Requirement Analysis

Test Data Generation

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Agenda

- What is Requirement Analysis
- How Requirement analysis can be performed
- Advantages of Requirement analysis
- Purpose of Requirement traceability matrix
- RTM Template
- Demo

What is Requirement Analysis?

- Requirement analysis is the process of determining client expectations for a new or modified product.
- The intent is to brainstorm and clarify any ambiguous requirements before getting to the next phase and to precisely define

How requirement analysis will be done?

- A typical Requirement Analysis process should identify testable requirements through frequent interactions with various stakeholders (Client, Business Analyst and Technical Leads etc.).
- Requirements must be uniquely identified, Complete, Consistent and unambiguous, prioritized.

How requirement analysis will be done?

Uniquely Identifiable.

Incorrect: Students will be able to enroll to undergraduate and post graduate courses

Correct: Students will be able to enroll to undergraduate courses

Students will be able to enroll to post-graduate courses

Complete.

Incorrect : A professor user will log into the system by providing his username, password, and other relevant information

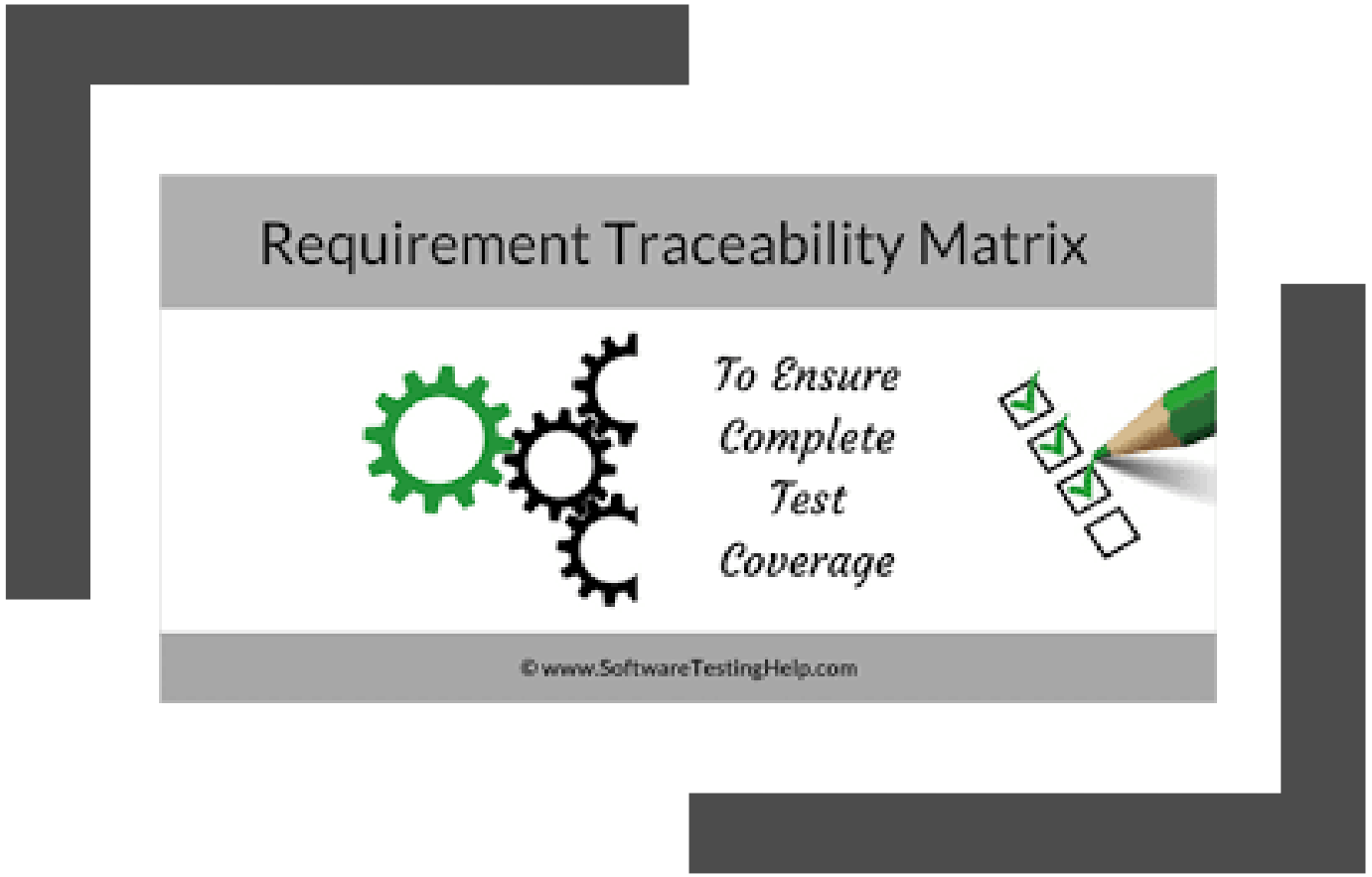
Correct: A professor user will log into the system by providing his username, password and department code

