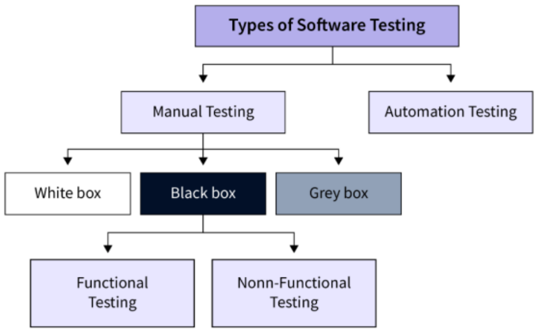
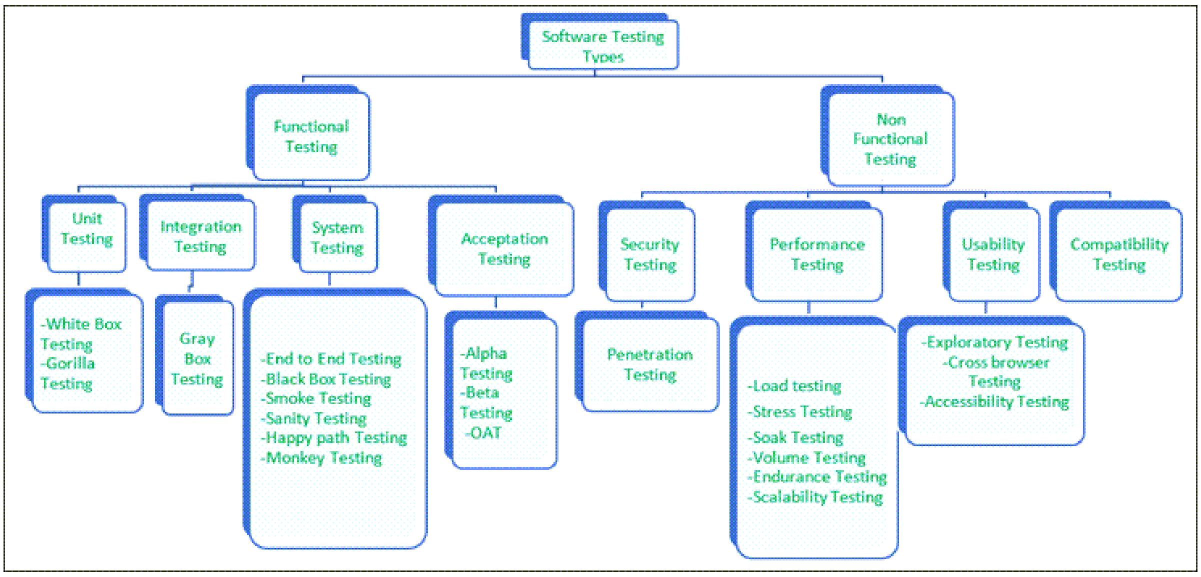
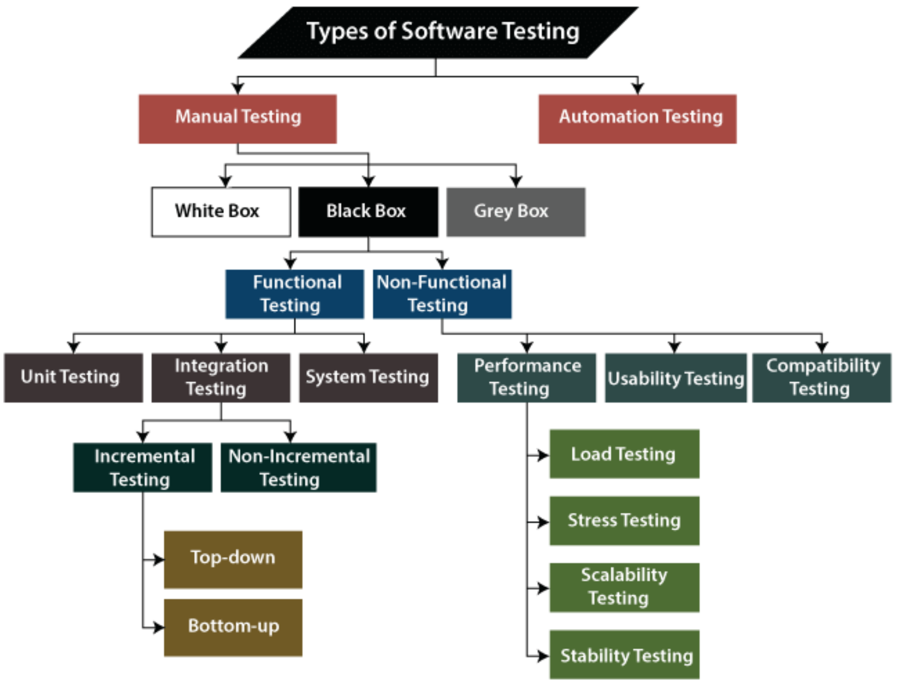
Types of Software Testing: Different Testing Types with Details




Software Testing Types
Functional Testing
Non Functional Testing
Unit Testing
Integration Testing
System Testing
Acceptance Testing
Security Testing
Performance Testing
Usability Testing
Compatibility Testing
-White Box Testing -Gorilla Testing
Gray Box Testing
-End to End Testing -Black Box Testing -Smoke Testing -Sanity Testing -Happy path Testing -Monkey Testing
-Alpha Testing -Beta Testing -OAT
Penetration Testing
-Load testing -Stress Testing -Soak Testing -Volume Testing -Endurance Testing -Scalability Testing
-Exploratory Testing -Cross browser Testing -Accessibility Testing



Testing is performed in the below order:

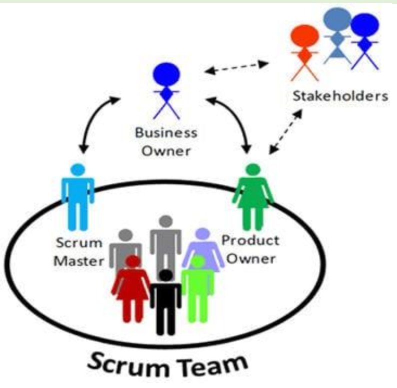
$$\begin{tikzcd}
\boxed{\text{Unit Testing}} \arrow[r] & \boxed{\text{Integration Testing}} \arrow[r] & \boxed{\text{System Testing}} \arrow[r] & \boxed{\text{Acceptance Testing}}
\end{tikzcd}$$

