

# Chapter 5

# Test Management

# Test Organization

- **A certain degree of independence often makes the tester more effective at finding defects due to differences between the author's and the tester's cognitive biases.**
- **Independence is not, however, a replacement for familiarity, and developers can efficiently find many defects in their own code.**





# Testing's Degree of Independence (lowest to highest)

1. No independent testers; **developers** testing their own code
2. Independent developers or testers **within the development teams** or the project team
3. Independent **test team** or group within the organization
4. Independent testers from the business organization or **user community**, or with specializations in specific test types
5. Independent testers **external to the organization**, either working on-site (insourcing) or off-site (outsourcing)



# Benefits & Drawbacks of Independence

## Benefits of Independence

- Independent testers are likely to recognize different kinds of failures
- An independent tester can verify, challenge, or disprove assumptions made by stakeholders



## Drawbacks of Independence

- Isolation from the development team
- Developers may lose a sense of responsibility for quality
- Independent testers may be seen as a bottleneck or blamed for delays in release
- Independent testers may lack some important information

```
graph TD; A((Test Roles)) --> B((Tester)); A --> C((Test Leader));
```

The diagram consists of three red circles arranged in a triangle. The top circle is labeled 'Test Roles'. Two arrows point from this circle to the bottom-left circle labeled 'Tester' and the bottom-right circle labeled 'Test Leader'. The background features a light gray circular pattern with faint circuit-like lines.

Test  
Roles

Tester

Test  
Leader





# Test Manager Tasks

- Test policy-Test Strategy-Test Plan
- Test monitoring & Control (Test progress report-test summary report)
- Initiate the analysis, design, implementation, and execution of tests
- Configuration Management
- Metrics
- Tools selection
- Test Environment Implementation Decision
- Develop the skills and careers of testers



# Tester Tasks

- Review and contribute to test plans
- Assess requirements for testability
- Test conditions, test cases, test procedures, test data, & test execution schedule
- Test Environment setup
- Test Execution
- Test automation
- Non-Functional Testing
- Review tests developed by others





# Quiz Time

# Quiz Time

- Which of the following BEST describes how tasks are divided between the test manager and the tester?
  - A. The test manager plans testing activities and chooses the standards to be followed, while the tester chooses the tools and controls to be used
  - B. The test manager plans, organizes, and controls the testing activities, while the tester specifies and executes tests
  - C. The test manager plans, monitors, and controls the testing activities, while the tester designs tests and decides about automation frameworks
  - D. The test manager plans and organizes the testing and specifies the test cases, while the tester prioritizes and executes the tests

# Quiz Time

- Which of the following BEST describes how tasks are divided between the test manager and the tester?
  - A. The test manager plans testing activities and chooses the standards to be followed, while the tester chooses the tools and controls to be used
  - B. The test manager plans, organizes, and controls the testing activities, while the tester specifies and executes tests**
  - C. The test manager plans, monitors, and controls the testing activities, while the tester designs tests and decides about automation frameworks
  - D. The test manager plans and organizes the testing and specifies the test cases, while the tester prioritizes and executes the tests



# Quiz Time

- Who is normally responsible for the creation and update of a test plan for a project?
- A. The project manager
  - B. The test manager
  - C. The tester
  - D. The product owner

# Quiz Time

- Who is normally responsible for the creation and update of a test plan for a project?
  - A. The project manager
  - B. The test manager**
  - C. The tester
  - D. The product owner

# Quiz Time

- Which of the following is a benefit of test independence?
  - A. Testers have different biases than developers
  - B. Testers are isolated from the development team
  - C. Testers lack information about the test object
  - D. Testers will accept responsibility for quality



# Quiz Time

• Which of the following is a benefit of test independence?

- A. Testers have different biases than developers**
- B. Testers are isolated from the development team
- C. Testers lack information about the test object
- D. Testers will accept responsibility for quality

# Quiz Time

- Who normally writes the test plan for a project?
- A. The project manager
  - B. The product owner
  - C. The test manager
  - D. The tester

# Quiz Time

• Who normally writes the test plan for a project?

- A. The project manager
- B. The product owner
- C. The test manager**
- D. The tester



# Quiz Time

- What is the biggest problem with a developer testing his own code?
  - A. Developers are not good testers
  - B. Developers are not quality focused
  - C. Developers are not objective about their own code
  - D. Developers do not have time to test their own code

# Quiz Time

- What is the biggest problem with a developer testing his own code?
  - A. Developers are not good testers
  - B. Developers are not quality focused
  - C. Developers are not objective about their own code**
  - D. Developers do not have time to test their own code

# Test Planning & Estimation



# Purpose & Content of a Test Plan

- A test plan outlines test activities for development and maintenance projects.
- As the project and test planning progress, more information becomes available and more detail can be included in the test plan.



# Purpose & Content of a Test Plan

- Test planning is a continuous activity and is performed throughout the product's lifecycle
- Feedback from test activities should be used to recognize changing risks so that planning can be adjusted
- Planning may be documented in a master test plan and in separate test plans for test levels or for separate test types.



TEST PLAN

TESTNBUG.COM

# Test Planning Activities

- **Determining the scope, objectives, and risks of testing**
- **Defining the overall approach of testing**
- **Integrating and coordinating the test activities into the software lifecycle activities**
- **Making decisions about what to test, the people and other resources required to perform the various test activities, and how test activities will be carried out**
- **Scheduling of test analysis, design, implementation, execution, and evaluation activities**
- **Selecting metrics for test monitoring and control**
- **Budgeting for the test activities**
- **Determining the level of detail and structure for test documentation**





# Test Strategy & Test Approach



**A test strategy provides a generalized description of the test process, usually at the product or organizational level.**

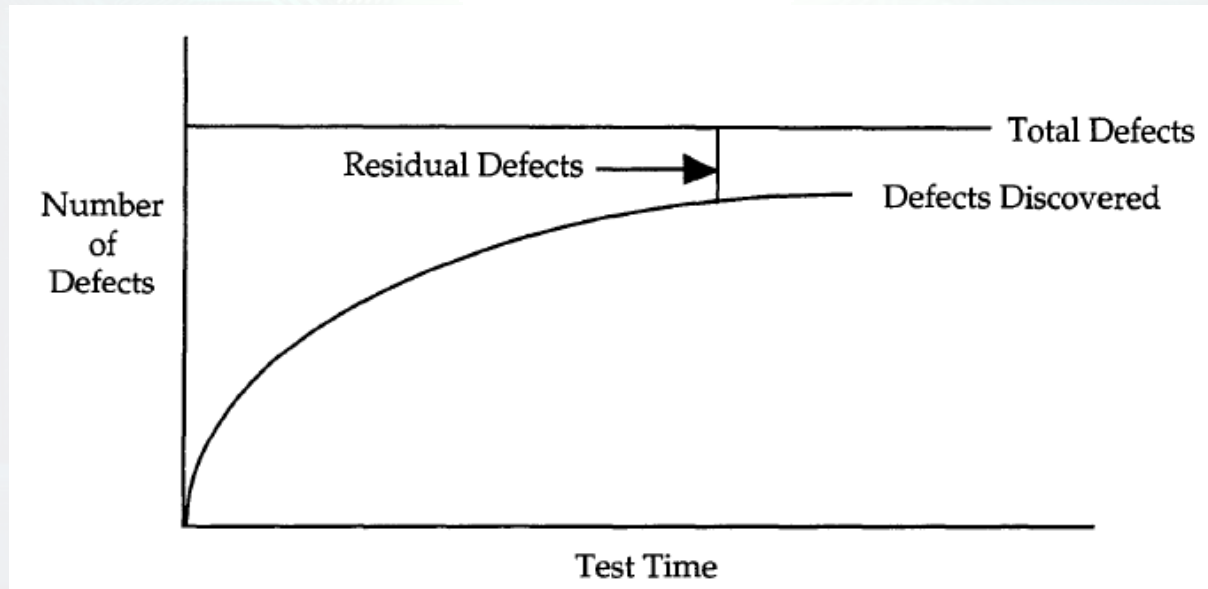
# 1-Analytical:

- This type of test strategy is based on an analysis of some factor (e.g., requirement or risk).
- **Risk-based testing** is an example of an analytical approach, where tests are designed and prioritized based on the level of risk.



