case of failure.

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regression testing

Testing of a previously tested program following modification to ensure that defects have not been introduced or uncovered in unchanged areas of the software, as a result of the changes made. It is performed when the software or its environment is changed.

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reliability

Ref: ISO 9126

The ability of the software product to perform its required functions under stated conditions for a specified period of time, or for a specified number of operations.

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replaceability

Ref: ISO 9126   **See Also:** portability

The capability of the software product to be used in place of another specified software product for the same purpose in the same environment.

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requirement

Ref: After IEEE 610

A condition or capability needed by a user to solve a problem or achieve an objective that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document.

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requirements management tool

A tool that supports the recording of requirements, requirements attributes (e.g., priority, knowledge responsible) and annotation, and facilitates traceability through layers of requirements and requirements change management. Some requirements management tools also provide facilities for static analysis, such as consistency checking and violations to pre-defined requirements rules.

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requirements-based testing

An approach to testing in which test cases are designed based on test objectives and test conditions derived from requirements, e.g., tests that exercise specific functions or probe non-functional attributes such as reliability or usability.

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result

See Also: actual result, expected result

Synonyms: outcome, test outcome, test result

The consequence/outcome of the execution of a test. It includes outputs to screens, changes to data, reports, and communication messages sent out.

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retrospective meeting

Synonyms: post-project meeting

A meeting at the end of a project during which the project team members evaluate the project and learn lessons that can be applied to the next project.

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review

Ref: After IEEE 1028

An evaluation of a product or project status to ascertain discrepancies from planned results and to recommend improvements. Examples include management review, informal review, technical review, inspection, and walkthrough.

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risk

A factor that could result in future negative consequences.

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risk analysis

The process of assessing identified project or product risks to determine their level of risk, typically by estimating their impact and probability of occurrence (likelihood).

risk assessment

See Also: product risk, project risk, risk, risk impact, risk level, risk likelihood

The process of identifying and subsequently analyzing the identified project or product risk to determine its level of risk, typically by assigning likelihood and impact ratings.

risk identification

The process of identifying risks using techniques such as brainstorming, checklists and failure history.

risk level

The importance of a risk as defined by its characteristics impact and likelihood. The level of risk can be used to determine the intensity of testing to be performed. A risk level can be expressed either qualitatively (e.g., high, medium, low) or quantitatively.

risk management

Systematic application of procedures and practices to the tasks of identifying, analyzing, prioritizing, and controlling risk.

risk mitigation

Synonyms: risk control

The process through which decisions are reached and protective measures are implemented for reducing risks to, or maintaining risks within, specified levels.

risk-based testing

An approach to testing to reduce the level of product risks and inform stakeholders of their status, starting in the initial stages of a project. It involves the identification of product risks and the use of risk levels to guide the test process.

robustness

Ref: IEEE 610   **See Also:** error-tolerance, fault-tolerance

The degree to which a component or system can function correctly in the presence of invalid inputs or stressful environmental conditions.

root cause

Ref: CMMI

A source of a defect such that if it is removed, the occurrence of the defect type is decreased or

removed.

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root cause analysis

An analysis technique aimed at identifying the root causes of defects. By directing corrective measures at root causes, it is hoped that the likelihood of defect recurrence will be minimized.

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safety

Ref: ISO 9126

The capability of the software product to achieve acceptable levels of risk of harm to people, business, software, property or the environment in a specified context of use.

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scripted testing

Test execution carried out by following a previously documented sequence of tests.

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scripting language

A programming language in which executable test scripts are written, used by a test execution tool (e.g., a capture/playback tool).

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scrum

See Also: Agile software development

An iterative incremental framework for managing projects commonly used with Agile software development.

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security

Ref: ISO 9126   **See Also:** functionality

Attributes of software products that bear on its ability to prevent unauthorized access, whether accidental or deliberate, to programs and data.

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severity

Ref: After IEEE 610

The degree of impact that a defect has on the development or operation of a component or system.

