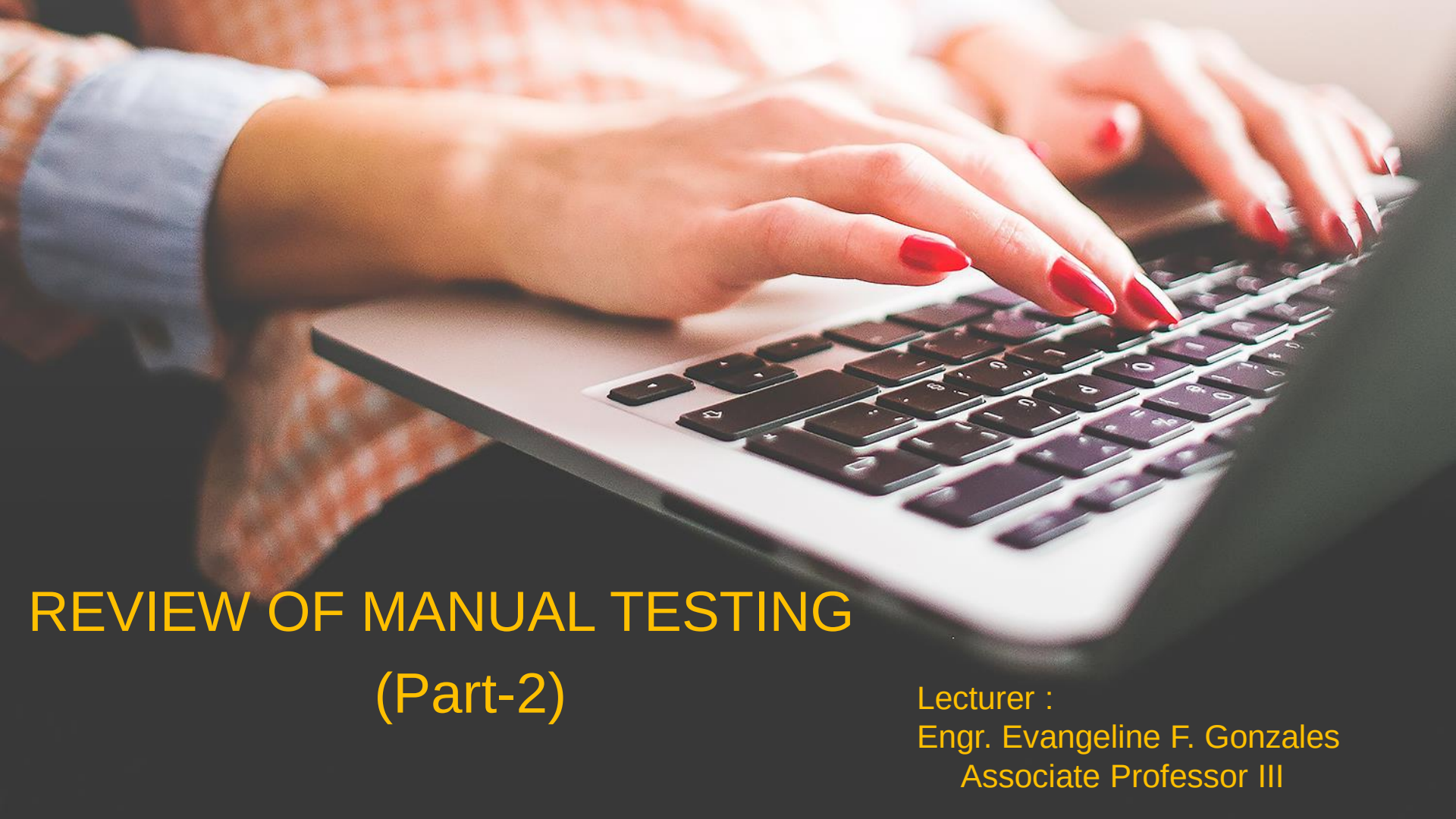


REVIEW OF MANUAL TESTING

(Part-2)

Lecturer :
Engr. Evangeline F. Gonzales
Associate Professor III

Lecture3-Review of Manual Testing

01 **Performing Manual Testing**

02 **Manual Versus Automation Testing**

Performing Manual Testing

PERFORMING MANUAL TESTING

How to perform manual testing?

