

Software Quality Assurance and testing  
Practical lesson 1  
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## Introduction to Test Cases and Scenarios

### What Are Test Cases and Scenarios?

In software testing, **test scenarios** and **test cases** are tools to systematically verify if a system works as expected.

- **Test Scenario:** A high-level description of what to test, focusing on a specific feature or functionality. It answers *"What should we test?"*
  - Example: Verify if a user can create a new document in the application.
- **Test Case:** A detailed set of steps derived from the scenario, describing how to test a feature, what to expect, and how to document results. It answers *"How should we test it?"*

### Why Are Test Cases Important?

1. **Clarity:** They define the exact steps testers need to follow.
2. **Repeatability:** They ensure consistent results, even when tested by different people.
3. **Accountability:** They help track what has been tested and identify issues.
4. **Improvement:** Detailed test cases highlight weak areas in the system or missing requirements.

### Key Components of a Test Case

A test case typically includes:

1. **Test Case ID:** A unique identifier for tracking the test.
2. **Test Scenario:** The feature or action to test.
3. **Preconditions:** Things that must be in place before the test (e.g., a document must exist).
4. **Test Steps:** Clear instructions for what the tester should do.
5. **Expected Result:** What should happen if the feature works correctly.
6. **Actual Result:** What actually happened during the test (recorded during execution).
7. **Status:** Whether the test passed, failed, or needs review.

### Example of a Test Scenario and Its Test Case

- **Test Scenario:** Verify the functionality of creating a new document in ReqView.
- **Test Case:**

Test Case ID	Feature	Test Steps	Expected Result	Actual Result	Status
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TC-001	Create a New Document	1. Open ReqView. 2. Click "New Document" in the menu. 3. Check if a new document opens successfully.	A new blank document opens and is ready for editing.		
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### How to Write Test Scenarios and Cases?

1. **Understand Requirements:** Read the Software Requirements Specification (SRS). Identify what the system should do.
  - Example: ReqView allows users to create, import, and export documents.
2. **Identify Test Scenarios:** Break down the functionality into scenarios.
  - Example:
    - Can users create a new document?
    - Can users import a Word file?
    - Can users export a document to CSV?
3. **Write Test Cases for Each Scenario:** Include all necessary details.
  - Example for "Import a Word file":

Test Case ID	Feature	Test Steps	Expected Result	Actual Result	Status
TC-002	Import Word File	1. Open ReqView. 2. Click "Import". 3. Select a Word document. 4. Observe imported content.	The Word document is imported with correct formatting and structure.		

### Best Practices for Writing Test Cases

1. **Keep it Simple:** Use clear and concise language.
2. **Be Specific:** Write steps in detail, so anyone can follow them.
3. **Make it Independent:** Each test case should be standalone and not depend on others.
4. **Cover Edge Cases:** Include tests for unusual or extreme inputs (e.g., importing a blank document).
5. **Add Preconditions:** Clearly state the setup required before running the test.

## Activity 1: Introduction to Manual Testing Using ReqView

### Objective:

Students will understand how to apply manual testing techniques to verify the basic functionality of a requirements management tool based on its SRS document.

### Prerequisites:

1. Access to the ReqView application (if possible) or simulated environment.
2. Familiarity with the SRS document and its structure.

### Instructions:

1. **Read the SRS Document:**
  - Focus on sections related to functional requirements, specifically:
    - 2.2.1 File Operations
    - 2.2.2 Document View
    - 2.2.3 Edit Document
2. **Test Case Design:**
  - Create test cases based on the following sample scenarios:
    - Verify the ability to create a new document.
    - Check if unsaved changes prompt a warning during file close.
    - Test importing a document from MS Word and Excel.
    - Validate the functionality of exporting documents to various formats like HTML and CSV.
3. **Test Execution:**
  - Perform manual tests for each designed test case.
  - Record observed results for comparison against expected outcomes.
4. **Reporting:**
  - Document any discrepancies or bugs found during testing.
  - Suggest corrective measures or enhancements.

### Sample Test Cases:

Test Case ID	Test Scenario	Steps	Expected Result	Actual Result	Status
TC-001	Create a new document	1. Launch ReqView. 2. Select "New Document".	A blank document is created successfully.		
TC-002	Save a document with changes	1. Open an existing document. 2. Make changes. 3. Attempt to close the document.	Application prompts the user to save unsaved changes before closing.		
TC-003	Import a Word document	1. Select "Import". 2. Choose a Word document with predefined structure.	The document is imported with preserved structure and text formatting.		
TC-004	Export to CSV format	1. Select "Export". 2. Choose CSV as the output format.	The document is exported to CSV format and saved in the selected location.		

TC-005	Display Table of Contents	1. Open a document. 2. Navigate to the Table of Contents pane. 3. Click on a section.	The application navigates to the corresponding section in the document.		
TC-006	Edit requirement attributes	1. Select a requirement. 2. Edit its attributes. 3. Save changes.	Attributes are updated and saved correctly without errors.		

**Deliverables:**

1. Completed test case document with observations.
2. A list of identified bugs, if any.
3. A brief report summarizing:
  - Features tested
  - Any issues encountered
  - Suggestions for improvement

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