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Basic Testing

Days 2 and 3: Test Case Writing and Test Data Preparation
(with Case study)

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Agenda

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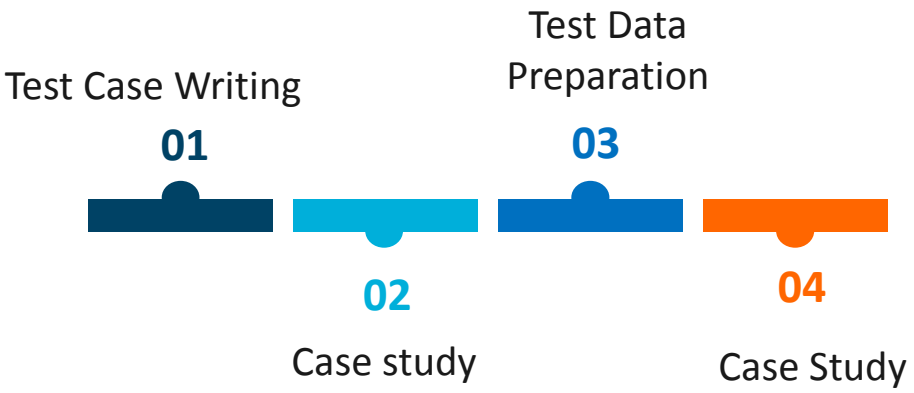
Day 02 and 03



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01 Test Case Writing

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What is a Test Case?

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Test Case

- Test case is a set of test inputs, execution conditions, and expected results developed for a particular objective, such as to exercise a particular program path or, to verify compliance with a specific requirement.
- A Test Case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly.
- The process of developing Test Cases can also help find problems in the requirements or design of an application.

Why is a Test Case prepared?

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A Test Case is prepared to

- Assure quality
- Find defects
- Ascertain that the product is built as per the requirements.
- Verify the correctness of the product
- Block pre-mature product releases
- Help management on taking go / no-go decisions.

Pre-requisites for writing a Test Case

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Pre-requisites

- **Availability of requirement and specification**
- **Clarity of design and implementation details**
- **The test environment and test types are identified**
- **Should be clear of behavior under failure condition (that is, invalid input, negative scenario, and so on)**

Write a Good Test Case

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- As far as possible, write Test Cases in such a way that you test only one thing at a time. Do not overlap or complicate Test Cases. Attempt to make your Test Cases “atomic”.
- Ensure that all positive scenarios and negative scenarios are covered.
- Write in simple and easy to understand language.
- Use active voice: Do this, do that.
- Use exact and consistent names (of forms, fields, and so on).

Characteristics of a good Test Case

Economical	No unnecessary steps or words
Traceable	Capable of being traced to requirements
Repeatable	Can be used to perform the test over and over
Reusable	Can be reused if necessary

Test Case **attributes**

TEST CASE ATTRIBUTES	
Test Case id	It must be unique for every Test Case.
Test Case name	It should be short.
Test Case description	It should be brief.
Test Case priority	Priority should be mentioned for each Test Case.
Pre-condition	What all pre-requisites are required for executing a Test Case?
Author Name	Who is writing the Test Case?
Expected Result	
Requirement ID	It should be mapped clearly to the Test Case id.
Test Case type	To identify the type of Test Case
Test Case steps	Steps to execute the Test Case

Test Case attributes **(continued)**

TEST CASE ATTRIBUTES	
Module Name	Mention name of main module or sub module.
Test Execution Date	Date when test is executed.
Test Data	Use of Test Data as an input for this Test Case. We can provide different data sets with exact values to be used as an input.
Status	The state of the system after executing this Test Case. Pass or Fail
Actual result	Actual test result should be filled after test execution. Describe system behavior after test execution.
Defect ID / Link	If test status is fail, then include the link to defect log or mention the defect number.
Attachments / References	This field is useful for complex test scenarios. To explain test steps or expected result using a Visio diagram as a reference. Provide the link or location to the actual path of the diagram or document

Documents required to **write** a **Test Case**

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- Functional Specification (FS) / Technical Specification (TS) documents
- Business Requirement Documents (BRD)
- Mock ups
- Use case diagrams
- Discussion email / documents captured between business analyst and client.

Spot Quiz

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01 What is one of the requirements for writing a test case?

A	Client meetings to discuss requirements
B	Finalized test plan prepared by the Test Manager
C	Meeting with the Developers and Business Analysts for final requirements
D	Clarity of design and implementation details

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02 What is a Test Case?

A	It is a set of instructions that will be performed on the system under test to test that the system functions as expected.
B	It is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly.
C	It is a document describing the testing scope and activities. It is the basis for formally testing any software/product in a project.
D	It is an outline that describes the testing approach of the software development cycle.