# 2-Model-based

- In this type of test strategy, tests are designed based on some model of some required aspect of the product, such as a function, a business process, an internal structure, or a non-functional characteristic.
- Examples of such models include business process models, state models, and reliability growth models





# 3-Methodical

- This type of test strategy relies on making systematic use of some predefined set of tests or test conditions, such as a taxonomy of common or likely types of failures or a list of important quality characteristics

methodical

## **4-Process-compliant (or Standard Compliant)**

- This type of test strategy involves analyzing, designing, and implementing tests based on external rules and standards, such as those specified by industry-specific standards



Standard

# 5-Directed (or Consultative)



**This type of test strategy is driven primarily by the advice, guidance, or instructions of stakeholders, business domain experts, or technology experts, who may be outside the test team or outside the organization itself**



# 6-Regression-averse

- This type of test strategy is motivated by a desire to avoid regression of existing capabilities.
- This test strategy includes reuse of existing testware, extensive automation of regression tests, and standard test suites

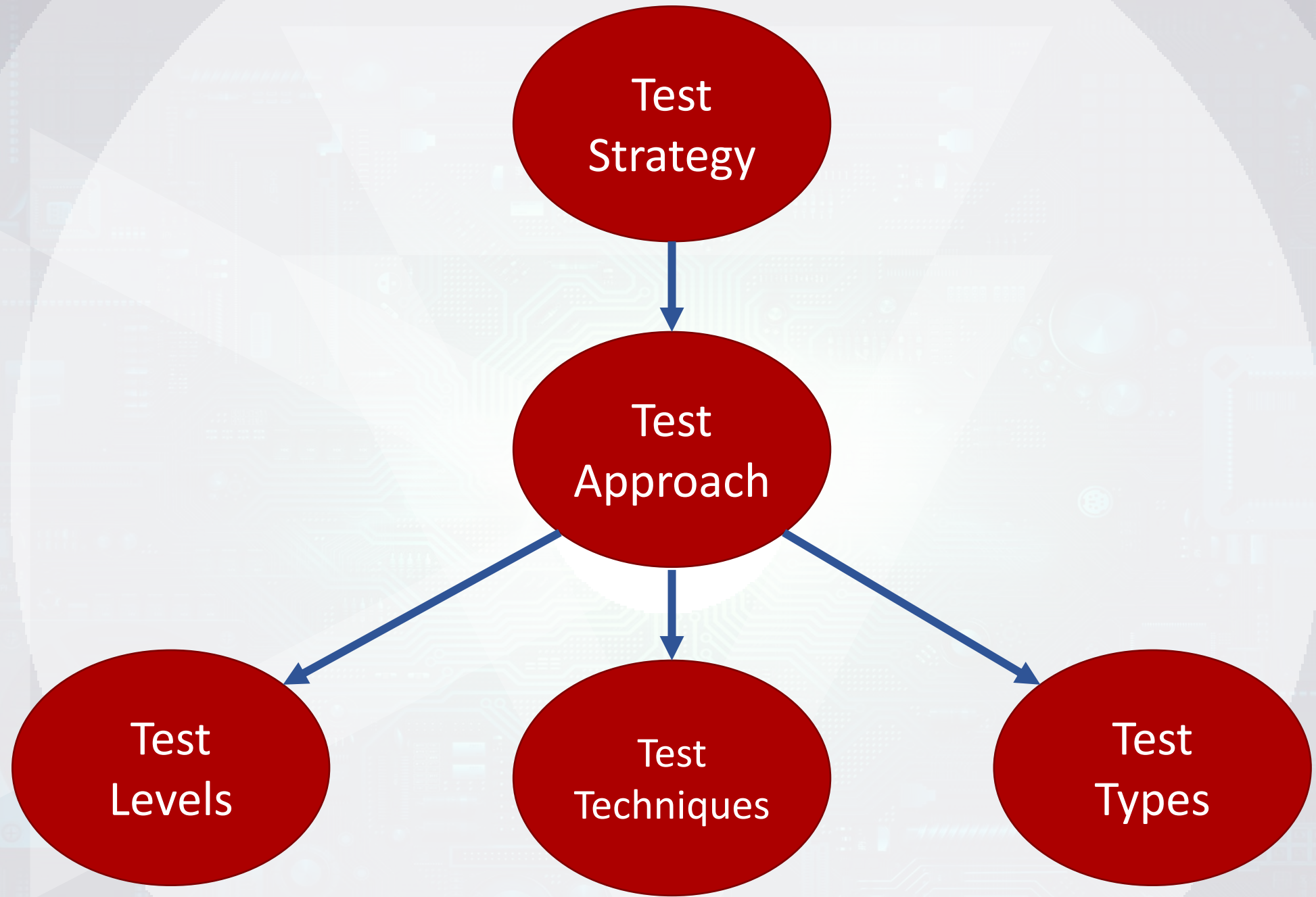


# 7-Reactive

- In this type of test strategy, testing is reactive to the component or system being tested, and the events occurring during test execution, rather than being pre-planned (as the preceding strategies are).
- Tests are designed and implemented, and may immediately be executed in response to knowledge gained from prior test results.
- **Exploratory testing** is a common technique employed in reactive strategies