Consistent and unambiguous.

Incorrect: Payroll data of employees will be shown to all upon logging into the HR application.

Correct: Payroll data of employees will be shown upon logging into the HR application as a HR manager

Purpose of RTM



- Requirement traceability matrix ensures the better test coverage by tracing the all requirements and mapping with corresponding test scenarios, test cases and bugs.
- RTM could be maintained in Excel or any other Test management tools

Advantages

- Seamless traceability
- Better test coverage
- Better Documentation
- Quality delivery in timely manner

Sample BRD

	A	B	C
1	Requirement Id	Req Description	Priority
2	BRD_1	Login	High
3	BRD_2	Loan Process	Low
4	BRD_3	How to Use	Medium
5	BRD_4	Customer Ease of Use	Low
6	BRD_5	How to integrate to other processes after submission	Medium
7	BRD_6	Logout	
8			
9			
10		**1 Provide the links of the BRD document	
11		**2 Derive the main functionalities	
12			

Sample FSD mapped to BRD

	A	B	C	D
1	**BRD Id**	**Description**	**FSD Id**	**FSD Description**
2	BRD_1	Login	FSD_1.1	1.1. Register
3			FSD_1.2	1.2
4	BRD_2	Loan Process	FSD_2.1	2.1 New users
5			FSD_2.2	2.2 Existing users
6	BRD_3	How to Use	FSD_3.1	3.1.
7			FSD_3.2	3.2
8	BRD_4	Customer Ease of Use	FSD_4.1	4.1 All the information should be accessible in less than 3 clicks for a user.
9			FSD_4.2	4.2
10	BRD_5	Response(How to integrate to other processes after submission)	FSD_5.1	5.1
11	BRD_6	Logout	FSD_6.1	6.1
12				
13	**1 Provide the links of the BRD document			
14	**2 Derive the main functionalities			

Sample Test Scenarios

	A	B
1	Test scenario ID	Test Objective/Test scenarios
2	TS_Login_001	
3	TS_Login_002	
4	TS_Login_003	
5	TS_Loan_NewUsers_001	
6	TS_Loan_NewUsers_002	
7	TS_Loan_NewUsers_003	
8	TS_Loan_ExistingUsers_004	
9	TS_Loan_ExistingUsers_005	
10	TS_How-to-Use_001	
11	TS_How-to-Use_002	
12	TS_How-to-Use_003	
13	TS_How-to-Use_004	