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02 Case Study

Role play: Day 2—Test Case Writing

Let us get started with the some real life case studies now. Here is what you need to do:

- Divide yourselves into groups as instructed by the facilitator
- Work within your group to assume any of the following roles:
  - Tester
  - SME
  - Observer
- Refer to the Case Study by clicking the embedded doc or the Case Study handout provided to you.
- Read the four use cases on Page 8 and 9
- Share your key takeaways from the role play with the class (30 mins)

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Role play: What will the Tester do?

When you play the role of the tester, you also have an SME and an observer in your team for this role play.

You need to:

- Review the test cases in the case study
- Ask questions to SMEs to get clarifications on the use cases as well
- Record the review observations and comments directly in RQM or in OPAL template first and then enter into RQM to maintain the records
- Document your observations from the conversation

Role play: What will the SME do?

- When you play the role of the SME, you also have a tester and an observer in your team for this role play

You need to:

- Read the test cases to the team and pose relevant queries to the tester
- Hear responses from the tester

Role play: What will the Observer do?

- When you play the role of the observer in this role play, you also have a tester and a SME in your team

You need to:

- Closely observe the dialogue between the tester and a SME
- Refer to the responses for the scenarios in your handout
- Document your feedback for the tester based on your observation of the role play

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03 Test Data Preparation

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Test data preparation: **Overview** and **importance**

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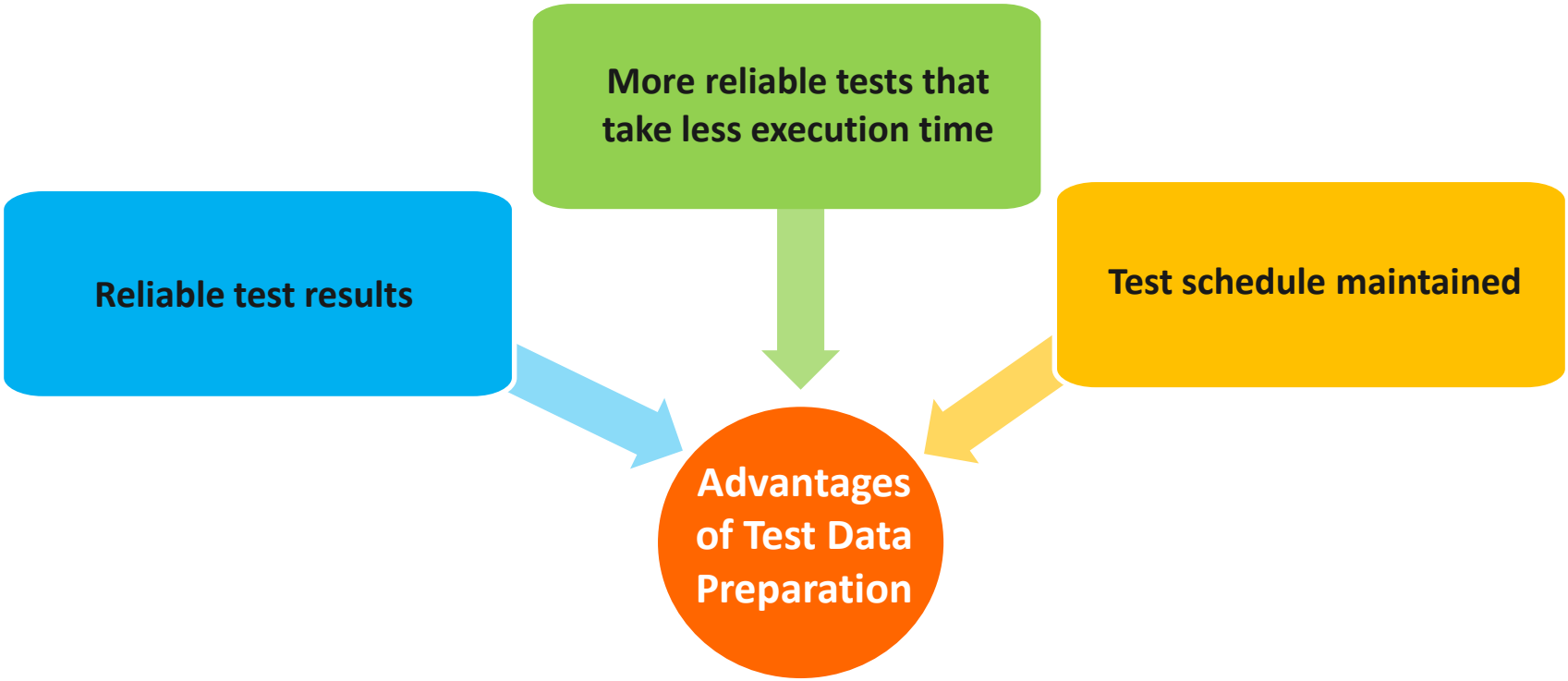
Testing consumes and produces large amounts of data. Data describes the initial conditions for a test and forms the input. It is the medium through which the tester influences the software. Data is manipulated, extrapolated, summarized, and referenced by the functionality under test, which finally spews forth yet more data to be checked against expectations. Data is a crucial part of most functional testing.



