

14 : Test Reporting

IT6206 – Software Quality Assurance

Level III - Semester 6

Overview

- Test Reporting is essential to make sure your applications are achieving an acceptable level of quality.
- Test reporting and analysis can add true value to your development lifecycle by providing the right feedback at the right time.
- Test Automation Frameworks provide set of guidelines that, when followed, produce beneficial results.
- A test framework is more about writing, managing and executing tests while a test reporting tool is more about defect tracking and reporting.

Intended Learning Outcomes

At the end of this lesson, you will be able to;

- Understand what should be included in a test report
- Create test report following the test reporting process
- Identify different types of test frameworks used for reporting
- Identify and select test reporting tools based on the requirement

List of sub topics

14.1 Test Reporting Process

14.2 Test Reporting Frameworks

14.3 Software Tools for Test Reporting

14.1 Test Reporting Process



Source: <https://blog.testlodge.com/wp-content/uploads/2018/08/test-report-1024x538.png>

14.1 Test Reporting Process

What is a Test Report?

- “Test Report is a document which contains a summary of all test activities and final test results of a testing project”.
- A Test report evaluates how successfully the testing is carried out.
- Stakeholders can assess the tested product's quality and decide whether to release the software based on the test results.
 - Stakeholders can postpone the software release if the test report indicates that there are many defects remaining in the product.

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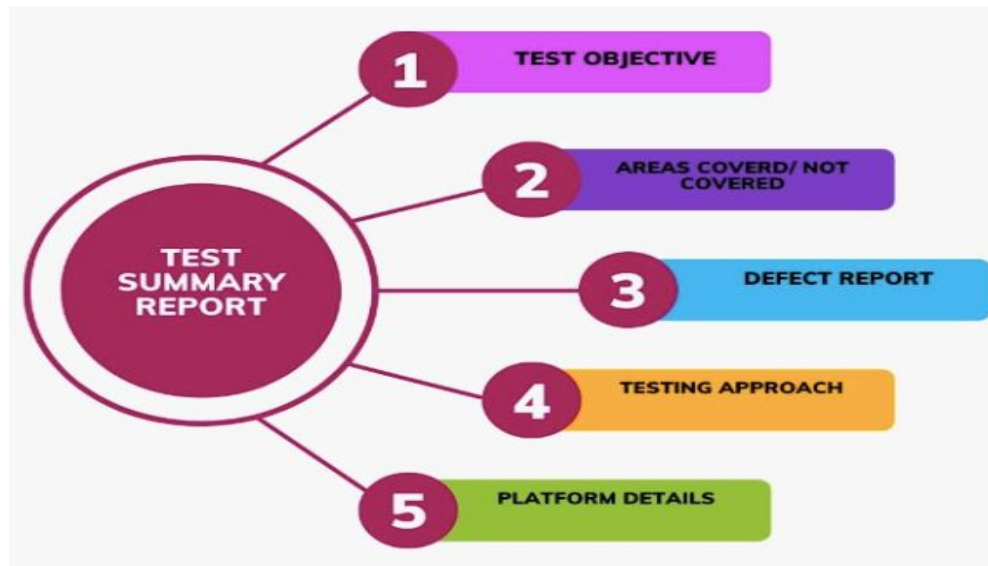
14.1 Test Reporting Process

- Test summary report is ideally prepared after the testing cycle has been completed.
- However, there should be enough time after the report is submitted and before the product is to be shipped to the customer.
- While “Daily Status Reports” only deliver the daily test status and results to the stakeholders, test summary report provides a consolidated report n overall testing activities performed in the cycle.

14.1 Test Reporting Process

What to include in a Test Summary Report

- An informative test summary report should be concise and relevant.
- Template of the report could be varied according to the nature of the test project. Following are what should be included in a typical Test Summary Report.