WHAT?

Software is a collection of computer programs that helps us to perform tasks

PERFORMING MANUAL TESTING

How to perform manual testing?

TYPES OF SOFTWARE

1. **System Software**
2. **Programming Software**
3. **Application Software**

Ex. Desktop apps, ***Web applications***, ***mobile apps***

PERFORMING MANUAL TESTING

How to perform manual testing?

Software Testing

- A part of software development process
- An activity to detect and identify the defects in the software

Therefore, the objective of testing is to release quality product to the client.

PERFORMING MANUAL TESTING

How to perform manual testing?

Software Quality

- Bug-free
- Delivered on time
- Within budget
- Meets requirements and/or expectations
- Maintainable

PERFORMING MANUAL TESTING

How to perform manual testing?

Project VS. Product

There is software application that is developed for *specific customer* based on the requirements

There is software application that is developed for *multiple customers* based on market requirements

PERFORMING MANUAL TESTING

How to perform manual testing?

Reason for Testing

To deliver quality product.

PERFORMING MANUAL TESTING

How to perform manual testing?

Quality Assurance (QA): Deals with ‘prevention’ of defects in the product being developed.

PERFORMING MANUAL TESTING

How to perform manual testing?

Quality Control (QC): Its focus is defect detection and removal. Testing is a quality control activity.

PERFORMING MANUAL TESTING

How to perform manual testing?

Quality Improvement: To change a production process so that the rate at which defective products (defects) are produced is reduced.

PERFORMING MANUAL TESTING

How to perform manual testing?

ERROR, BUG/DEFECT VS. FAILURE

Error-human mistakes

-characteristics of human actions

- indirect human action (omission or commission)

PERFORMING MANUAL TESTING

How to perform manual testing?

Error or Defect: 1. A discrepancy between a computed, observed or measured value or condition and the true, specified or theoretically correct value or condition

PERFORMING MANUAL TESTING

How to perform manual testing?

Error or Defect: 2.Human action that results in software containing a fault (e.g., omission or misinterpretation of user requirements in a software specification, incorrect translation or omission of a requirement in the design specification)

PERFORMING MANUAL TESTING

How to perform manual testing?

Bugs/Defects- related to application which shows deviation from expected actual behavior.

PERFORMING MANUAL TESTING

How to perform manual testing?

Failure- deviation that was identified by the ***end-user*** after sometime using the app.

PERFORMING MANUAL TESTING

How to perform manual testing?

Testing Vocabulary

TESTING VOCABULARY

What are the different testing vocabulary?

Backlog

A list of tasks required to support a larger strategic plan. For example, a product development context contains a prioritized list of items. The product team agrees to work on these projects next.

TESTING VOCABULARY

What are the different testing vocabulary?

Typical items on a product backlog include user stories, changes to existing functionality, and bug fixes.

TESTING VOCABULARY

What are the different testing vocabulary?

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

TESTING VOCABULARY

What are the different testing vocabulary?

Component integration testing

Synonyms: link testing

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

TESTING VOCABULARY

What are the different testing vocabulary?

Component Testing

Ref: After IEEE 610

Synonyms: module testing, program testing, unit testing

The testing of individual software components

TESTING VOCABULARY

What are the different testing vocabulary?

Data-driven Testing

Ref: Fewster and Graham See Also: keyword-driven testing

A scripting technique that stores test input and expected results in a table or spreadsheet, so that a single control script can execute all of the tests in the table.

TESTING VOCABULARY

What are the different testing vocabulary?

Data-driven testing is often used to support the application of test execution tools such as capture/playback tools.

TESTING VOCABULARY

What are the different testing vocabulary?

Defect density

Synonyms: fault density

The number of defects identified in a component or system divided by the size of the component or system (expressed in standard measurement terms, e.g., lines-of-code, number of classes or function points)

TESTING VOCABULARY

What are the different testing vocabulary?

Epic

Allow you to keep track of large, loosely defined ideas in your backlog without the need to overpopulate your backlog with multiple items.

TESTING VOCABULARY

What are the different testing vocabulary?