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Test Data preparation

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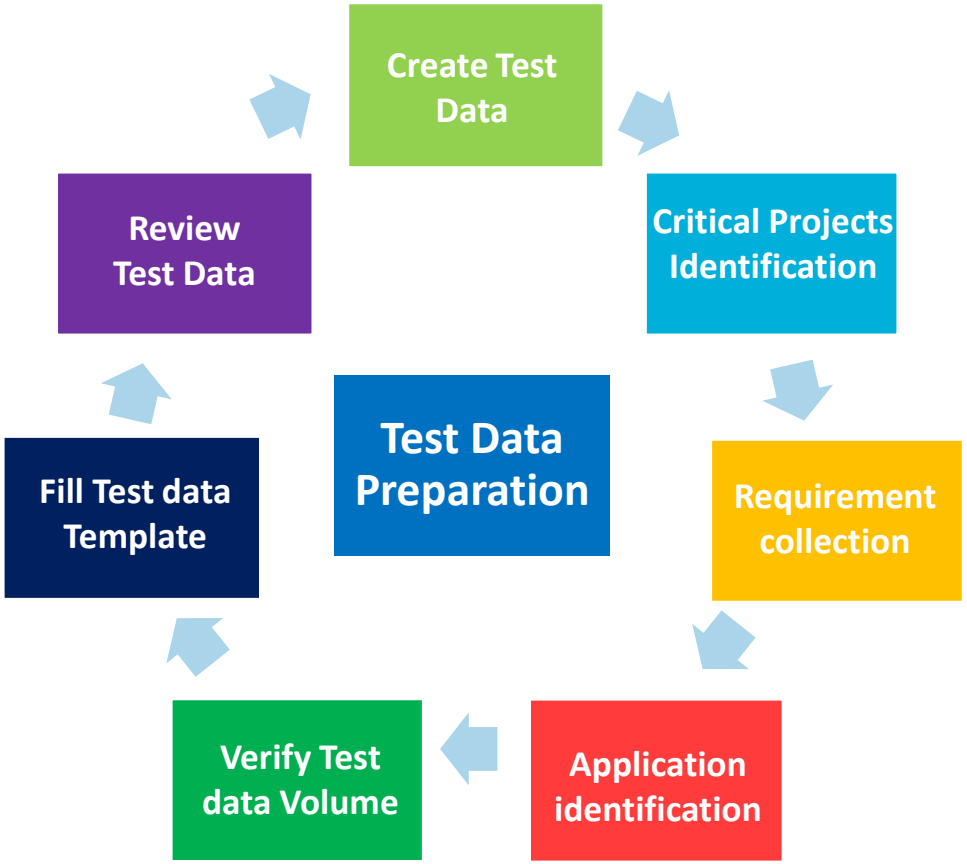
While writing Test Case we need input data which is required to execute the Test Cases at later stage.

One good way to design Test Data is to use the existing sample Test Data.