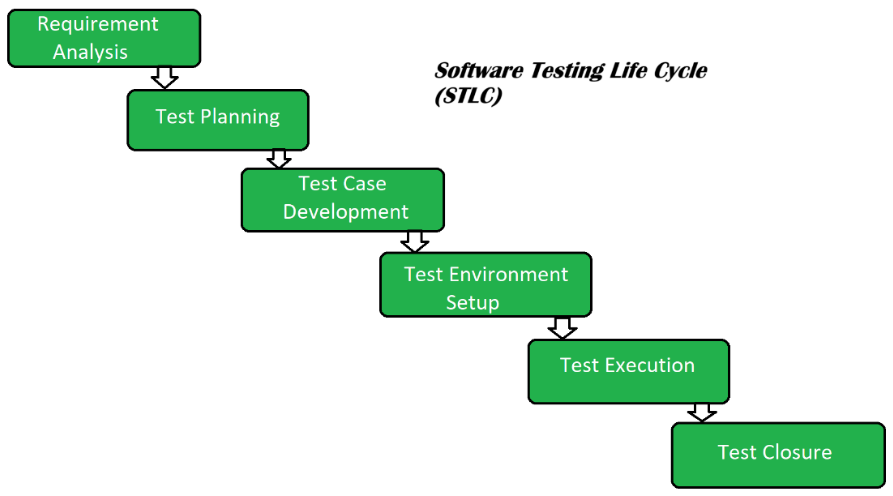
integrated system works fine.

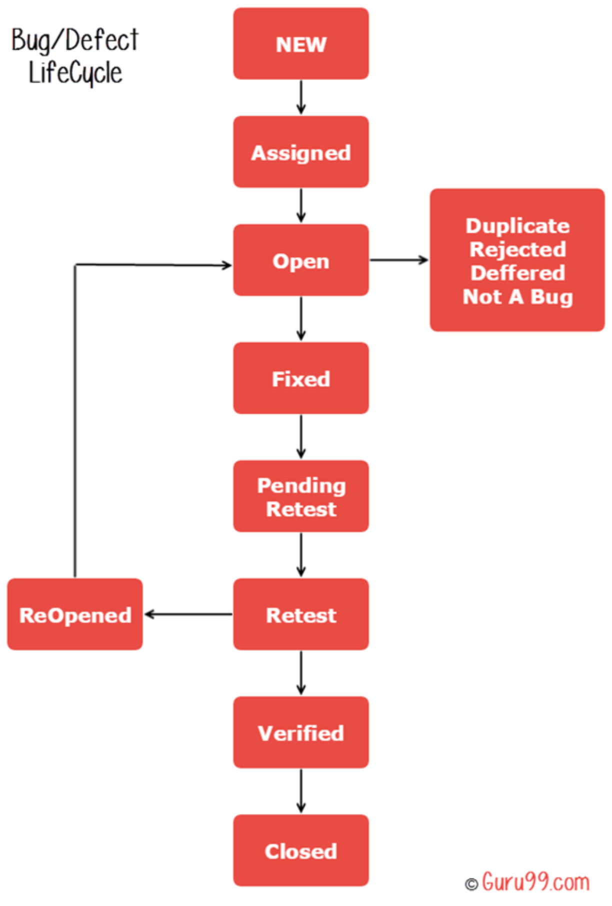
SIT Techniques

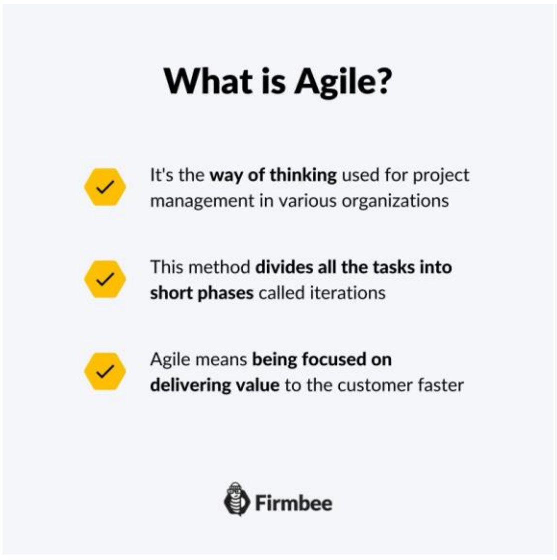
Mainly, there are 4 approaches for doing SIT:

1. Top-Down Approach
2. Bottom-up Approach
3. Sandwich Approach
4. Big Bang Approach




Requirement Analysis
Test Planning
Test Case Development
Test Environment Setup
Test Execution
Test Closure
Software Testing Life Cycle (STLC)

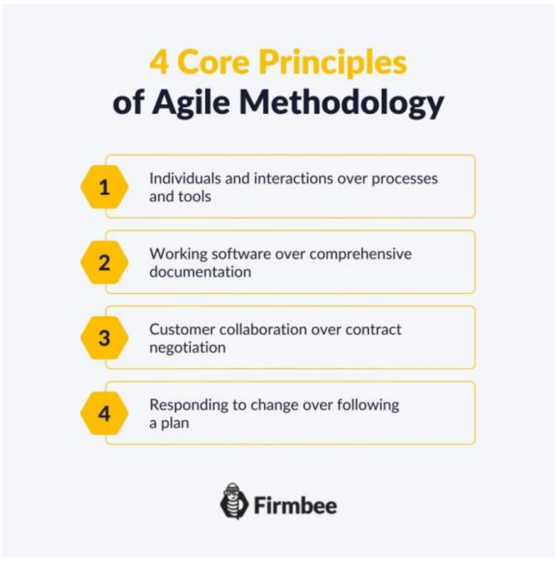

Bug/Defect LifeCycle
NEW
Assigned
Open
Duplicate Rejected Deffered Not A Bug
Fixed
Pending Retest
Retest
ReOpened
Verified
Closed
© Guru99.com



What is Agile?