Exhaustive testing

Synonyms: complete testing A test approach in which the test suite comprises all combinations of input values and preconditions.

TESTING VOCABULARY

What are the different testing vocabulary?

Factory acceptance testing

See Also: alpha testing

Acceptance testing conducted at the site at which the product is developed and performed by employees of the supplier organization, to determine whether or not a component or system satisfies the requirements, normally including hardware

TESTING VOCABULARY

What are the different testing vocabulary?

High-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.

TESTING VOCABULARY

What are the different testing vocabulary?

Incremental Testing

Testing where components or systems are integrated and tested one or some at a time, until all the components or systems are integrated and tested

TESTING VOCABULARY

What are the different testing vocabulary?

Level test plan

See Also: test plan

A test plan that typically addresses one test level

TESTING VOCABULARY

What are the different testing vocabulary?

Load testing

See Also: performance testing, stress testing

A type of performance testing conducted to evaluate the behavior of a component or system with increasing load, e.g., numbers of parallel users and/or numbers of transactions, to determine what load can be handled by the component or system.

TESTING VOCABULARY

What are the different testing vocabulary?

Maintenance testing

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

TESTING VOCABULARY

What are the different testing vocabulary?

Master test plan

See Also: test plan

A test plan that typically addresses multiple test levels.

TESTING VOCABULARY

What are the different testing vocabulary?

Memory leak

A memory access failure due to a defect in a program's dynamic store allocation logic that causes it to fail to release memory after it has finished using it, eventually causing the program and/or 16 other concurrent processes to fail due to lack of memory.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Operational testing

Ref: IEEE 610

Testing conducted to evaluate a component or system in its operational environment.

TESTING VOCABULARY

What are the different testing vocabulary?

Peer review

A review of a software work product by colleagues of the producer of the product for the purpose of identifying defects and improvements. Examples are inspection, technical review and walkthrough.

TESTING VOCABULARY

What are the different testing vocabulary?

Post-execution comparison

Comparison of actual and expected results, performed after the software has finished running.

TESTING VOCABULARY

What are the different testing vocabulary?

Postcondition

Environmental and state conditions that must be fulfilled after the execution of a test or test procedure.

TESTING VOCABULARY

What are the different testing vocabulary?

Precondition

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

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Scribe

Synonyms: recorder

The person who records each defect mentioned and any suggestions for process improvement during a review meeting, on a logging form. The scribe should ensure that the logging form is readable and understandable.

TESTING VOCABULARY

What are the different testing vocabulary?

Sprint

A set amount of time that a development team has to complete a specific amount of work. Sprints are generally planned to last about two weeks, though they can be as short as one week or as long as a month.

TESTING VOCABULARY

What are the different testing vocabulary?

Standard-compliant testing

See Also: process-compliant testing

Testing that complies to a set of requirements defined by a standard, e.g., an industry testing standard or a standard for testing safety-critical systems

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Statement testing

A white-box test design technique in which test cases are designed to execute statements.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Stress testing

Ref: After IEEE 610 See Also: performance testing, load testing

A type of performance testing conducted to evaluate a system or component at or beyond the limits of its anticipated or specified workloads, or with reduced availability of resources such as access to memory or servers.

TESTING VOCABULARY

What are the different testing vocabulary?

Structural coverage

Coverage measures based on the internal structure of a component or system.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

System testing

Ref: Hetzel

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

System Under Test (SUT)

See test object

test item

TESTING VOCABULARY

What are the different testing vocabulary?

Test approach

The implementation of the test strategy for a specific project.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Test automation

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

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Test case

Ref: After IEEE 610

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

TESTING VOCABULARY

What are the different testing vocabulary?

Test closure

See Also: test process

During the test closure phase of a test process data is collected from completed activities to consolidate experience, test ware, facts and numbers.

TESTING VOCABULARY

What are the different testing vocabulary?

The test closure phase consists of finalizing and archiving the test ware and evaluating the test process, including preparation of a test evaluation report .

TESTING VOCABULARY

What are the different testing vocabulary?

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..

TESTING VOCABULARY

What are the different testing vocabulary?

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

TESTING VOCABULARY

What are the different testing vocabulary?