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smoke test

See Also: build, verification test, intake test

Synonyms: confidence test, sanity test

A subset of all defined/planned test cases that cover the main functionality of a component or system, to ascertaining that the most crucial functions of a program work, but not bothering with finer details.

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software

Ref: IEEE 610

Computer programs, procedures, and possibly associated documentation and data pertaining to the operation of a computer system.

software lifecycle

The period of time that begins when a software product is conceived and ends when the software is no longer available for use. The software lifecycle typically includes a concept phase, requirements phase, design phase, implementation phase, test phase, installation and checkout phase, operation and maintenance phase, and sometimes, retirement phase. Note these phases may overlap or be performed iteratively.

Software Usability Measurement Inventory (SUMI)

Ref: Kirakowski93

A questionnaire-based usability test technique for measuring software quality from the end user's point of view.

specification

Ref: After IEEE 610

A document that specifies, ideally in a complete, precise and verifiable manner, the requirements, design, behavior, or other characteristics of a component or system, and, often, the procedures for determining whether these provisions have been satisfied.

stability

Ref: ISO 9126   **See Also:** maintainability

The capability of the software product to avoid unexpected effects from modifications in the software.

standard

Ref: After CMMI

Formal, possibly mandatory, set of requirements developed and used to prescribe consistent approaches to the way of working or to provide guidelines (e.g., ISO/IEC standards, IEEE standards, and organizational standards).

state table

A grid showing the resulting transitions for each state combined with each possible event, showing both valid and invalid transitions.

state transition

A transition between two states of a component or system.

state transition testing

See Also: N-switch testing

Synonyms: finite state testing

A black-box test design technique in which test cases are designed to execute valid and invalid state transitions.

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statement

Synonyms: source statement

An entity in a programming language, which is typically the smallest indivisible unit of execution.

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static analysis

Analysis of software development artifacts, e.g., requirements or code, carried out without execution of these software development artifacts. Static analysis is usually carried out by means of a supporting tool.

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static testing

Testing of a software development artifact, e.g., requirements, design or code, without execution of these artifacts, e.g., reviews or static analysis.

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stub

Ref: After IEEE 610

A skeletal or special-purpose implementation of a software component, used to develop or test a component that calls or is otherwise dependent on it. It replaces a called component.

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suitability

Ref: ISO 9126   **See Also:** functionality

The capability of the software product to provide an appropriate set of functions for specified tasks and user objectives.

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suitability testing

Testing to determine the suitability of a software product.

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system

Ref: IEEE 610

A collection of components organized to accomplish a specific function or set of functions.

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system testing

Ref: Hetzel

Testing an integrated system to verify that it meets specified requirements.

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system under test (SUT)

See test object.

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technical review

Ref: Gilb and Graham, IEEE 1028   **See Also:** peer review

A peer group discussion activity that focuses on achieving consensus on the technical approach to be taken.

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test

Ref: IEEE 829

A set of one or more test cases.

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test analysis

The process of analyzing the test basis and defining test objectives.

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test approach

The implementation of the test strategy for a specific project. It typically includes the decisions made that follow based on the (test) project's goal and the risk assessment carried out, starting points regarding the test process, the test design techniques to be applied, exit criteria and test types to be performed.

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test automation

The use of software to perform or support test activities, e.g., test management, test design, test execution and results checking.

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test basis

Ref: After TMap

All documents from which the requirements of a component or system can be inferred. The documentation on which the test cases are based. If a document can be amended only by way of formal amendment procedure, then the test basis is called a frozen test basis.

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test case

Ref: After IEEE 610

A set of input values, execution preconditions, expected results and execution postconditions, developed for a particular objective or test condition, such as to exercise a particular program path or to verify compliance with a specific requirement.

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test case specification

Ref: After IEEE 829   **See Also:** test specification

A document specifying a set of test cases (objective, inputs, test actions, expected results, and execution preconditions) for a test item.

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test charter

See Also: exploratory testing

Synonyms: charter

A statement of test objectives, and possibly test ideas about how to test. Test charters are used in exploratory testing.