Source: https://browserstack.wpenginepowered.com/wp-content/uploads/2022/07/Things_to_include_in_Test_Summary.png

14.1 Test Reporting Process

List of what should be included:

- Test Objective
 - Include the purpose of testing.
- Areas Covered
 - Include the areas and the functionalities of the product that were covered in testing.
- Areas Not Covered
 - Include the areas of the product that were not covered in testing.
- Testing Approach
 - Indicates what and how the testing was performed.

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14.1 Test Reporting Process

- Defect Report
 - Identifies and describes a defect detected by a tester
- Platform Details
 - Include details of every single platform and environment on which the product was tested.
- Overall Summary
 - Provide feedback on the overall status of the application under test.

14.1 Test Reporting Process

Steps to Create a Test Summary Report

- Step 1: Capture the purpose of the document
 - Short description of the purpose of the document.
- Step 2: Capture an overview of the product in test
 - An overview of the application tested.
- Step 3: Capture the Testing Scope
 - The areas/modules that are in scope, out of scope and also the areas that were not tested due to any constraints of dependencies.

14.1 Test Reporting Process

- Step 4: Capture the Metrics
 - Test metrics help to understand the test execution results, status of the cases as well as defects, etc.
 - Metrics such as
 - No. of test cases planned
 - No. of test cases executed
 - No. of test cases passed
 - No. of test cases failedcould be captured in the report
- Step 5: Capture the types of testing performed
 - Various types of testing that were performed for the product.
 - Ensures the application being tested properly.
 - Can capture the details if multiple round of testing were done.

14.1 Test Reporting Process

- Step 6: Capture the test environment and the tools used
 - Capture the details about the test environment in which the testing activities were mostly carried out.
 - Application URL, DB version, etc.
 - Also capture the details of any tools that were use for bug management.
- Step 7: Learning during the test activity
 - Describe the critical issues that were faced and the solutions that were implemented to get past those problem areas during the testing.

14.1 Test Reporting Process

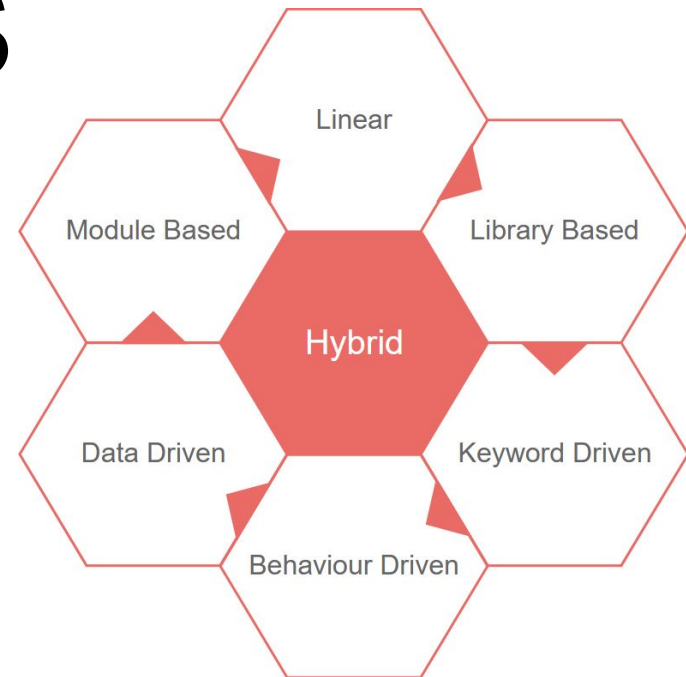
- Step 8: Recommendations or Suggestions, if any
 - Can mention any recommendations or suggestions for the relevant stakeholders, if any.
 - These suggestions can help in the planning for the next cycle and can help the involved teams.
- Step 9: Exit Criteria
 - Exit criteria is defined as test completion when certain conditions fulfilled such as,
 - All planned test cases executed successfully
 - All critical issues were closed
 - Open issues have an action planned for the next release cycle

14.1 Test Reporting Process

- Step 10: Sign Off
 - Captures whether the testing team gives approval for the system to go live and if the exit criteria is fulfilled.