- It's the **way of thinking** used for project management in various organizations
- This method **divides all the tasks into short phases** called iterations
- Agile means **being focused on delivering value** to the customer faster

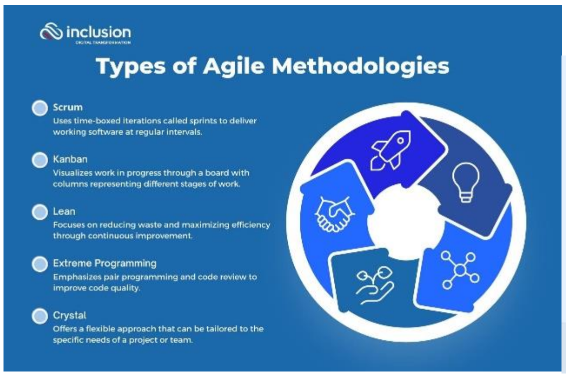
Firmbee



4 Core Principles of Agile Methodology

1. Individuals and interactions over processes and tools
2. Working software over comprehensive documentation
3. Customer collaboration over contract negotiation
4. Responding to change over following a plan

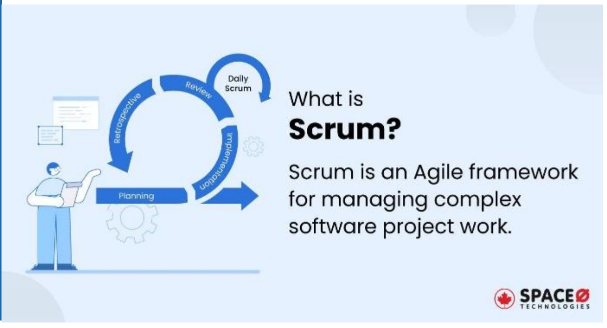
Firmbee



inclusion
DIGITAL TRANSFORMATION

Types of Agile Methodologies

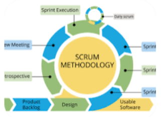
- **Scrum**
  Uses time-boxed iterations called sprints to deliver working software at regular intervals.
- **Kanban**
  Visualizes work in progress through a board with columns representing different stages of work.
- **Lean**
  Focuses on reducing waste and maximizing efficiency through continuous improvement.
- **Extreme Programming**
  Emphasizes pair programming and code review to improve code quality.
- **Crystal**
  Offers a flexible approach that can be tailored to the specific needs of a project or team.



What is
Scrum?
Scrum is an Agile framework for managing complex software project work.

SPACE-O TECHNOLOGIES

Scrum is a project management framework that helps teams work together to achieve a common goal:



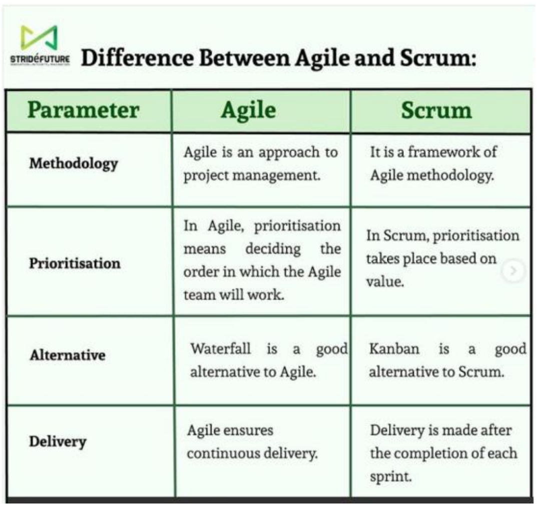
What it is

Scrum is a set of practices, tools, and roles that help teams structure and manage their work. It's often used in software development, but its principles can be applied to any kind of teamwork.

How it works

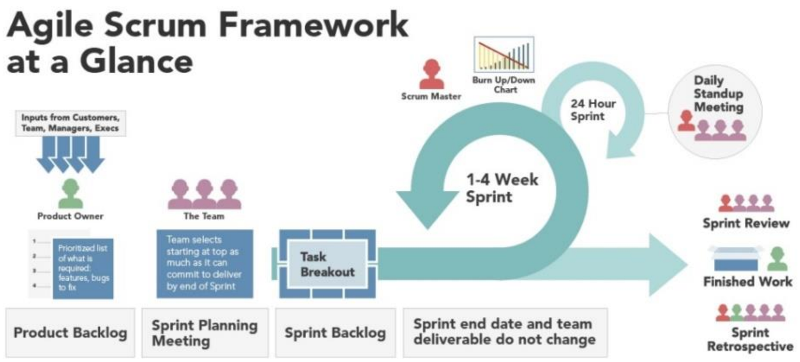
Scrum encourages teams to:

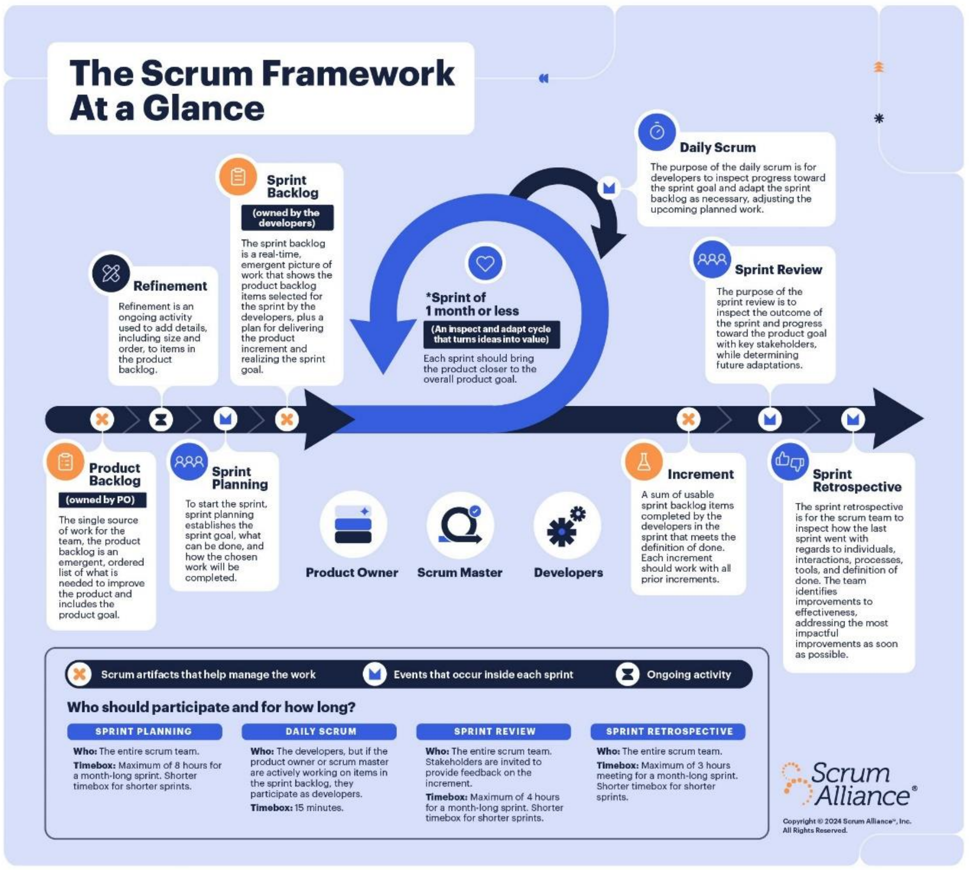
- Self-organize and learn from experience
- Adapt to change
- Reflect on their wins and losses
- Inspect and adapt at regular intervals
- Work in an open environment