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test closure

See Also: test process

During the test closure phase of a test process data is collected from completed activities to consolidate experience, testware, facts and numbers. The test closure phase consists of finalizing and archiving the testware and evaluating the test process, including preparation of a test evaluation report.

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test condition

Synonyms: test requirement, test situation

An item or event of a component or system that could be verified by one or more test cases, e.g., a function, transaction, feature, quality attribute, or structural element.

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test control

See Also: test management

A test management task that deals with developing and applying a set of corrective actions to get a test project on track when monitoring shows a deviation from what was planned.

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test cycle

Execution of the test process against a single identifiable release of the test object.

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test data

Data that exists (for example, in a database) before a test is executed, and that affects or is affected by the component or system under test.

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test data preparation tool

Synonyms: test generator

A type of test tool that enables data to be selected from existing databases or created, generated, manipulated and edited for use in testing.

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test design

See Also: test design specification

The process of transforming general test objectives into tangible test conditions and test cases.

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test design technique

Synonyms: test case design technique, test specification technique, test technique

Procedure used to derive and/or select test cases.

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test design tool

A tool that supports the test design activity by generating test inputs from a specification that may be held in a CASE tool repository, e.g., requirements management tool, from specified test conditions held in the tool itself, or from code.

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test environment

Ref: After IEEE 610

Synonyms: test bed, test rig

An environment containing hardware, instrumentation, simulators, software tools, and other support elements needed to conduct a test.

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test execution

The process of running a test on the component or system under test, producing actual result(s).

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test execution automation

The use of software, e.g., capture/playback tools, to control the execution of tests, the comparison of actual results to expected results, the setting up of test preconditions, and other test control and reporting functions.

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test execution schedule

A scheme for the execution of test procedures. Note: The test procedures are included in the test execution schedule in their context and in the order in which they are to be executed.

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test execution tool

A type of test tool that is able to execute other software using an automated test script, e.g., capture/playback.

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test implementation

The process of developing and prioritizing test procedures, creating test data and, optionally, preparing test harnesses and writing automated test scripts.

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test infrastructure

The organizational artifacts needed to perform testing, consisting of test environments, test tools, office environment and procedures.

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test item

See Also: test object

The individual element to be tested. There usually is one test object and many test items.

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test level

Ref: After TMap

Synonyms: test stage

A group of test activities that are organized and managed together. A test level is linked to the responsibilities in a project. Examples of test levels are component test, integration test, system test and acceptance test.

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test logging

Synonyms: test recording

The process of recording information about tests executed into a test log.

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test management

The planning, estimating, monitoring and control of test activities, typically carried out by a test manager.

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test management tool

A tool that provides support to the test management and control part of a test process. It often has several capabilities, such as testware management, scheduling of tests, the logging of results, progress tracking, incident management and test reporting.

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test manager

Synonyms: test leader

The person responsible for project management of testing activities and resources, and evaluation of a test object. The individual who directs, controls, administers, plans and regulates the evaluation of a test object.

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test monitoring

See Also: test management

A test management task that deals with the activities related to periodically checking the status of a test project. Reports are prepared that compare the actuals to that which was planned.

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test object

See Also: test item

Synonyms: system under test

The component or system to be tested.

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test objective

A reason or purpose for designing and executing a test.

test oracle

Ref: After Adrion

Synonyms: oracle

A source to determine expected results to compare with the actual result of the software under test. An oracle may be the existing system (for a benchmark), other software, a user manual, or an individual's specialized knowledge, but should not be the code.

test plan

Ref: After IEEE 829

A document describing the scope, approach, resources and schedule of intended test activities. It identifies amongst others test items, the features to be tested, the testing tasks, who will do each task, degree of tester independence, the test environment, the test design techniques and entry and exit criteria to be used, and the rationale for their choice, and any risks requiring contingency planning. It is a record of the test planning process.

test planning

The activity of establishing or updating a test plan.

test procedure specification

Ref: After IEEE 829   **See Also:** test specification

Synonyms: test procedure, test scenario

A document specifying a sequence of actions for the execution of a test. Also known as test script or manual test script.

test process

The fundamental test process comprises test planning and control, test analysis and design, test implementation and execution, evaluating exit criteria and reporting, and test closure activities.

test progress report

Synonyms: test report

A document summarizing testing activities and results, produced at regular intervals, to report progress of testing activities against a baseline (such as the original test plan) and to communicate risks and alternatives requiring a decision to management.

test script

Commonly used to refer to a test procedure specification, especially an automated one.

test specification

A document that consists of a test design specification, test case specification and/or test

procedure specification.