reactive

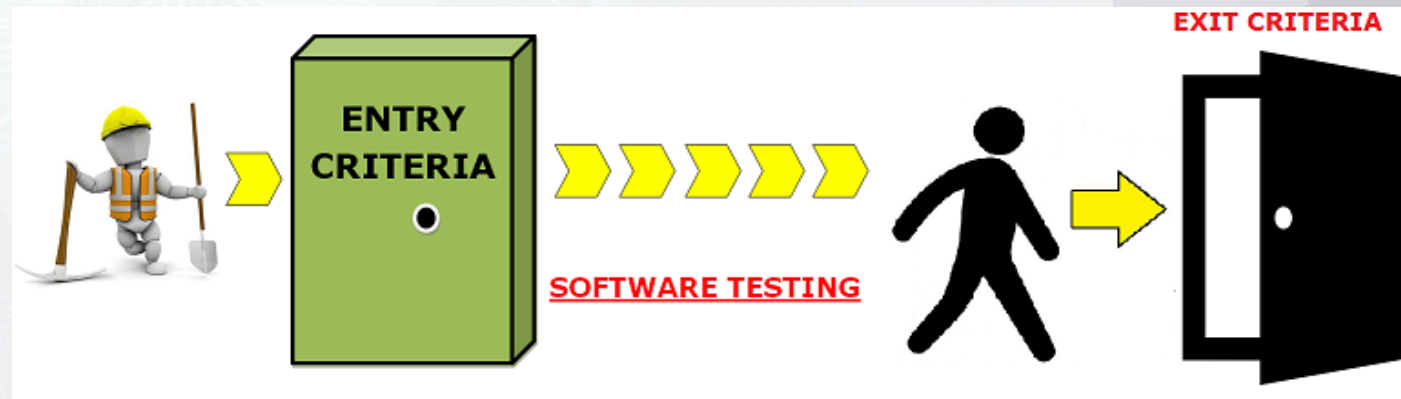






# Entry Criteria

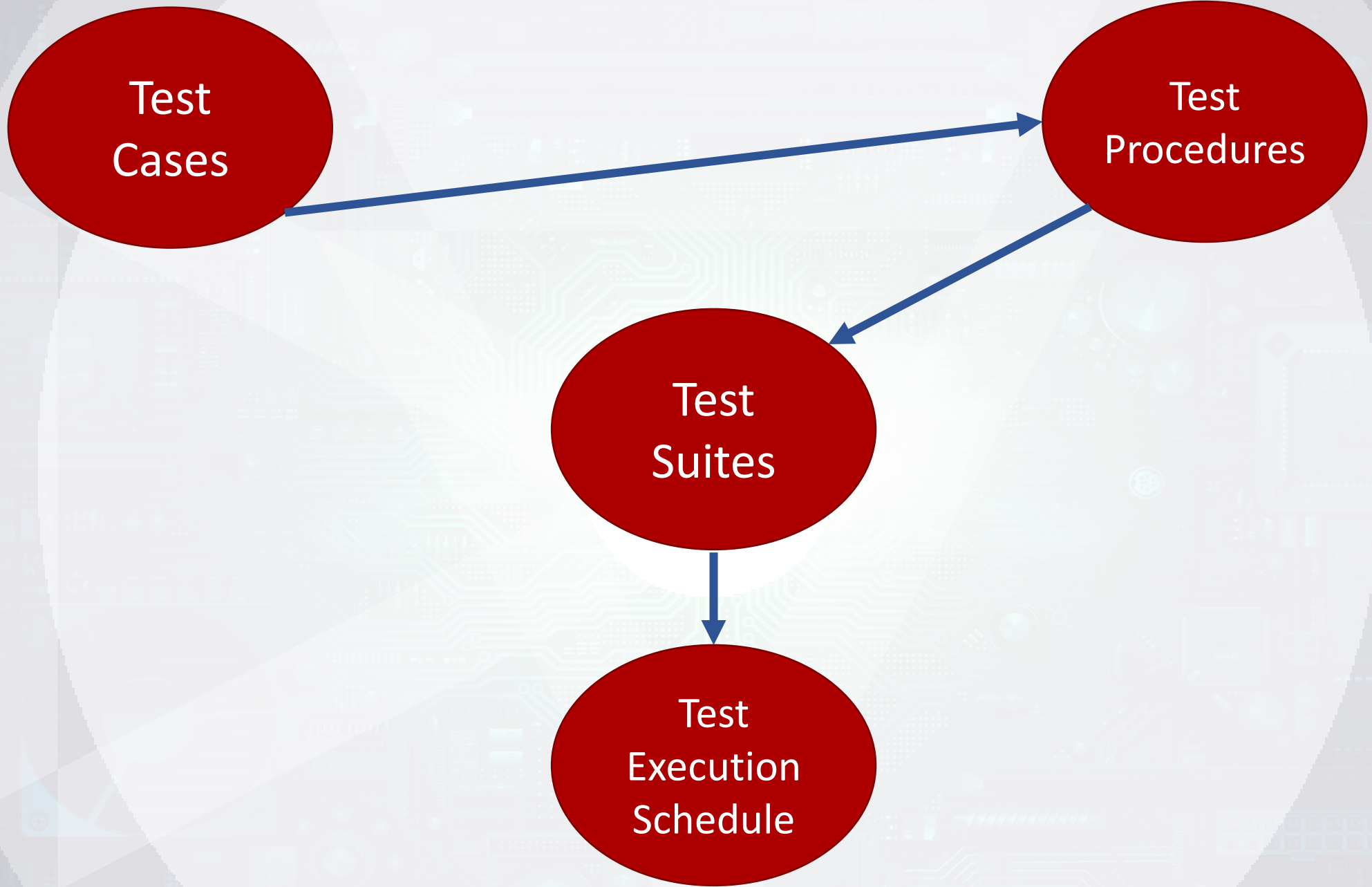
- Entry criteria (definition of ready) define the preconditions for undertaking a given test activity.
- Typical entry criteria include:
  - Availability of testable requirements, user stories, and/or models
  - Availability of test items that have met the exit criteria for any prior test levels
  - Availability of test environment
  - Availability of necessary test tools
  - Availability of test data and other necessary resources



# Exit Criteria

- Exit criteria (definition of done) define what conditions must be achieved in order to declare a test level or a set of tests completed.
- Typical exit criteria include:
  - Planned tests have been executed
  - A defined level of coverage has been achieved
  - The number of unresolved defects is within an agreed limit
  - The number of estimated remaining defects is sufficiently low
  - The evaluated levels of quality characteristics are sufficient

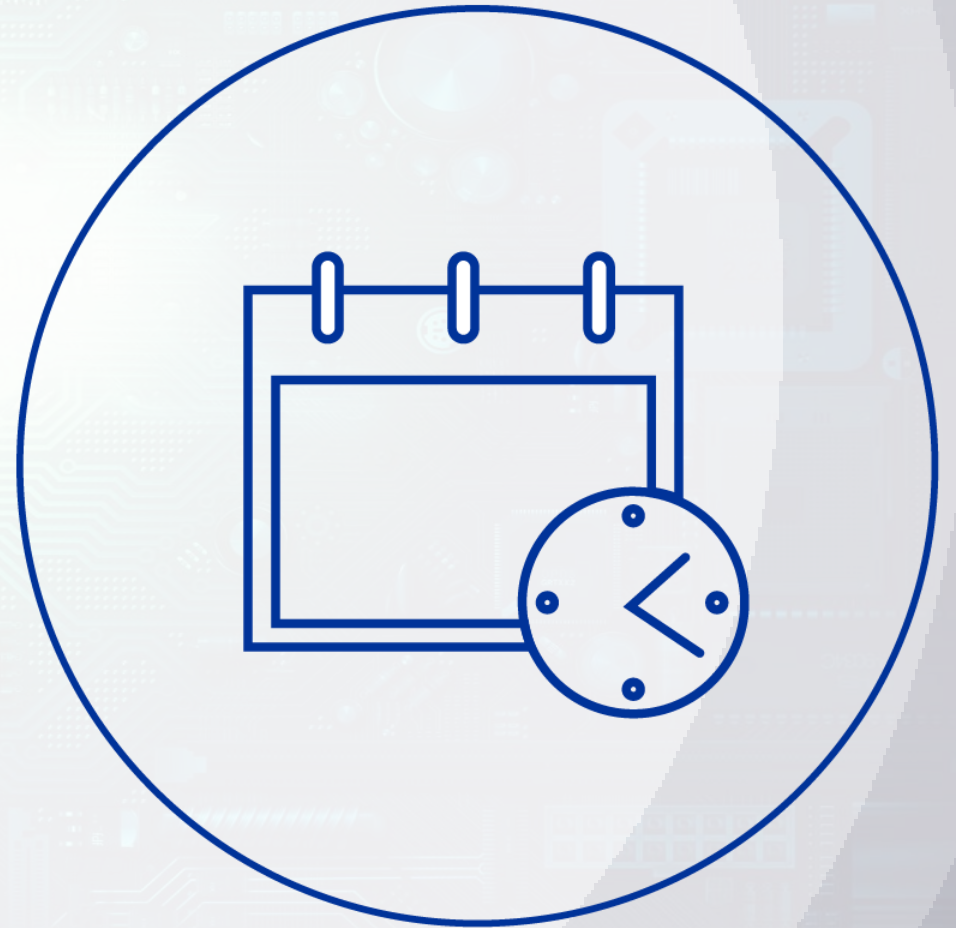






# Test Execution Schedule

- Ideally, test cases would be ordered to run based on their priority levels
- If a test case with a higher priority is dependent on a test case with a lower priority, the lower priority test case must be executed first



# Factors Influencing the Test Effort

## 1. Product Characteristics

- Risks
- Quality of the test basis
- Size-Complexity-Requirements
- Documentation Required



# Factors Influencing the Test Effort

## 2. Development Process Characteristics

- The stability and maturity of the organization
- The development model in use
- The test approach
- The tools used
- The test process
- Time pressure





# Factors Influencing the Test Effort

## 3. People Characteristics

- The skills and experience of the people involved, especially with similar projects and products
- Team cohesion and leadership



# Factors Influencing the Test Effort

## 4. Test Results

- The number and severity of defects found
- The amount of rework required



# Test Estimation Techniques

## 1. Metrics-based

- estimating the test effort based on metrics of former similar projects, or based on typical values