Test design

See Also: test design specification

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

TESTING VOCABULARY

What are the different testing vocabulary?

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 30 conditions held in the tool itself, or from code.

TESTING VOCABULARY

What are the different testing vocabulary?

Test item

See Also: test object

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

TESTING VOCABULARY

What are the different testing vocabulary?

Test item

See Also: test object

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

TESTING VOCABULARY

What are the different testing vocabulary?

Test log

Ref: IEEE 829

Synonyms: test record, test run log

A chronological record of relevant details about the execution of tests.

TESTING VOCABULARY

What are the different testing vocabulary?

Test implementation

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

TESTING VOCABULARY

What are the different testing vocabulary?

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,

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Test schedule

A list of activities, tasks or events of the test process, identifying their intended start and finish dates and/or times, and interdependencies.

TESTING VOCABULARY

What are the different testing vocabulary?

test schedule A list of activities, tasks or events of the test process, identifying their intended start and finish dates and/or times, and interdependencies.

TESTING VOCABULARY

What are the different testing vocabulary?

Test script

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

TESTING VOCABULARY

What are the different testing vocabulary?

Test specification

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

TESTING VOCABULARY

What are the different testing vocabulary?

Test strategy

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

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Test-driven development (TDD)

A way of developing software where the test cases are developed, and often automated, before the software is developed to run those test cases.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

TESTING VOCABULARY

What are the different testing vocabulary?

Walkthrough

Ref: Freedman and Weinberg, IEEE 1028

See Also: peer review Synonyms: structured walkthrough A step-by-step presentation by the author of a document in order to gather information and to establish a common unde rstanding of its content.

TESTING VOCABULARY

What are the different testing vocabulary?

White-box test design technique

Synonyms: structural test design technique, structure-based test design technique, structure-based technique, white box technique. Procedure to derive and/or select test cases based on an analysis of the internal structure of a component or test design technique.

TESTING VOCABULARY

What are the different testing vocabulary?

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.

PERFORMING MANUAL TESTING

How to perform manual testing?

5 Why's Software has Bugs

- Miscommunication or No communication
- Software Complexity
- Programming Errors
- Changing requirements
- Lack of skilled Testers

PERFORMING MANUAL TESTING

How to perform manual testing?

Steps on how to perform Manual Testing

1.Read and understand the software project documentation/guides. Also, study the Application Under Test (AUT) if available.