STRIDEFUTURE

Difference Between Agile and Scrum:

Parameter	Agile	Scrum
Methodology	Agile is an approach to project management.	It is a framework of Agile methodology.
Prioritisation	In Agile, prioritisation means deciding the order in which the Agile team will work.	In Scrum, prioritisation takes place based on value.
Alternative	Waterfall is a good alternative to Agile.	Kanban is a good alternative to Scrum.
Delivery	Agile ensures continuous delivery.	Delivery is made after the completion of each sprint.


Agile Scrum Framework at a Glance
Inputs from Customers, Team, Managers, Execs
Product Owner
Prioritized list of what is required: features, bugs to fix
The Team
Team selects starting at top as much as it can commit to deliver by end of Sprint
Task Breakout
Scrum Master
Burn Up/Down Chart
24 Hour Sprint
Daily Standup Meeting
1-4 Week Sprint
Sprint Review
Finished Work
Sprint Retrospective
Product Backlog
Sprint Planning Meeting
Sprint Backlog
Sprint end date and team deliverable do not change


The Scrum Framework At a Glance

Sprint Backlog (owned by the developers)
The sprint backlog is a real-time, emergent picture of work that shows the product backlog items selected for the sprint by the developers, plus a plan for delivering the product increment and realizing the sprint goal.

Refinement
Refinement is an ongoing activity used to add details, including size and order, to items in the product backlog.

***Sprint of 1 month or less** (An inspect and adapt cycle that turns ideas into value)
Each sprint should bring the product closer to the overall product goal.

Daily Scrum
The purpose of the daily scrum is for developers to inspect progress toward the sprint goal and adapt the sprint backlog as necessary, adjusting the upcoming planned work.

Sprint Review
The purpose of the sprint review is to inspect the outcome of the sprint and progress toward the product goal with key stakeholders, while determining future adaptations.

Product Backlog (owned by PO)
The single source of work for the team, the product backlog is an emergent, ordered list of what is needed to improve the product and includes the product goal.

Sprint Planning
To start the sprint, sprint planning establishes the sprint goal, what can be done, and how the chosen work will be completed.

Product Owner   Scrum Master   Developers

Increment
A sum of usable sprint backlog items completed by the developers in the sprint that meets the definition of done. Each increment should work with all prior increments.

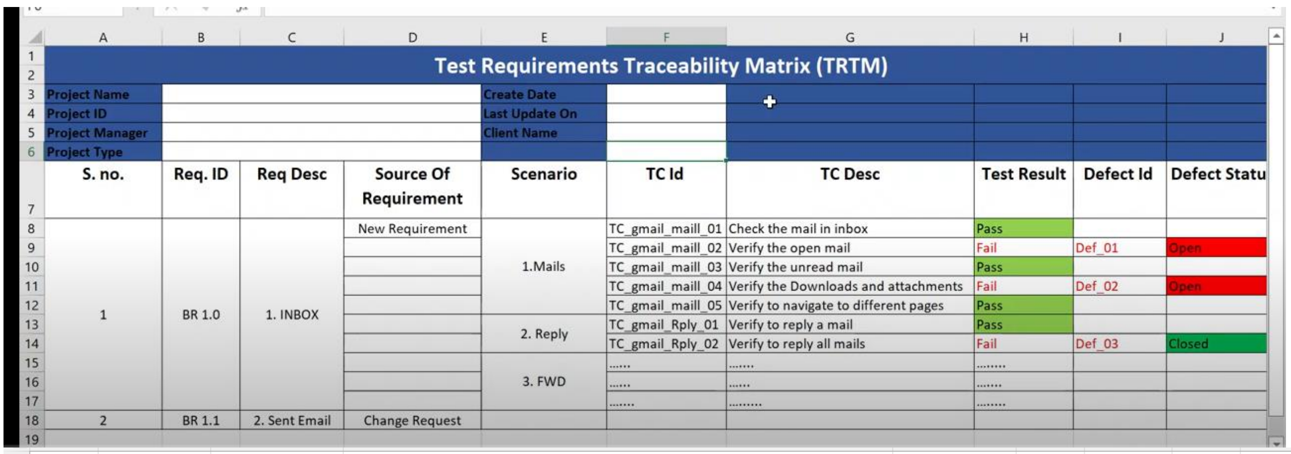
Sprint Retrospective
The sprint retrospective is for the scrum team to inspect how the last sprint went with regards to individuals, interactions, processes, tools, and definition of done. The team identifies improvements to effectiveness, addressing the most impactful improvements as soon as possible.

Scrum artifacts that help manage the work   Events that occur inside each sprint   Ongoing activity

Who should participate and for how long?

SPRINT PLANNING	DAILY SCRUM	SPRINT REVIEW	SPRINT RETROSPECTIVE
Who: The entire scrum team. **Timebox:** Maximum of 8 hours for a month-long sprint. Shorter timebox for shorter sprints.	**Who:** The developers, but if the product owner or scrum master are actively working on items in the sprint backlog, they participate as developers. **Timebox:** 15 minutes.	**Who:** The entire scrum team. Stakeholders are invited to provide feedback on the increment. **Timebox:** Maximum of 4 hours for a month-long sprint. Shorter timebox for shorter sprints.	**Who:** The entire scrum team. **Timebox:** Maximum of 3 hours meeting for a month-long sprint. Shorter timebox for shorter sprints.