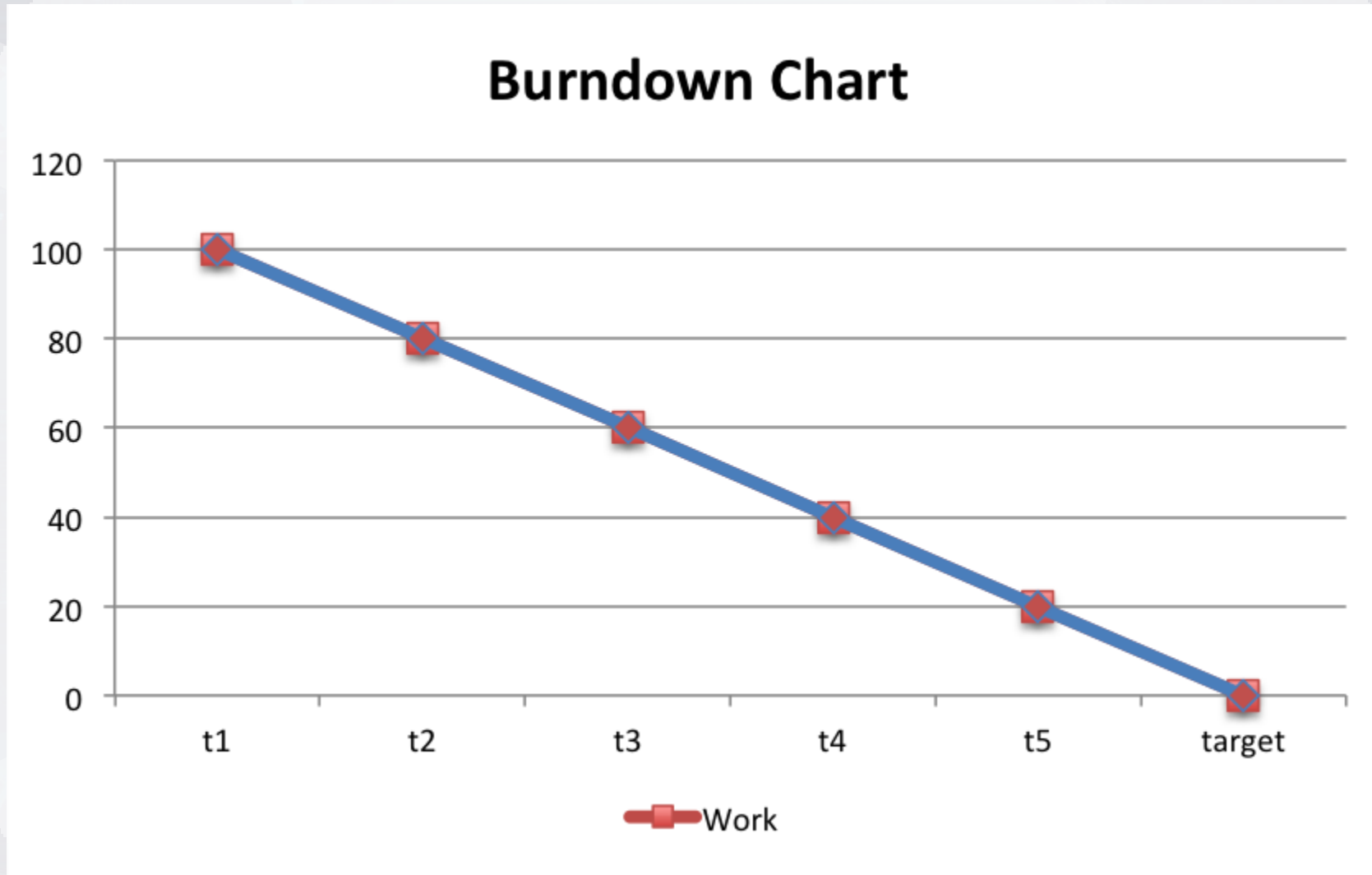
## 2. Expert-based

- estimating the test effort based on the experience of the owners of the testing tasks or by experts





# Burn-down Chart



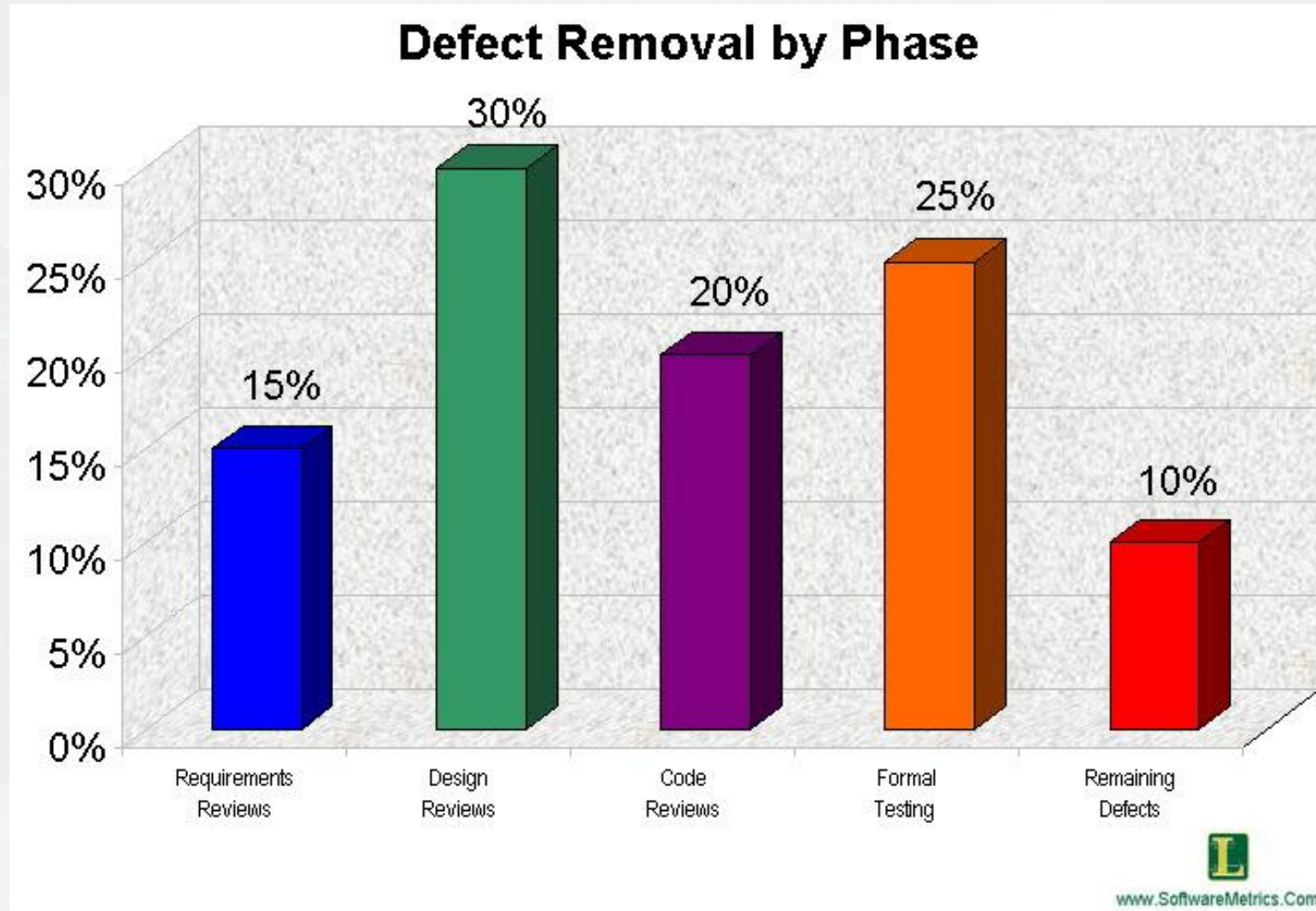
**Agile/Metrics-based**

# Planning Poker



**Agile/Expert-based**

# Defect Removal Models



**Sequential/Metrics-based**



# Wideband Delphi

Estimator: \_\_\_\_\_ Date: \_\_\_\_\_ Page: \_\_\_\_\_

Activity: Develop requirements for Project X Estimation Units: labor hours

Category: ☐ Project Tasks ☐ Quality and Process Tasks ☐ Waiting Time

Task	Initial Estimate	Change #1	Change #2	Change #3	Change #4	Final
Identify user representatives	3	-1				
Hold requirements workshops	16	+8				
Draft requirements specification	16	+3				
Review requirements specification	8	+4				
Develop prototype	24	-8				
Correct errors following reviews		+5				
Net Change		+10				
Total	67	78				

Figure 2: Sample Wideband Delphi estimation form.

## Sequential/Expert-based

# Quiz Time

# Quiz Time

• Which TWO of the following can affect and be part of test planning?

- a) Budget limitations
- b) Test objectives
- c) Test log
- d) Failure rate
- e) Use cases

Select two options



# Quiz Time

• Which TWO of the following can affect and be part of test planning?

- a) Budget limitations
- b) Test objectives
- c) Test log
- d) Failure rate
- e) Use cases

Select two options

# Quiz Time

- Which of the following are typical exit criteria from testing?
  - A. Reliability measures, degree of tester's independence, and product completeness
  - B. Reliability measures, test cost, availability of testable code, time to market, and product completeness
  - C. Reliability measures, test cost, schedule and unresolved defects
  - D. Time to market, residual defects, tester qualification, degree of tester independence and test cost

# Quiz Time

- Which of the following are typical exit criteria from testing?
  - A. Reliability measures, degree of tester's independence, and product completeness
  - B. Reliability measures, test cost, availability of testable code, time to market, and product completeness
  - C. Reliability measures, test cost, schedule and unresolved defects**
  - D. Time to market, residual defects, tester qualification, degree of tester independence and test cost



# Quiz Time

• There are several test strategies. Which strategy (1-4) is characterized by which description (A-D) below?