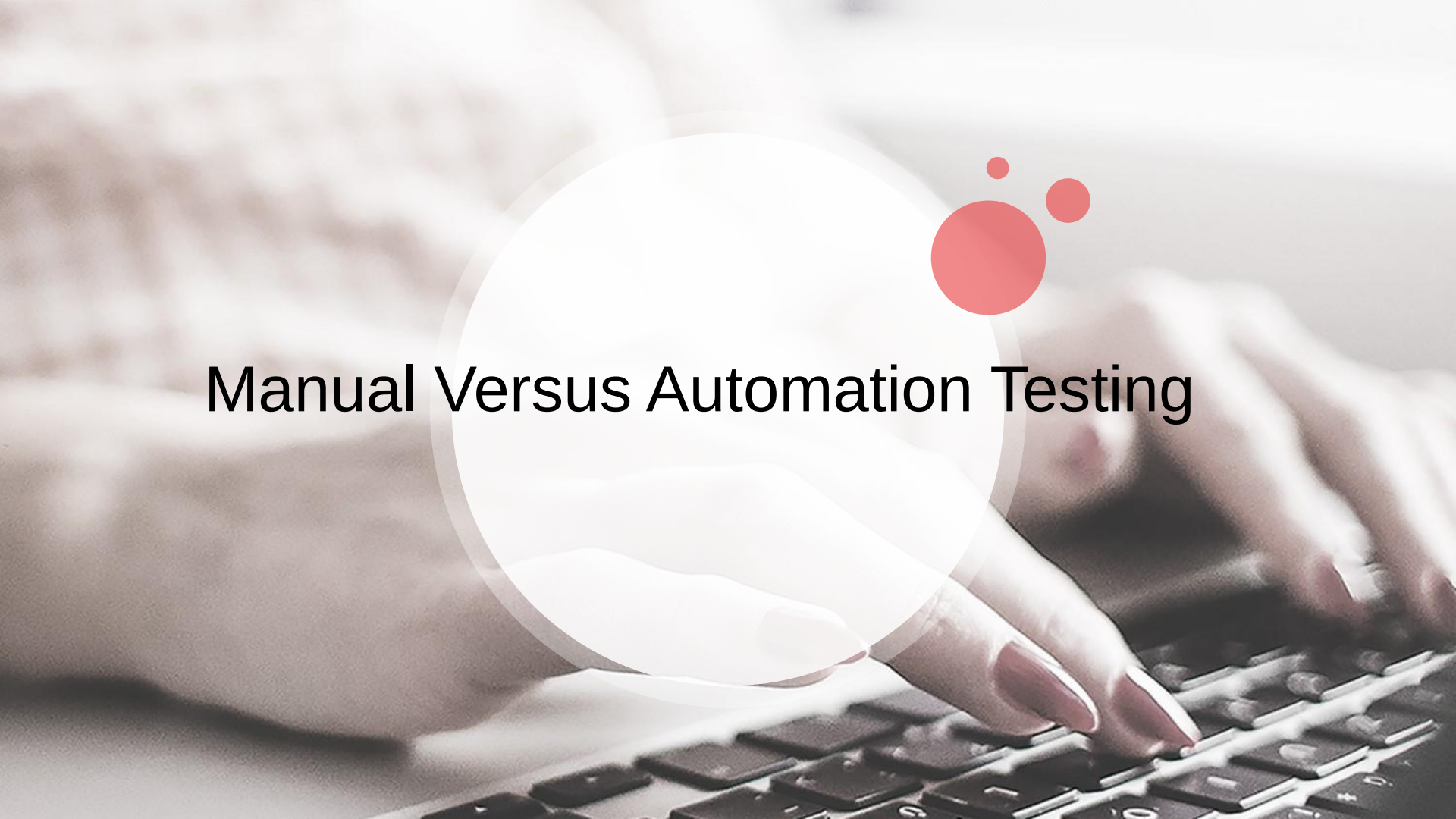
2.Draft Test cases that cover all the requirements mentioned in the documentation.

PERFORMING MANUAL TESTING

How to perform manual testing?

Steps on how to perform Manual Testing

3. Review and baseline the test cases with Team Lead, Client (as applicable)
4. Execute the test cases on the AUT
5. Report bugs.
6. Once bugs are fixed, again execute the failing test cases to verify they pass.



Manual Versus Automation Testing

MANUAL VERSUS AUTOMATION

What are the comparisons between manual and automation testing?

Myths of Manual Testing

Following are few common myths and facts related to testing:

MANUAL VERSUS AUTOMATION

What are the comparisons between manual and automation testing?

Myth: Anyone can do manual testing

Fact: Testing requires many skill sets

MANUAL VERSUS AUTOMATION

What are the comparisons between manual and automation testing?

Myth: Testing ensures 100% Defect free product

Fact: Testing attempts to find as many defects as possible. Identifying all possible defects is impossible.

MANUAL VERSUS AUTOMATION

What are the comparisons between manual and automation testing?

Myth: Automated testing is more powerful than manual testing

Fact: 100% test automation cannot be done. Manual Software Testing is also essential.

MANUAL VERSUS AUTOMATION

What are the comparisons between manual and automation testing?

Myth: Testing is easy

Fact: Testing can be extremely challenging. Testing an application for possible use cases with minimum test cases requires high analytical skills.

MANUAL VERSUS AUTOMATION

What are the comparisons between manual and automation testing?

Manual Testing	Automated Testing
Manual testing requires human intervention for test execution.	Automation Testing is use of tools to execute test cases
Manual testing will require skilled labour, long time & will imply high costs.	Automation Testing saves time, cost and manpower. Once recorded, it's easier to run an automated test suite
Any type of application can be tested manually, certain testing types like ad-hoc and monkey testing are more suited for manual execution.	Automated testing is recommended only for stable systems and is mostly used for Regression Testing
Manual testing can become repetitive and boring.	The boring part of executing same test cases time and again is handled by automation software in Automation Testing.

THANK YOU FOR LISTENING