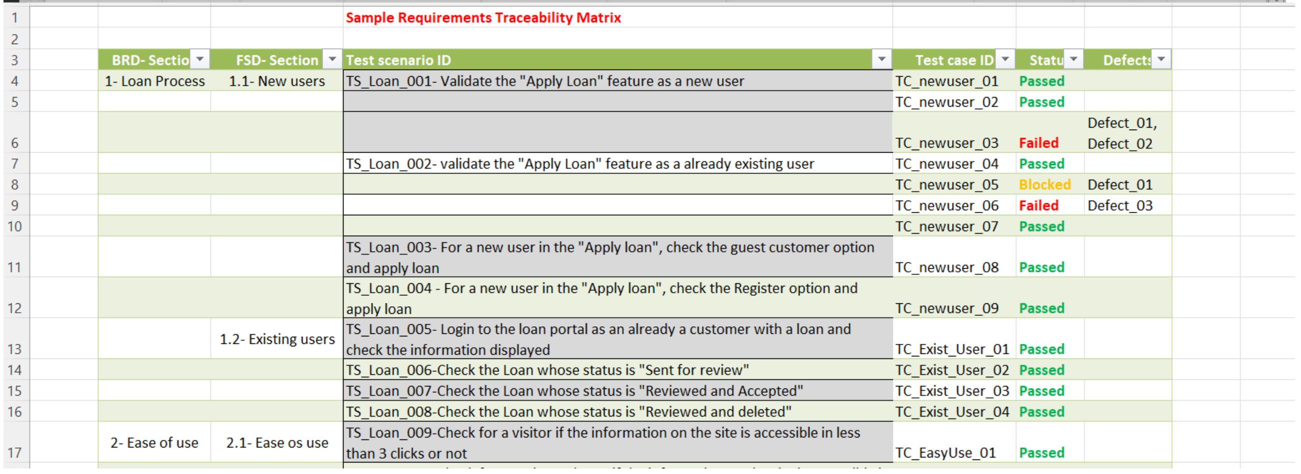
Scrum Alliance®



Test Requirements Traceability Matrix (TRTM)

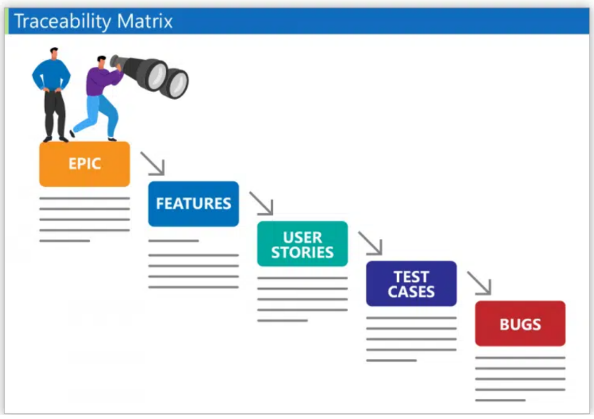
Project Name		Create Date	
Project ID		Last Update On	
Project Manager		Client Name	
Project Type			

S. no.	Req. ID	Req Desc	Source Of Requirement	Scenario	TC Id	TC Desc	Test Result	Defect Id	Defect Statu
1	BR 1.0	1. INBOX	New Requirement	1.Mails	TC_gmail_maill_01	Check the mail in inbox	Pass		
					TC_gmail_maill_02	Verify the open mail	Fail	Def_01	Open
					TC_gmail_maill_03	Verify the unread mail	Pass		
					TC_gmail_maill_04	Verify the Downloads and attachments	Fail	Def_02	Open
					TC_gmail_maill_05	Verify to navigate to different pages	Pass		
				2. Reply	TC_gmail_Rply_01	Verify to reply a mail	Pass		
					TC_gmail_Rply_02	Verify to reply all mails	Fail	Def_03	Closed
				3. FWD	......	....	....		
					......	......	....		
					....	....	....		
2	BR 1.1	2. Sent Email	Change Request						



Sample Requirements Traceability Matrix

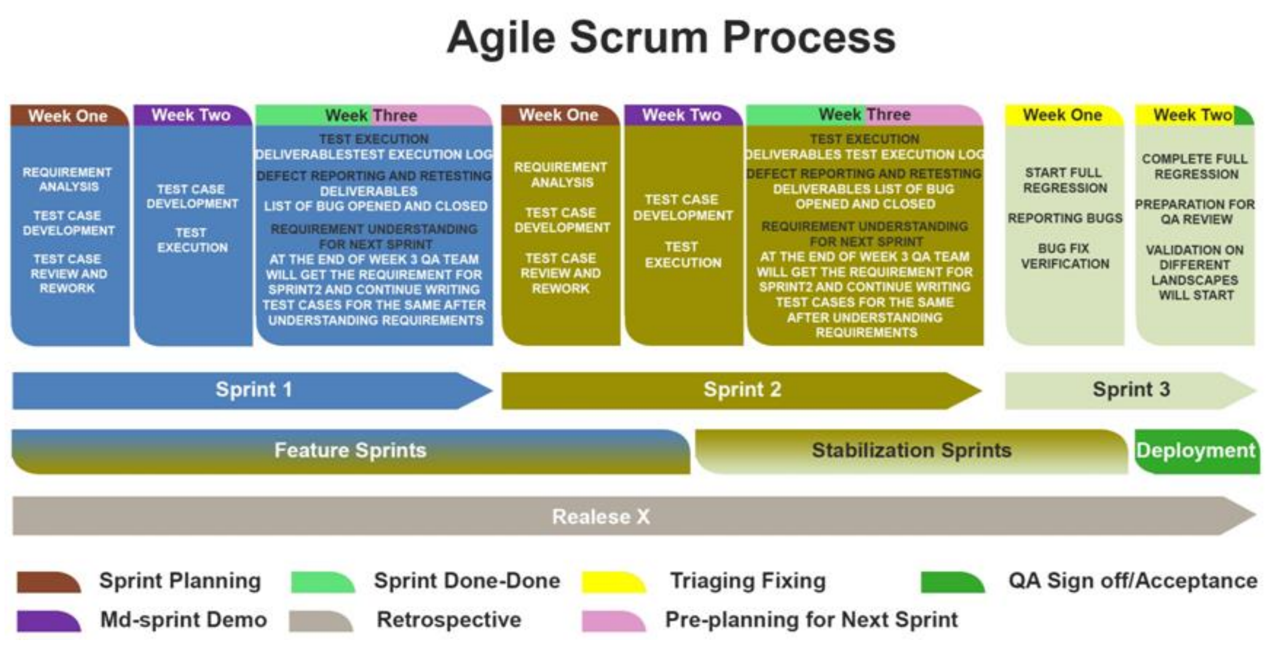
BRD- Sectio	FSD- Section	Test scenario ID	Test case ID	Statu	Defects
1- Loan Process	1.1- New users	TS_Loan_001- Validate the "Apply Loan" feature as a new user	TC_newuser_01	Passed	
			TC_newuser_02	Passed	
			TC_newuser_03	Failed	Defect_01, Defect_02
		TS_Loan_002- validate the "Apply Loan" feature as a already existing user	TC_newuser_04	Passed	
			TC_newuser_05	Blocked	Defect_01
			TC_newuser_06	Failed	Defect_03
			TC_newuser_07	Passed	
		TS_Loan_003- For a new user in the "Apply loan", check the guest customer option and apply loan	TC_newuser_08	Passed	
		TS_Loan_004 - For a new user in the "Apply loan", check the Register option and apply loan	TC_newuser_09	Passed	
	1.2- Existing users	TS_Loan_005- Login to the loan portal as an already a customer with a loan and check the information displayed	TC_Exist_User_01	Passed	
		TS_Loan_006-Check the Loan whose status is "Sent for review"	TC_Exist_User_02	Passed	
		TS_Loan_007-Check the Loan whose status is "Reviewed and Accepted"	TC_Exist_User_03	Passed	
		TS_Loan_008-Check the Loan whose status is "Reviewed and deleted"	TC_Exist_User_04	Passed	
2- Ease of use	2.1- Ease os use	TS_Loan_009-Check for a visitor if the information on the site is accessible in less than 3 clicks or not	TC_EasyUse_01	Passed	