1. Analytical.
  2. Methodical.
  3. Model-based.
  4. Consultative.
- 
- a) Tests are based on a state diagram of a required aspect of the product
  - b) Tests are designed and prioritized based on the level of risk.
  - c) Systematic use of some predefined set of test conditions.
  - d) Tests are chosen based on the views of business domain experts

- a. 1D, 2B, 3A, 4C
- b. 1A, 2C, 3D, 4B
- c. 1D, 2C, 3B, 4A
- d. 1B, 2C, 3A, 4D

# Quiz Time

• There are several test strategies. Which strategy (1-4) is characterized by which description (A-D) below?

1. Analytical.
  2. Methodical.
  3. Model-based.
  4. Consultative.
- 
- a) Tests are based on a state diagram of a required aspect of the product
  - b) Tests are designed and prioritized based on the level of risk.
  - c) Systematic use of some predefined set of test conditions.
  - d) Tests are chosen based on the views of business domain experts

- a. 1D, 2B, 3A, 4C
- b. 1A, 2C, 3D, 4B
- c. 1D, 2C, 3B, 4A
- d. **1B, 2C, 3A, 4D**

# Quiz Time

- Which one of the following is the characteristic of a metrics-based approach for test estimation?
  - A. Budget which was used by a previous similar test project.
  - B. Overall experience collected in interviews with test managers
  - C. Overall estimate agreed with the developers
  - D. Average of calculations collected from business experts.



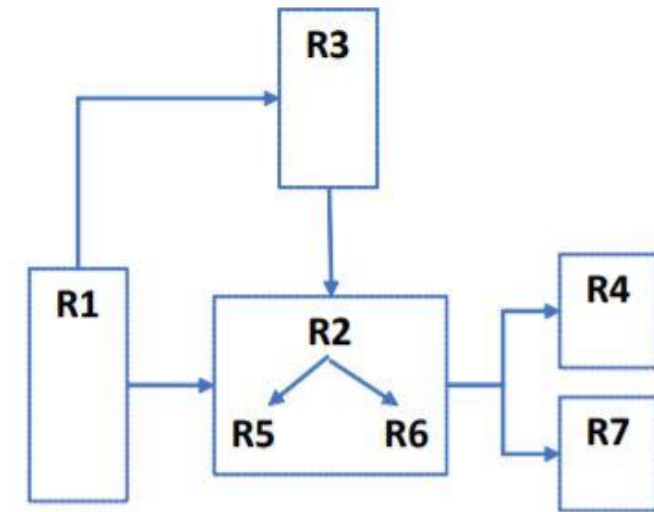
# Quiz Time

- Which one of the following is the characteristic of a metrics-based approach for test estimation?
  - A. Budget which was used by a previous similar test project.**
  - B. Overall experience collected in interviews with test managers
  - C. Overall estimate agreed with the developers
  - D. Average of calculations collected from business experts.

# Quiz Time

- The following diagram shows the logical dependencies between a set of seven requirements, where a dependency is shown by an arrow. For example, "R1 -> R3" means that R3 depends on R1.
- Which one of the following options structures the test execution schedule according to the requirement dependencies?

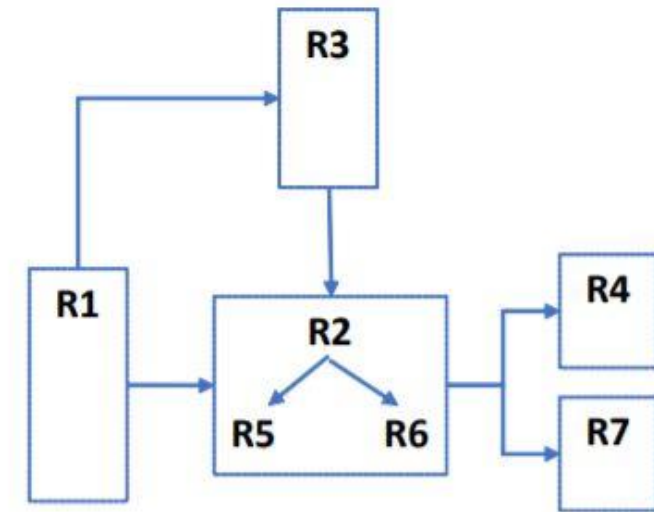
- A. R1 → R3 → R1 → R2 → R5 → R6 → R4 → R7
- B. R1 → R3 → R2 → R5 → R2 → R6 → R4 → R7
- C. R1 → R3 → R2 → R5 → R6 → R4 → R7
- D. R1 → R2 → R5 → R6 → R3 → R4 → R7



# Quiz Time

- The following diagram shows the logical dependencies between a set of seven requirements, where a dependency is shown by an arrow. For example, "R1 -> R3" means that R3 depends on R1.
- Which one of the following options structures the test execution schedule according to the requirement dependencies?

- A. R1 → R3 → R1 → R2 → R5 → R6 → R4 → R7
- B. R1 → R3 → R2 → R5 → R2 → R6 → R4 → R7
- C. R1 → R3 → R2 → R5 → R6 → R4 → R7
- D. R1 → R2 → R5 → R6 → R3 → R4 → R7





# Quiz Time

- You are working in a team of testers who are all writing test cases. You have noticed that there is a significant inconsistency with the length and amount of detail in the different test cases. Where should the test case guidelines have been documented?
- A. The test plan
  - B. The test approach
  - C. The test case template
  - D. The project plan

# Quiz Time

- You are working in a team of testers who are all writing test cases. You have noticed that there is a significant inconsistency with the length and amount of detail in the different test cases. Where should the test case guidelines have been documented?

- A. The test plan**
- B. The test approach
- C. The test case template
- D. The project plan

# Quiz Time

- Which of the following is an example of a good exit criterion from system testing?
  - A. All tests should be completed
  - B. The project budget should be spent
  - C. All defects should be fixed
  - D. All severity 1 defects must be resolved



# Quiz Time

- Which of the following is an example of a good exit criterion from system testing?
  - A. All tests should be completed
  - B. The project budget should be spent
  - C. All defects should be fixed
  - D. All severity 1 defects must be resolved**

# Quiz Time

- You have been given the following set of test cases to run. You have been instructed to run them in order by risk and to accomplish the testing as quickly as possible to provide feedback to the developers as soon as possible. Given this information, what is the best order in which to run these tests?

Test Case ID	Duration	Risk Priority	Dependency
1	30 mins	Low	6
2	10 mins	Medium	none
3	45 mins	High	1
4	30 mins	High	2
5	10 mins	Medium	4
6	15 mins	Low	2

- A. 2, 4, 5, 6, 1, 3
- B. 4, 3, 2, 5, 6, 1
- C. 2, 5, 6, 4, 1, 3
- D. 6, 1, 3, 2, 4, 5



# Quiz Time

- You have been given the following set of test cases to run. You have been instructed to run them in order by risk and to accomplish the testing as quickly as possible to provide feedback to the developers as soon as possible. Given this information, what is the best order in which to run these tests?

Test Case ID	Duration	Risk Priority	Dependency
1	30 mins	Low	6
2	10 mins	Medium	none
3	45 mins	High	1
4	30 mins	High	2
5	10 mins	Medium	4
6	15 mins	Low	2

- A. 2, 4, 5, 6, 1, 3
- B. 4, 3, 2, 5, 6, 1
- C. 2, 5, 6, 4, 1, 3
- D. 6, 1, 3, 2, 4, 5





# Quiz Time

- If your test strategy is based off the list of the ISO 25010 quality characteristics, what type of strategy is it?
- A. Regulatory
  - B. Analytical
  - C. Methodical
  - D. Reactive

# Quiz Time

• If your test strategy is based off the list of the ISO 25010 quality characteristics, what type of strategy is it?

A. Regulatory

B. Analytical

C. Methodical

D. Reactive

# Quiz Time

- You are getting ready to test another upgrade of an ERP system. The previous upgrade was tested by your team and has been in production for several years. For this situation, which of the following is the most appropriate test effort estimation technique?

- A. Effort-based
- B. Expert-based
- C. Metric-based
- D. Schedule-based



# Quiz Time

- You are getting ready to test another upgrade of an ERP system. The previous upgrade was tested by your team and has been in production for several years. For this situation, which of the following is the most appropriate test effort estimation technique?