Once the test summary reports are designed, it is important to share them not just with the stakeholders and clients but within the team as well.

14.2 Test Reporting Frameworks



Source: <https://devopedia.org/images/article/33/4835.1531244425.svg>

14.2 Test Reporting Frameworks

- A test framework is a set of guidelines such as
 - Coding standards
 - Test-data handling
 - Object repository testing and etc.that enable more efficient testing.
- These are just guidelines and not rules; they are not mandatory to follow when scripting
- A test framework provides a consistent interface between code and tests.

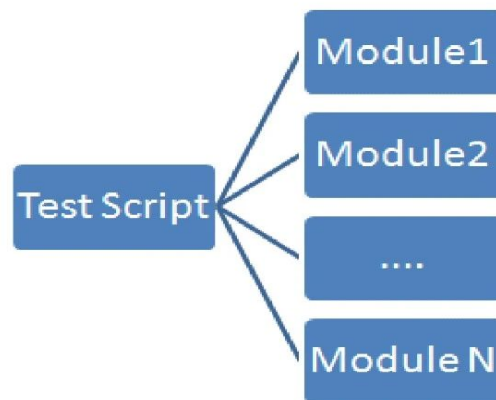
14.2 Test Reporting Frameworks

- **Benefits of using a test framework?**
 - Improved test efficiency
 - Lower maintenance cost
 - Minimal manual intervention
 - Maximum test coverage
 - Code reuse
 - Handling of recovery scenarios
 - Easy reporting

14.2 Test Reporting Frameworks

Common types of Test frameworks

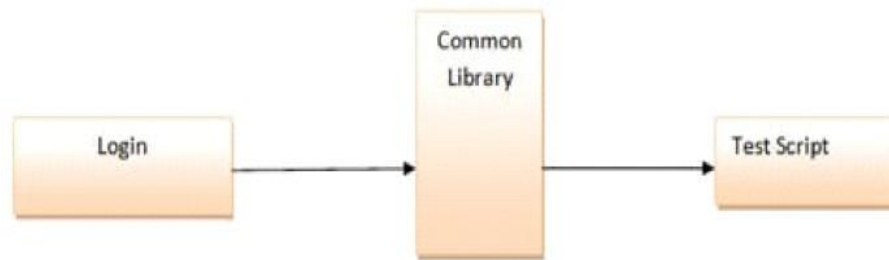
- Linear Scripting Framework
 - Tests are independent of one another, often created by recording manual actions and replaying them.
- Module Based Framework
 - The application is tested in its smaller parts (functions, modules, sub-systems). Tests can be combined to enable system-level tests as well.



Source: <https://www.practitest.com/assets/img/learning-center/modular-testing-frameworks.webp>

14.2 Test Reporting Frameworks

- Library Based Framework
 - Reusable libraries are identified and written. Good for test maintenance and scalability.