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test strategy

A high-level description of the test levels to be performed and the testing within those levels for an organization or programme (one or more projects).

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test suite

Synonyms: test case suite, test set

A set of several test cases for a component or system under test, where the post condition of one test is often used as the precondition for the next one.

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test tool

Ref: TMap   **See Also:** CAST

A software product that supports one or more test activities, such as planning and control, specification, building initial files and data, test execution and test analysis.

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test type

Ref: After TMap

A group of test activities aimed at testing a component or system focused on a specific test objective, i.e. functional test, usability test, regression test etc. A test type may take place on one or more test levels or test phases.

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testability

Ref: ISO 9126   **See Also:** maintainability

The capability of the software product to enable modified software to be tested.

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testable requirement

Ref: After IEEE 610

A requirements that is stated in terms that permit establishment of test designs (and subsequently test cases) and execution of tests to determine whether the requirement has been met.

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tester

A skilled professional who is involved in the testing of a component or system.

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testing

The process consisting of all lifecycle activities, both static and dynamic, concerned with planning, preparation and evaluation of software products and related work products to determine that they satisfy specified requirements, to demonstrate that they are fit for purpose and to detect defects.

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testware

Ref: After Fewster and Graham

Artifacts produced during the test process required to plan, design, and execute tests, such as documentation, scripts, inputs, expected results, set-up and clear-up procedures, files, databases, environment, and any additional software or utilities used in testing.

traceability

See Also: horizontal traceability, vertical traceability

The ability to identify related items in documentation and software, such as requirements with associated tests.

understandability

Ref: ISO 9126   **See Also:** usability

The capability of the software product to enable the user to understand whether the software is suitable, and how it can be used for particular tasks and conditions of use.

usability

Ref: ISO 9126

The capability of the software to be understood, learned, used and attractive to the user when used under specified conditions.

usability testing

Ref: After ISO 9126

Testing to determine the extent to which the software product is understood, easy to learn, easy to operate and attractive to the users under specified conditions.

use case

A sequence of transactions in a dialogue between an actor and a component or system with a tangible result, where an actor can be a user or anything that can exchange information with the system.

use case testing

Synonyms: scenario testing, user scenario testing

A black-box test design technique in which test cases are designed to execute scenarios of use cases.

user acceptance testing

See Also: acceptance testing

Acceptance testing carried out by future users in a (simulated) operational environment focusing on user requirements and needs.

user story

See Also: Agile software development, requirement

A high-level user or business requirement commonly used in Agile software development, typically consisting of one or more sentences in the everyday or business language capturing what functionality a user needs, any non-functional criteria, and also includes acceptance criteria.

user story testing

See Also: user story

A black-box test design technique in which test cases are designed based on user stories to verify their correct implementation.

V-model

A framework to describe the software development lifecycle activities from requirements specification to maintenance. The V-model illustrates how testing activities can be integrated into each phase of the software development lifecycle.

validation

Ref: ISO 9000

Confirmation by examination and through provision of objective evidence that the requirements for a specific intended use or application have been fulfilled.

variable

An element of storage in a computer that is accessible by a software program by referring to it by a name.

verification

Ref: ISO 9000

Confirmation by examination and through provision of objective evidence that specified requirements have been fulfilled.

Website Analysis and Measurement Inventory (WAMMI)

A questionnaire-based usability test technique for measuring web site software quality from the end user's point of view.

white-box testing

Synonyms: clear-box testing, code-based testing, glass-box testing, logic-coverage testing, logic-driven testing, structural testing, structure-based testing

Testing based on an analysis of the internal structure of the component or system.