- A. Effort-based
- B. Expert-based
- C. Metric-based**
- D. Schedule-based

# Quiz Time

- Consider the following test cases that are used to test an accounting system:

Test ID	Name	Dependency	Priority
1	Purchase Item	none	2
2	Receive Invoice	Test 1	3
3	Receive Goods	Test 1	2
4	Send Payment	Test 2	3
5	Report Payments	Test 4	1

➤ Given this information, what is the proper order in which to execute these test cases?

- A. 5, 1, 3, 2, 4
- B. 1, 2, 4, 3, 5
- C. 1, 3, 2, 4, 5
- D. 3, 4, 5, 1, 2

# Quiz Time

- Consider the following test cases that are used to test an accounting system:

Test ID	Name	Dependency	Priority
1	Purchase Item	none	2
2	Receive Invoice	Test 1	3
3	Receive Goods	Test 1	2
4	Send Payment	Test 2	3
5	Report Payments	Test 4	1

➤ Given this information, what is the proper order in which to execute these test cases?

- A. 5, 1, 3, 2, 4
- B. 1, 2, 4, 3, 5
- C. 1, 3, 2, 4, 5**
- D. 3, 4, 5, 1, 2



# Test Monitoring & Control

# Test Monitoring & Control

- The purpose of test monitoring is to gather information and provide feedback and visibility about test activities.
- Test control describes any guiding or corrective actions taken as a result of information and metrics gathered and (possibly) reported



# Examples of Test Control Activities

- Re-prioritizing tests when an identified risk occurs
- Changing the test schedule due to availability or unavailability of a test environment or other resources
- Re-evaluating whether a test item meets an entry or exit criterion due to rework





# Common Test Metrics

- Percentage of planned work done in (test case preparation/implementation-Test environment preparation)
- Test case execution (e.g., number of test cases run/not run, test cases passed/failed)
- Defect information
- Test coverage of requirements, user stories, acceptance criteria, risks, or code
- Task completion, resource allocation and usage, and effort
- Cost of testing



# Test Reporting

- The purpose of test reporting is to **summarize and communicate test activity information**, both during and at the end of a test activity
- The test report prepared during a test activity may be referred to as a test progress report, while a test report prepared at the end of a test activity may be referred to as a test summary report
- typical test progress reports may also include:
  - The status of the test activities and progress against the test plan
  - Factors impeding progress
  - Testing planned for the next reporting period
  - The quality of the test object



# Test Reporting

- When exit criteria are reached, the test manager issues the test summary report.
- This report provides a summary of the testing performed, based on the latest test progress report and any other relevant information





# Quiz Time

# Quiz Time

- Which of the following metrics would be **MOST** useful to monitor during test execution?
- A. Percentage of executed test cases
  - B. Percentage of work done in test environment preparation
  - C. Percentage of planned test cases prepared
  - D. Percentage of work done in test case preparation

# Quiz Time

- Which of the following metrics would be **MOST** useful to monitor during test execution?
- A. Percentage of executed test cases**
  - B. Percentage of work done in test environment preparation
  - C. Percentage of planned test cases prepared
  - D. Percentage of work done in test case preparation



# Quiz Time

- Which one of the following is NOT included in a test summary report?
  - A. Defining pass/fail criteria and objectives of testing
  - B. Deviations from the test approach
  - C. Measurements of actual progress against exit criteria
  - D. Evaluation of the quality of the test item

# Quiz Time

• Which one of the following is NOT included in a test summary report?

- A. Defining pass/fail criteria and objectives of testing**
- B. Deviations from the test approach**
- C. Measurements of actual progress against exit criteria**
- D. Evaluation of the quality of the test item**

# Quiz Time

- A metric that tracks the number of test cases executed is gathered during which activity in the test process?
- A. Planning
  - B. Implementation
  - C. Execution
  - D. Reporting



# Quiz Time

- A metric that tracks the number of test cases executed is gathered during which activity in the test process?
- A. Planning
  - B. Implementation
  - C. Execution**
  - D. Reporting

# Quiz Time

- Which of the following variances should be explained in the Test Summary Report?
  - A. The variances between the weekly status reports and the test exit criteria
  - B. The variances between the defects found and the defects fixed
  - C. The variances between what was planned for testing and what was actually tested
  - D. The variances between the test cases executed and the total number of test cases

# Quiz Time

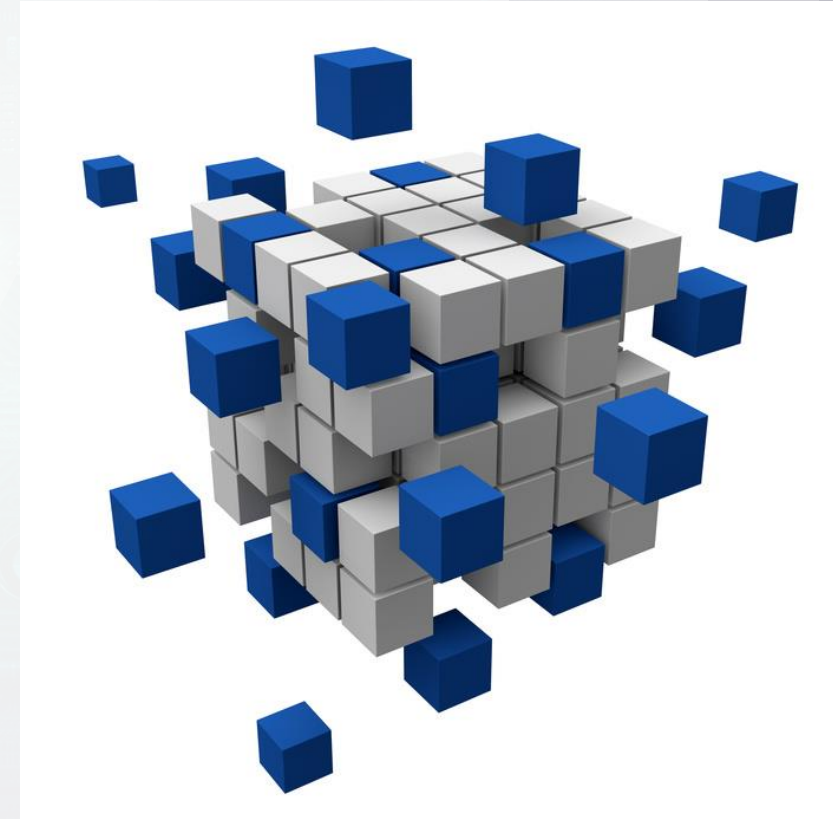
- Which of the following variances should be explained in the Test Summary Report?
  - A. The variances between the weekly status reports and the test exit criteria
  - B. The variances between the defects found and the defects fixed
  - C. The variances between what was planned for testing and what was actually tested**
  - D. The variances between the test cases executed and the total number of test cases



# Configuration Management

# Configuration Management

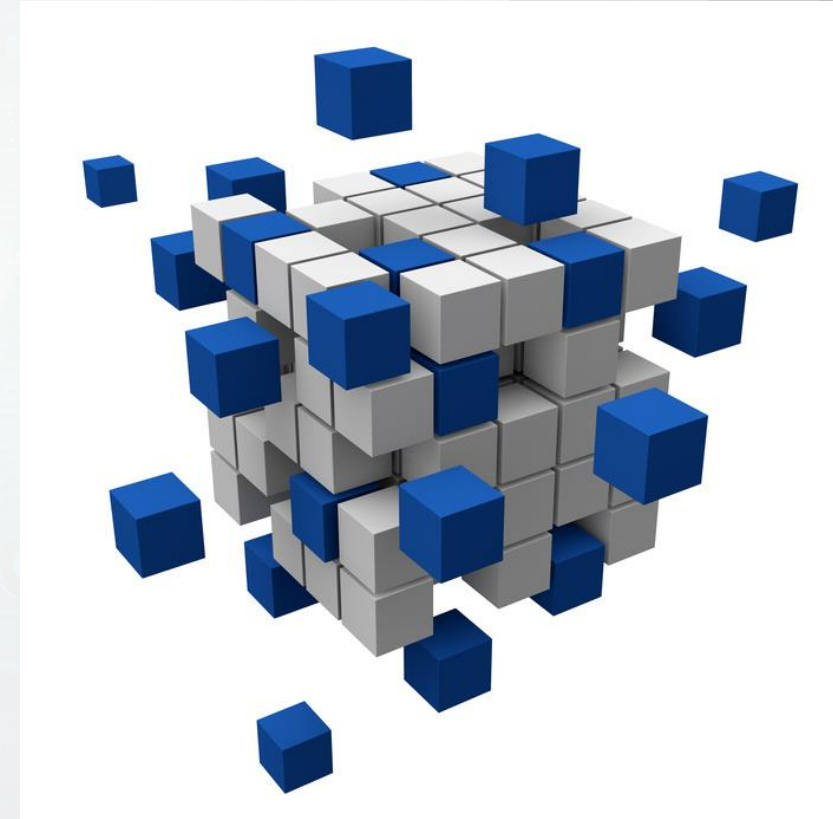
- The purpose of configuration management is to establish and maintain the **integrity of the component** or system, the testware, and their relationships to one another through the project and product lifecycle.
- During test planning, configuration management procedures and infrastructure (tools) should be identified and implemented.