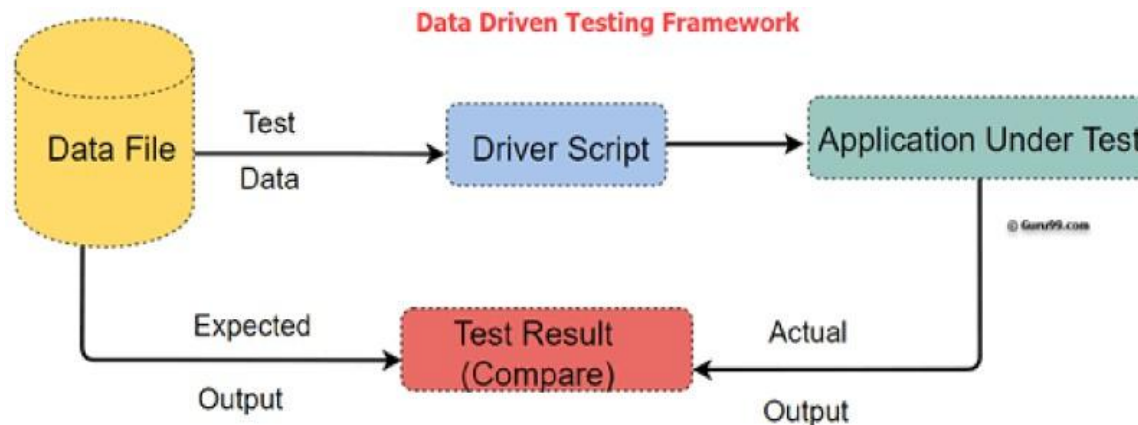


Source: <https://www.practitest.com/assets/img/learning-center/Library-architecture-testing-framework.webp>

- Behavior Driven Framework
 - Tests are written in a descriptive style so that even business stakeholders can understand them. Tests are in terms of behaviors and user-focused scenarios.

14.2 Test Reporting Frameworks

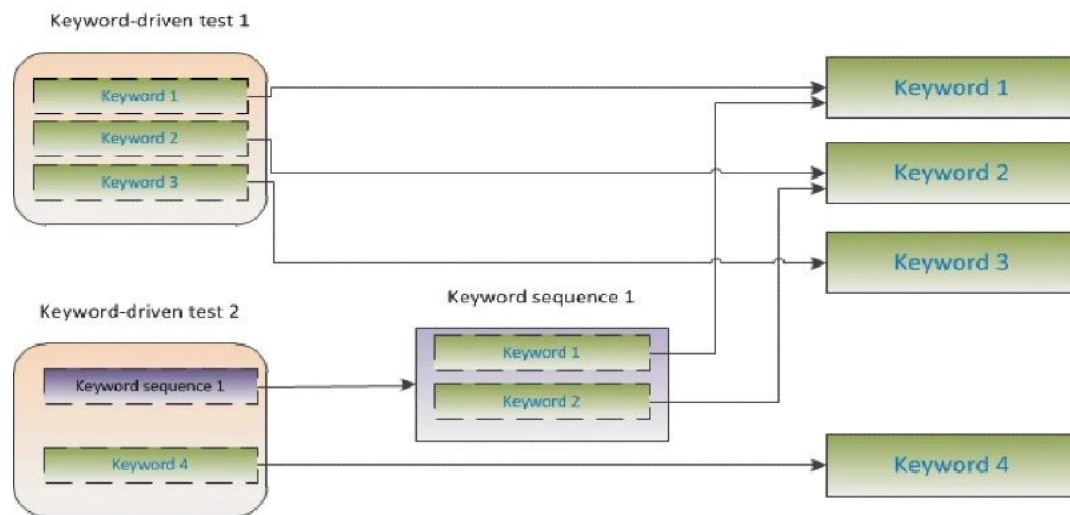
- Data Driven Framework
 - Focus is on executing a test with different input data. Data is read from databases or spreadsheets.
 - There's a clear separation of test scripts and input data.
 - Hard-coding of data within scripts is avoided.



Source: <https://www.practitest.com/assets/img/learning-center/data-driven-testing-framework.webp>