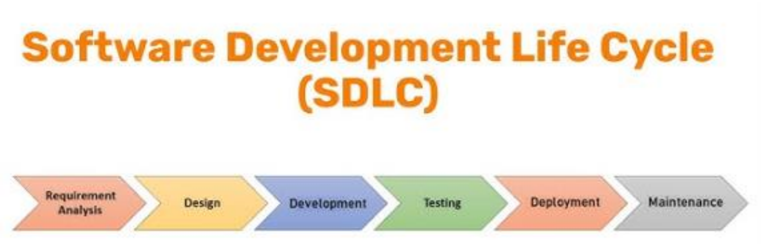


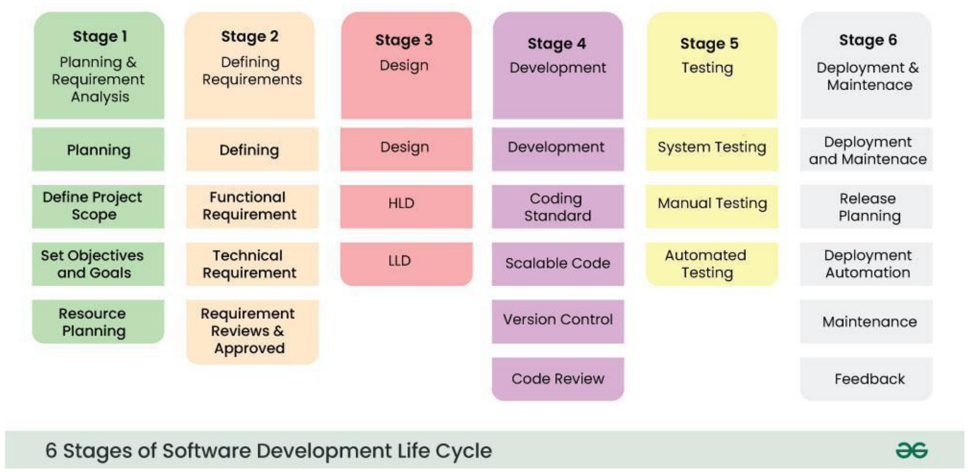
What is a Requirements Traceability Matrix (RTM)?

A Requirements Traceability Matrix is a tool that provides teams with the ability to easily trace requirements from end-to-end.

This means you are able to trace how higher level requirements (like Epics) trace all the way down to your lowest level requirements (like bugs). Teams can use our two matrices covered in these tutorials to build end-end traceability and also to create Test Case coverage, discover orphaned requirements, and manage the relationships between requirements!

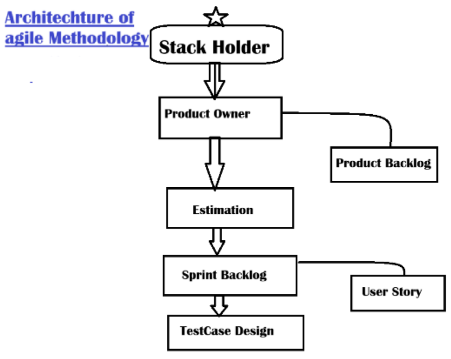

Agile Scrum Process
Week One
REQUIREMENT ANALYSIS
TEST CASE DEVELOPMENT
TEST CASE REVIEW AND REWORK
Week Two
TEST CASE DEVELOPMENT
TEST EXECUTION
Week Three
TEST EXECUTION DELIVERABLESTEST EXECUTION LOG
DEFECT REPORTING AND RETESTING DELIVERABLES
LIST OF BUG OPENED AND CLOSED
REQUIREMENT UNDERSTANDING FOR NEXT SPRINT
AT THE END OF WEEK 3 QA TEAM WILL GET THE REQUIREMENT FOR SPRINT2 AND CONTINUE WRITING TEST CASES FOR THE SAME AFTER UNDERSTANDING REQUIREMENTS
Week One
REQUIREMENT ANALYSIS
TEST CASE DEVELOPMENT
TEST CASE REVIEW AND REWORK
Week Two
TEST CASE DEVELOPMENT
TEST EXECUTION
Week Three
TEST EXECUTION DELIVERABLES TEST EXECUTION LOG
DEFECT REPORTING AND RETESTING DELIVERABLES LIST OF BUG OPENED AND CLOSED
REQUIREMENT UNDERSTANDING FOR NEXT SPRINT
AT THE END OF WEEK 3 QA TEAM WILL GET THE REQUIREMENT FOR SPRINT2 AND CONTINUE WRITING TEST CASES FOR THE SAME AFTER UNDERSTANDING REQUIREMENTS
Week One
START FULL REGRESSION
REPORTING BUGS
BUG FIX VERIFICATION
Week Two
COMPLETE FULL REGRESSION
PREPARATION FOR QA REVIEW
VALIDATION ON DIFFERENT LANDSCAPES WILL START
Sprint 1
Sprint 2
Sprint 3
Feature Sprints
Stabilization Sprints
Deployment
Realese X
Sprint Planning
Sprint Done-Done
Triaging Fixing
QA Sign off/Acceptance
Md-sprint Demo
Retrospective
Pre-planning for Next Sprint