# Configuration Management

- To properly support testing, configuration management may involve ensuring the following:
  - All items of testware are uniquely identified, version controlled, tracked for changes, related to each other and related to versions of the test item(s) so that traceability can be maintained throughout the test process
  - All identified documents and software items are referenced unambiguously in test documentation





# Quiz Time

# Quiz Time

- If the developers are releasing code for testing that is not version controlled, what process is missing?
- A. Configuration Management
  - B. Debugging
  - C. Test and defect management
  - D. Risk analysis

# Quiz Time

- If the developers are releasing code for testing that is not version controlled, what process is missing?

- A. Configuration Management**
- B. Debugging
- C. Test and defect management
- D. Risk analysis



# Risk & Testing

# Definition of Risk

- Risk involves the possibility of an event in the future which has negative consequences
- The level of risk is determined by the **likelihood** of the event and the **impact** (the harm) from that event.



# Product (Quality) Risks

- **Product risk involves the possibility that a work product may fail to satisfy the legitimate needs of its users and/or stakeholders, examples include:**
  - Software might not perform its intended functions
  - A system architecture may not adequately support some non-functional requirement(s)
  - A particular computation may be performed incorrectly in some circumstances
  - A loop control structure may be coded incorrectly
  - Response-times may be inadequate for a high-performance transaction processing system
  - User experience (UX) feedback might not meet product expectations





# Project Risks

- Project risk involves situations that may have a negative effect on a project's ability to achieve its objectives, examples include :
  - Project issues
  - Organizational Issues
  - Political Issues
  - Technical Issues
  - Supplier Issues



# Quiz Time

# Quiz Time

- Which of the following is a project risk?
  - A. A module that performs incorrect calculations due to a defect in a formula
  - B. A failed performance test
  - C. An issue with the interface between the system under test and a peripheral device
  - D. A problem with the development manager which is resulting in his rejecting all defect reports



# Quiz Time

- Which of the following is a project risk?
  - A. A module that performs incorrect calculations due to a defect in a formula
  - B. A failed performance test
  - C. An issue with the interface between the system under test and a peripheral device
  - D. A problem with the development manager which is resulting in his rejecting all defect reports

# Quiz Time

• Level of risk is determined by which of the following?

- A. Likelihood & impact
- B. Priority & risk rating
- C. Probability & practicality
- D. Risk identification & mitigation

# Quiz Time

• Level of risk is determined by which of the following?

- A. **Likelihood & impact**
- B. Priority & risk rating
- C. Probability & practicality
- D. Risk identification & mitigation



# Quiz Time

- Which of the following is a project risk?
  - A. A defect that is causing a performance issue
  - B. A duplicate requirement
  - C. An issue with a data conversion procedure
  - D. A schedule that requires work during Christmas shutdown

# Quiz Time

- Which of the following is a project risk?
  - A. A defect that is causing a performance issue
  - B. A duplicate requirement
  - C. An issue with a data conversion procedure
  - D. A schedule that requires work during Christmas shutdown

# Defect Management



# Defect Report Objectives

- Provide developers and other parties with information about any adverse event that occurred
- Provide test managers a means of tracking the quality of the work product and the impact on the testing
- Provide ideas for development and test process improvement



# Defect Report Components

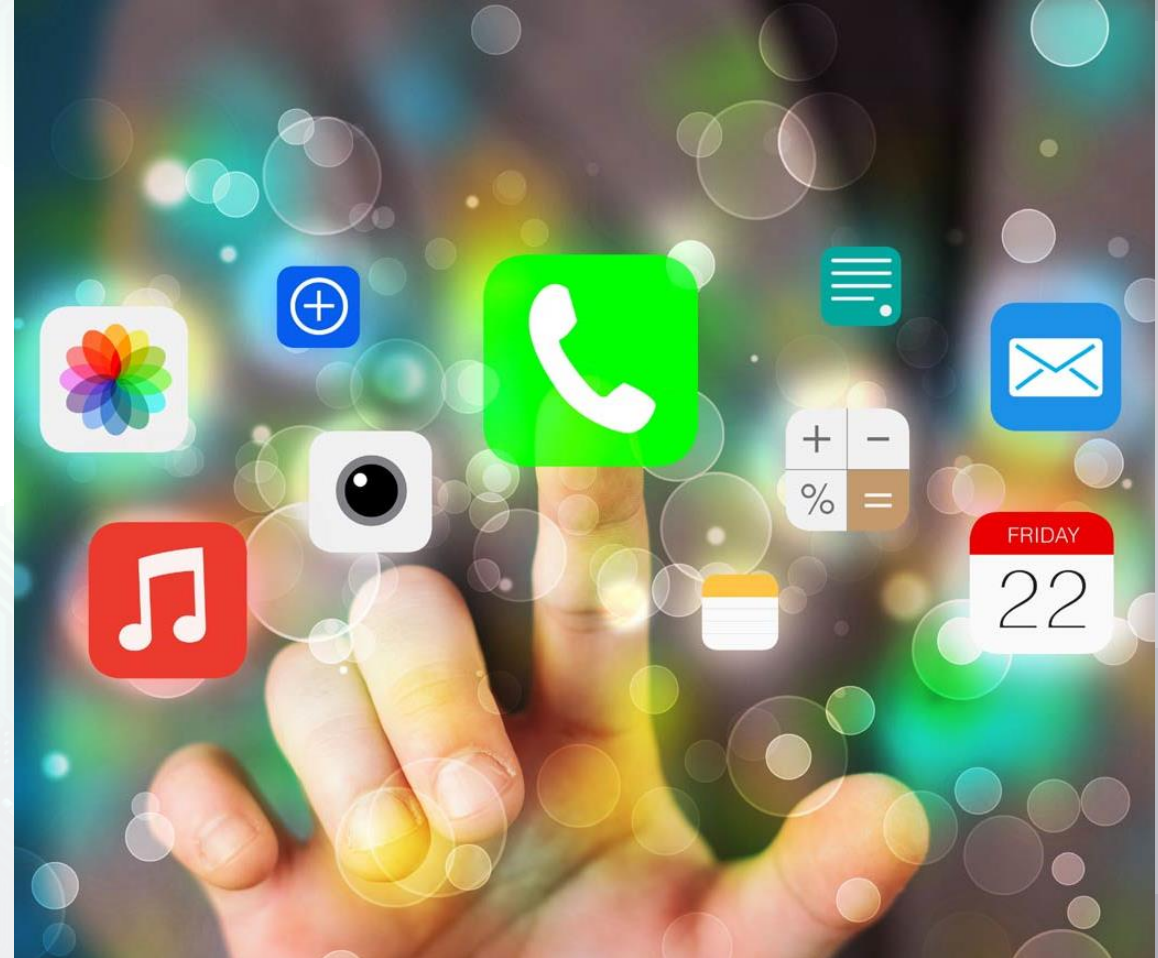
- Identifier-Title-Summary-Date-Author-Test Item-Test Environment
- The development lifecycle phase(s) in which the defect was observed
- A description of the defect to enable reproduction and resolution, including logs, database dumps screenshots, or recordings (if found during test execution)
- Expected and actual results
- Scope or degree of impact (severity) of the defect on the interests of stakeholder(s)
- Urgency/priority to fix
- State of the defect report
- Conclusions, recommendations and approvals
- Global issues, such as other areas that may be affected by a change resulting from the defect
- Change history
- References including the test case that revealed the problem