Sample Test Cases mapping

	A	B	C	D	E	F	G	H	I	J	K
1	Requirement Id	Testcase_Id	Priority	Description	Pre-conditions	Test Steps	Expected result	TestData	Testcase Results	Bug ID	Comments
2	BRD_1	TC_Login_001	P1								
3		TC_Login_002	P2							Defect_01	
4	BRD_2	TC_newuser_001	P1								
5		TC_newuser_002	P1								
6		TC_newuser_003	P1								
7		TC_existinguser_001	P2								
8		TC_existinguser_002	P1								
9	BRD_3	TC_HowtoUse_001	P1							Defect_03	
10		TC_HowtoUse_002	P1								
11	BRD_4	TC_EasyUse_001	P1								
12		TC_EasyUse_002	P1								
13	BRD_5	TC_a_a_001	P2							Defect_04	
14		TC_a_a_002	P2								
15	BRD_6	TC_a_a_001	P2								
16		TC_a_a_002	P2								

Sample RTM

	A	B	C	D	E	F	G	H
1	ZENQ		Requirement Traceability Matrix					
2	Project Name:	<Required>						
3	Client Name:	<Required>						
4	Project Manager Name:	<Required>						
5	Project Start Date:	<Required>						
6	Project End Date:	<Required>						
7	Project Description:	<Required>						
8	S.No	Business Requirement ID	Functional Requirement ID	Test Scenario ID	Test Case Number/ ID	Execution Status	Defects	Additional Comments
9	1	BRD_1	FSD_1.1	TS_Login_001	TC_Login_001	Passed		
10			FSD_1.2	TS_Login_002	TC_Login_002	Passed		
11	2	BRD_2	FSD_2.1	TS_Loan_NewUsers_001	TC_newuser_001	Passed		
12				TS_Loan_NewUsers_002	TC_newuser_002	Failed	Defect_01, Defect_02	
13				TS_Loan_NewUsers_003	TC_newuser_003	Blocked	Defect_01	
14			FSD_2.2	TS_Loan_ExistingUsers_004	TC_existinguser_001	Failed	Defect_03	
15				TS_Loan_ExistingUsers_005	TC_existinguser_002	Passed		
16	3	BRD_3	FSD_3.1	TS_How-to-Use_0	TC_HowtoUse_001	Passed		
17			FSD_3.2	TS_How-to-Use_0	TC_HowtoUse_002	Passed		

Demo

Test Data

- What is Test Data?
- Types of Test Data
- Ways of generating Test Data

What is test data?

1. Test data is the data which is identified to test the software. It ensures complete testing coverage, thereby improving the quality.
2. Test data is not simple all the times. It may be required in large amounts or test data creation for the system might be complex.
3. Having test data handy before test execution saves a lot of time and provides extra space for out of box testing.

Different Kinds of Test Data

- No data
  - Login to an application without providing any details.
- Valid data
  - Login to an application by providing correct/valid details.
- Invalid data
  - Attempt to withdraw 15,000 rupees in one transaction when the limit is just 10,000.
- Illegal Data Format
  - Login to an application by providing incorrect email/pwd format.

Different Kinds of Test Data

- Boundary Condition Data set
  - Validating the boundaries that are either inside or outside the given values

Min/Max	Size	Result
Min	5	PASS
Max	10	PASS
Min-1	4	FAIL
Min+1	6	FAIL
Max-1	9	FAIL
Max+1	11	FAIL

Different Kinds of Test Data

- Equivalence partition Data set
  - dividing the input data into the input values of valid and invalid.
    - Age field should accept a number from 18 to 21

Equivalence Class Partitioning		
Invalid	Valid	Invalid
<18	18-21	>21

Different Kinds of Test Data

- Decision Table Data set
  - Generating all possible combinations of data and verifying the test results.
    - Login to an application by providing username and password.

Condition	Username	F	T	F	T
	Password	F	F	T	T
Action	Expected Result	Error: Please enter user name	Error: Please enter correct password	Error: Please enter correct user name	Login successful

- Application related Test Data.
  - Mocking all possible required objects within the application.
    - Products, Users, etc.

Different Ways of generating Test Data

1. Manual test data creation.
2. Test data creation using tools
3. Test data creation using automation scripts
4. Restoring Database snapshots
5. Importing/Exporting of data from legacy system.

Q & A

Thank You!

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