14.2 Test Reporting Frameworks

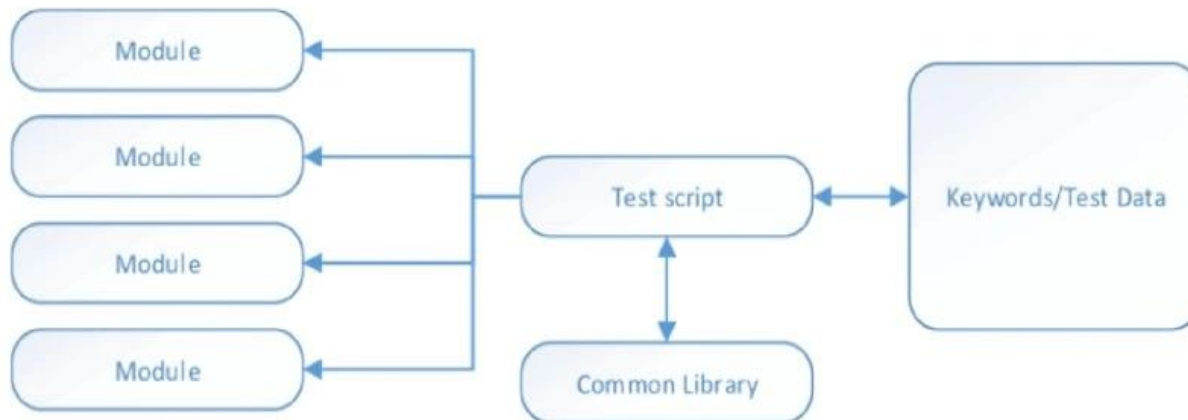
- Keyword Driven Framework
 - An extension of data-driven approach. Test execution is basically a sequence of steps defined by keywords.
 - Keywords are mapped to objects and actions in a *shared object repository*
 - Promotes reuse.



Source: <https://www.practitest.com/assets/img/learning-center/keyword-driven-testing-framework.webp>

14.2 Test Reporting Frameworks

- Hybrid Testing Framework
 - Combination of two or more frameworks.
 - Combination created to take advantage of the benefits of the different frameworks and mitigate their weaknesses.



Source: <https://www.practitest.com/assets/img/learning-center/hybrid-testing-framework.webp>

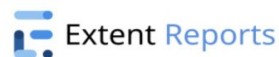
14.3 Software Tools for Test Reporting



Source: [Introduction to Testing Tools - Software Testing \(gcreddy.com\)](https://www.gcreddy.com)

14.3 Software Tools for Test Reporting

- **What are test reporting tools?**
 - Reporting tools are software that provides reporting, decision making and business intelligence capabilities.
 - Allows to extract and present data in charts, tables, and other visualization formats.



Source: [Top 7 automation test reporting tools for 2023 \(katalon.com\)](https://katalon.com/top-7-automation-test-reporting-tools-for-2023/)

14.3 Software Tools for Test Reporting

- **Why are test reporting tools required**
 - Detecting bugs early
 - Testing tool will help identify critical bugs very early in the cycle.
 - This avoids having to manually look through the code to find bugs and then report them to the developer.
 - Makes analysis easier
 - Provides valuable insight as to how good or bad of a shape the project is in and how it aligns with the business requirements.
 - Helps track progress of a product

14.3 Software Tools for Test Reporting

- **Criteria for choosing the right test reporting tool**
 - User interface
 - Clean and easy to use
 - Usability
 - How simple is it to learn and master
 - Flexibility to be compatible with a wide range of automation tools
 - Functionality and features
 - Ability to help team members to provide comprehensive and relevant reports
 - Value
 - Reasonable price in relation to the features, capabilities and use case.

14.3 Software Tools for Test Reporting

- **Key Features of Commonly Used Test Reporting Tools**
 - Test case management
 - Test execution management
 - Defect management
 - Traceability
 - Customizable reports
 - Dashboards to provide key quality metrics such as release readiness or test pass/fail trends.
 - Data Tracking in real time
 - Classifying failure according to root causes

References

- [1] www.guru99.com/how-test-reports-predict-the-success-of-your-testing-project.html
- [2] [Test Automation Framework: What is, Architecture & Types \(guru99.com\)](http://www.guru99.com/test-automation-framework-what-is-architecture-types.html)
- [3] [Test Frameworks \(devopedia.org\)](http://devopedia.org/test-frameworks)
- [4] <https://katalon.com/resources-center/blog/test-reporting-tools>

Summary

Test Summary Report

- Contains a summary of all test activities and final test results of a testing project

Test Reporting Frameworks

- Facilitates the generation and organization of test results and metrics to provide insights into the quality of software being tested.

Test Reporting Tools

- Outlines the key activities carried out during the testing lifecycle for any release and the overall results of testing.