# Defect Management

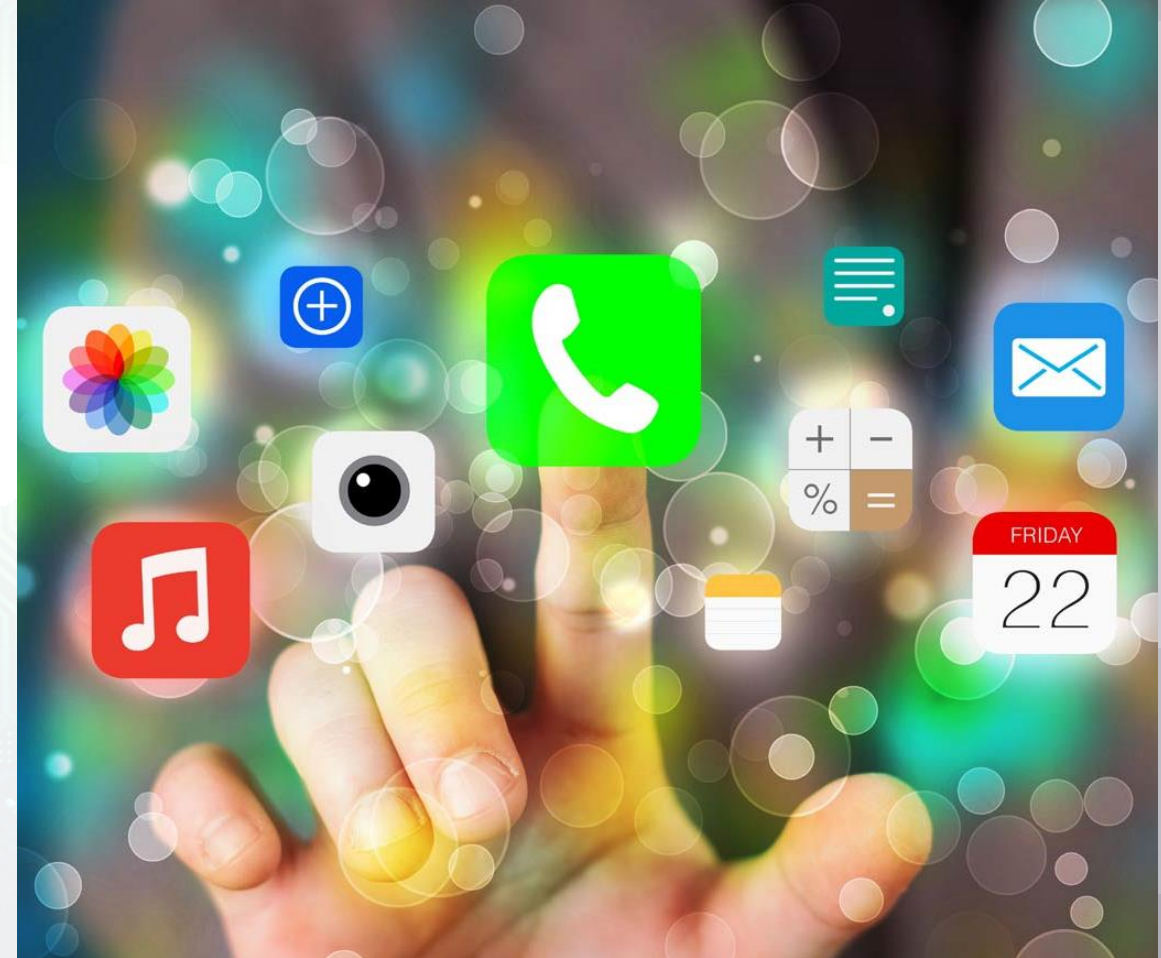
- During the defect management process, some of the reports may turn out to describe **false positives**, not actual failures due to defects.
- For example, a test may fail when a network connection is broken or times out. This behavior does not result from a defect in the test object, but is an anomaly that needs to be investigated. Testers should attempt to minimize the number of false positives reported as defects.





# Defect Management

- Some of these details may be automatically included and/or managed when using defect management tools, e.g., automatic assignment of an identifier, assignment and update of the defect report state during the workflow, etc.
- Defects found during static testing, particularly reviews, will normally be documented in a different way, e.g., in review meeting notes.



# Quiz Time



# Quiz Time

- You are testing a new version of software for a coffee machine. The machine can prepare different types of coffee based on four categories. i.e. coffee size, sugar, milk and syrup. The criteria are as follows:
  - Coffee size (small, medium, large),
  - Sugar (none, 1 unit, 2 units, 3 units, 4 units),
  - Milk (yes or no),
  - Coffee flavor syrup (no syrup, caramel, hazelnut, vanilla)
- Now you are writing a defect report with the following information:
  - Title: Low coffee temperature.
  - Short summary: When you select coffee with milk, the time for preparing coffee is too long and the temperature of the beverage is too low (less than 40 oC )
  - Expected result: The temperature of coffee should be standard (about 75 oC).
  - Degree of risk: Medium
  - Priority: Normal

What valuable information is MOST likely to be omitted in the above defect report?

- a) The actual test result
- b) Data identifying the tested coffee machine
- c) Status of the defect
- d) Ideas for improving the test case



# Quiz Time

- You are testing a new version of software for a coffee machine. The machine can prepare different types of coffee based on four categories. i.e. coffee size, sugar, milk and syrup. The criteria are as follows:
  - Coffee size (small, medium, large),
  - Sugar (none, 1 unit, 2 units, 3 units, 4 units),
  - Milk (yes or no),
  - Coffee flavor syrup (no syrup, caramel, hazelnut, vanilla)
- Now you are writing a defect report with the following information:
  - Title: Low coffee temperature.
  - Short summary: When you select coffee with milk, the time for preparing coffee is too long and the temperature of the beverage is too low (less than 40 oC )
  - Expected result: The temperature of coffee should be standard (about 75 oC).
  - Degree of risk: Medium
  - Priority: Normal

What valuable information is MOST likely to be omitted in the above defect report?

- a) The actual test result
- b) Data identifying the tested coffee machine**
- c) Status of the defect
- d) Ideas for improving the test case



# Quiz Time

- You have received the following description section in a defect report.
    - The report executed per the attached steps, but the data was incorrect. For example, the information in column 1 was wrong. See the attached screenshot. This report is critical to the users and they will be unable to do their jobs without this information. What is the biggest problem with this defect report?
- A. The developer won't know how important the problem is
  - B. The developer won't know how to repeat the test
  - C. The developer won't be able to see what the tester is saying is wrong
  - D. The developer doesn't know what the tester expected to see

# Quiz Time

- You have received the following description section in a defect report.
    - The report executed per the attached steps, but the data was incorrect. For example, the information in column 1 was wrong. See the attached screenshot. This report is critical to the users and they will be unable to do their jobs without this information. What is the biggest problem with this defect report?
- A. The developer won't know how important the problem is
  - B. The developer won't know how to repeat the test
  - C. The developer won't be able to see what the tester is saying is wrong
  - D. The developer doesn't know what the tester expected to see**



# Quiz Time

- You have been testing software that will be used to track credit card purchases. You have found a defect that causes the system to crash, but only if a person has made and voided 10 purchases in a row. What would be the proper priority and severity rating for this defect?
- A. Priority high, severity high
  - B. Priority high, severity low
  - C. Priority low, severity low
  - D. Priority low, severity high

# Quiz Time

- You have been testing software that will be used to track credit card purchases. You have found a defect that causes the system to crash, but only if a person has made and voided 10 purchases in a row. What would be the proper priority and severity rating for this defect?
- A. Priority high, severity high
  - B. Priority high, severity low
  - C. Priority low, severity low
  - D. Priority low, severity high

# Chapter 5 In the Exam

Remember (2 Question)	Understand (5 Questions)	Apply (2 Questions)
<ul style="list-style-type: none"><li>• <b>Tasks of a tester &amp; test manager</b></li><li>• <b>Factors influencing the test effort</b></li><li>• <b>Metrics used in testing</b></li><li>• <b>Definition of risk</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Independent testing</b></li><li>• <b>Test plan</b></li><li>• <b>Test strategy &amp; test approach</b></li><li>• <b>Entry &amp; exit criteria</b></li><li>• <b>Test estimation techniques</b></li><li>• <b>Test reports</b></li><li>• <b>Configuration management</b></li><li>• <b>Product &amp; project risks</b></li><li>• <b>Risk-based testing</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Test execution schedule</b></li><li>• <b>Defect management</b></li></ul>