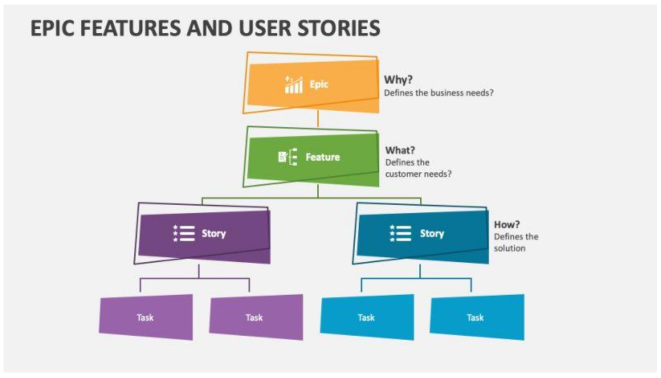


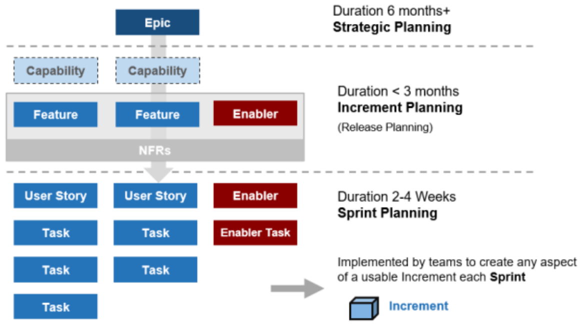


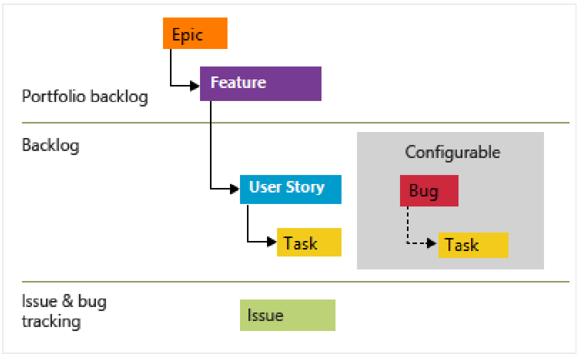
Stage 1 Planning & Requirement Analysis	Stage 2 Defining Requirements	Stage 3 Design	Stage 4 Development	Stage 5 Testing	Stage 6 Deployment & Maintenace
Planning	Defining	Design	Development	System Testing	Deployment and Maintenace
Define Project Scope	Functional Requirement	HLD	Coding Standard	Manual Testing	Release Planning
Set Objectives and Goals	Technical Requirement	LLD	Scalable Code	Automated Testing	Deployment Automation
Resource Planning	Requirement Reviews & Approved		Version Control		Maintenance
			Code Review		Feedback

6 Stages of Software Development Life Cycle

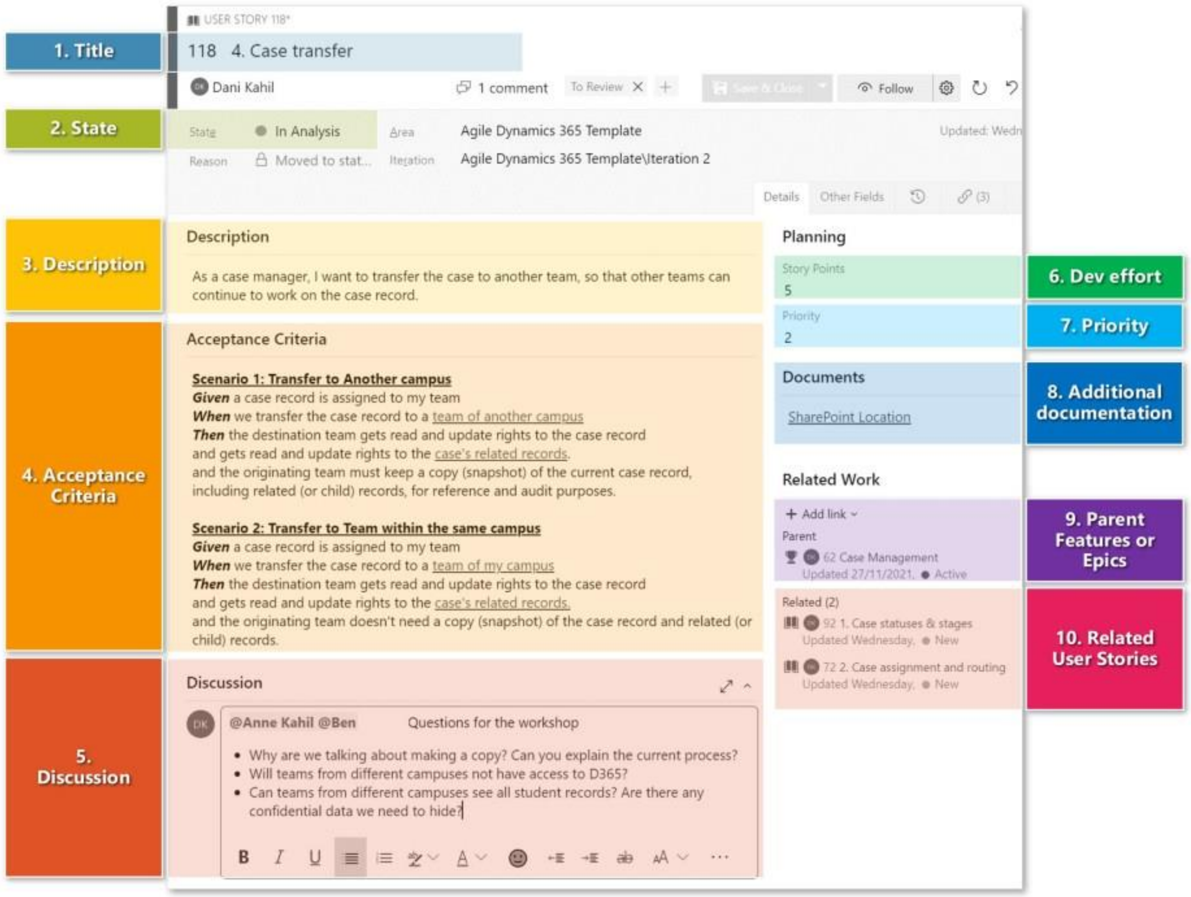



EPIC FEATURES AND USER STORIES
Epic
Why?
Defines the business needs?
Feature
What?
Defines the customer needs?
Story
Story
How?
Defines the solution
Task
Task
Task
Task