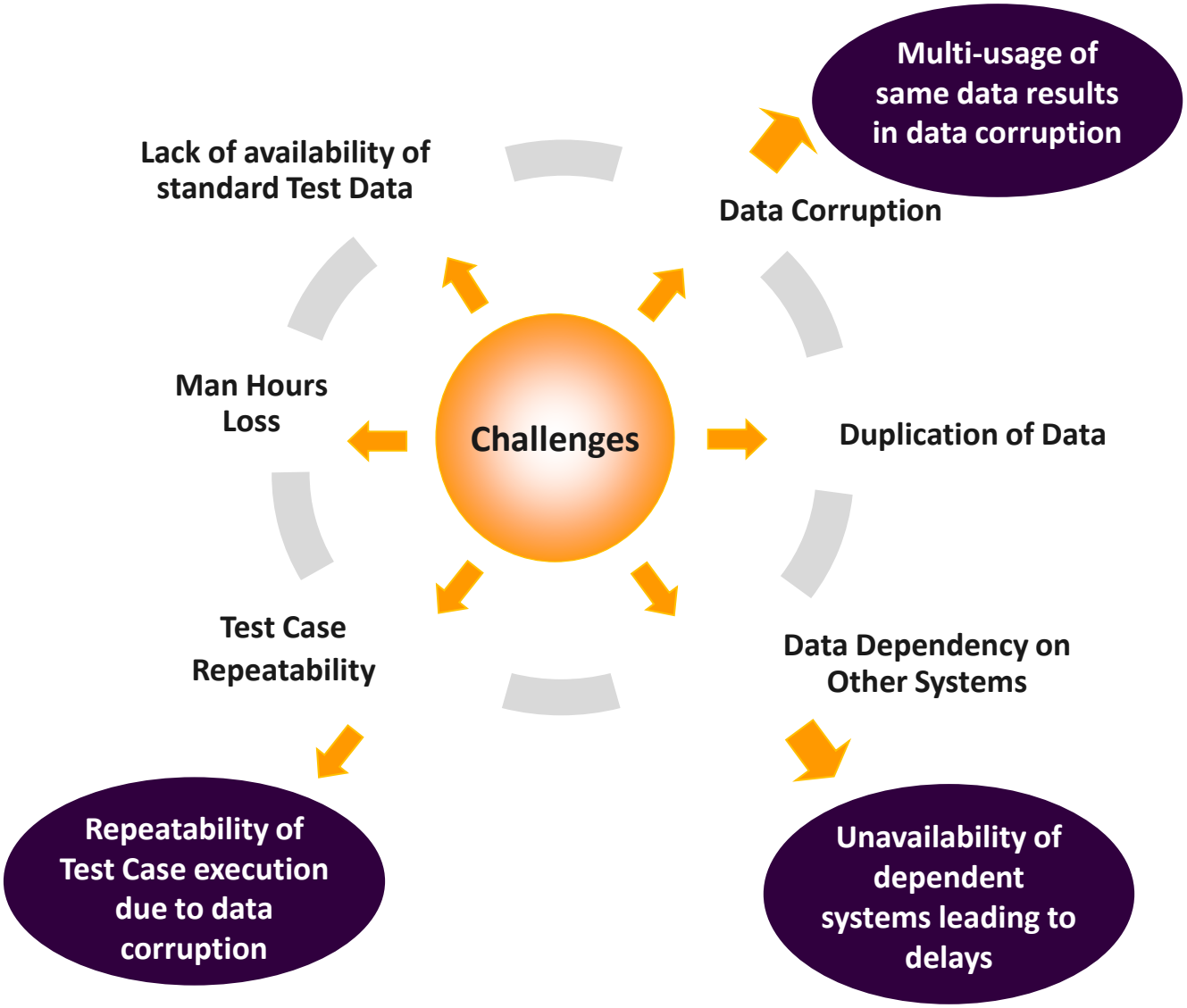
Preparation of Test Data is also called test bed.

The test bed can be used to append your new Test Case data each time you get the same module for testing.

Test Data preparation **(continued)**



Challenges



Test Data **examples**

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Design your Test Data considering the following categories

No Data	Run your Test Cases on blank or default data. See if proper error messages are generated.
Valid Data Set	Create it to check if the application is functioning as per requirements and valid input data is properly saved in database or files.
Invalid Data Set	Prepare invalid data set to check application behavior for negative values and alphanumeric string inputs.
Illegal Data Format	Make one data set of illegal data format. The system should not accept data in invalid or illegal format. Also, check if the proper error messages are generated.
Boundary Condition Data Set	If the data set contains out of range data, identify application boundary cases and prepare data set that will cover lower as well as upper boundary conditions.
Data Set for Performance, Load and Stress Testing	Ensure that this type of data set is large in volume.

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What are the advantages of test data preparation?

A	Test schedule is maintained
B	Able to use existing test info
C	Can append test bed to new test case

Spot Quiz

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What is one of the steps needed for test data preparation?

A	prepare test environment
B	ensure team members have access logins
C	requirement collection

04 Case Study

Case Study: Day 3—Test Data Preparation

Let us get started with the some real life case studies now. Here is what you need to do:

- Work with your groups as instructed by the facilitator on Day 1
- Testers will identify the following test design techniques:
  - State Transition (Not strictly but a deleted Payee should not be available for Money transfer)
  - Boundary Value and Equivalence Partitioning (Age and Bonus Calculation)
  - Decision Table (Multiple checks for a single Entity, Decision table created for Bonus Calculation)
- Tester will then write the test cases in collaboration will the SME and observer will take notes
- Refer the four use cases on Page 8 and 9
- Share your key takeaways with the class on the steps you took to prepare the test cases (30 mins)

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