Sample User Story



USER STORY 118*

118 4. Case transfer

Dani Kahil 1 comment To Review Save & Close Follow

State: In Analysis | Area: Agile Dynamics 365 Template | Updated: Wedn

Reason: Moved to stat... | Iteration: Agile Dynamics 365 Template\Iteration 2

Details | Other Fields | (3)

Description

As a case manager, I want to transfer the case to another team, so that other teams can continue to work on the case record.

Acceptance Criteria

Scenario 1: Transfer to Another campus
Given a case record is assigned to my team
When we transfer the case record to a team of another campus
Then the destination team gets read and update rights to the case record
and gets read and update rights to the case's related records.
and the originating team must keep a copy (snapshot) of the current case record, including related (or child) records, for reference and audit purposes.

Scenario 2: Transfer to Team within the same campus
Given a case record is assigned to my team
When we transfer the case record to a team of my campus
Then the destination team gets read and update rights to the case record
and gets read and update rights to the case's related records.
and the originating team doesn't need a copy (snapshot) of the case record and related (or child) records.

Discussion

@Anne Kahil @Ben Questions for the workshop

- Why are we talking about making a copy? Can you explain the current process?
- Will teams from different campuses not have access to D365?
- Can teams from different campuses see all student records? Are there any confidential data we need to hide?

Planning

Story Points: 5

Priority: 2

Documents

SharePoint Location

Related Work

+ Add link

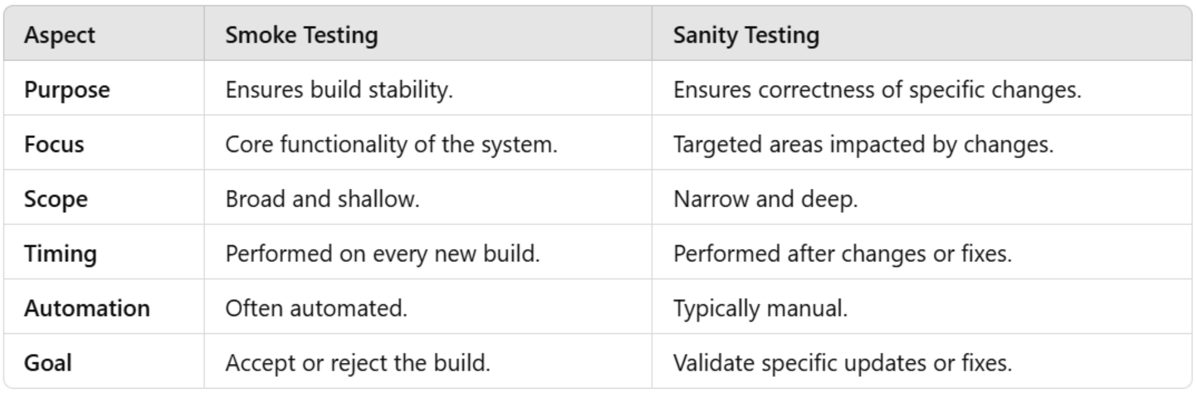
Parent
62 Case Management
Updated 27/11/2021, ● Active

Related (2)
92 1. Case statuses & stages
Updated Wednesday, ● New
72 2. Case assignment and routing
Updated Wednesday, ● New

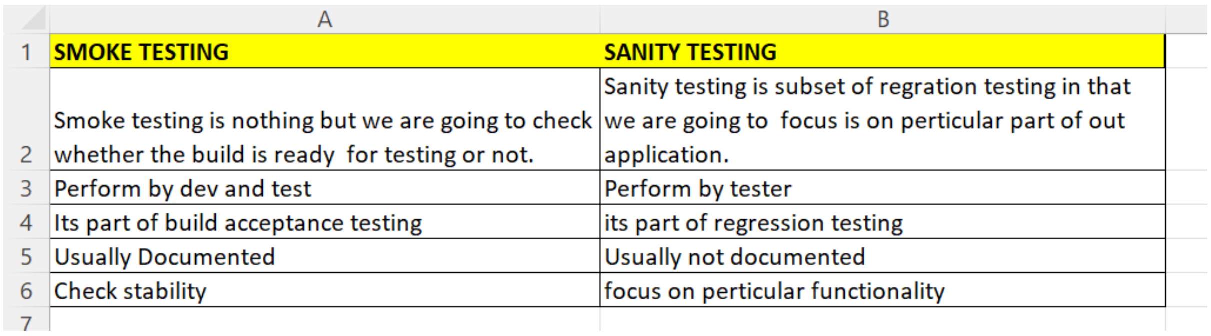
Key Points of ***GUI Functional Testing:***	
Key Point	**Description**
1. Button Functionality	Verifies that all buttons (e.g., Submit, Cancel, Reset) perform the intended actions when clicked.

2. Link Navigation	Ensures that links (hyperlinks, navigation links) open the correct pages or trigger the correct actions.
3. Input Field Validation	Checks that all input fields (text boxes, drop-downs, checkboxes) accept the correct input and validate user data.
4. Form Submission	Tests that form fields are correctly submitted and that the data entered is properly processed and stored.
5. Field Error Handling	Verifies that the system shows appropriate error messages for invalid input, and prevents submission of incorrect data.
6. Drop-Down Menus	Ensures that drop-down menus (select boxes) are working as expected, displaying correct options and accepting valid choices.
7. UI Workflow	Validates that the user can navigate through the application as intended, without errors or unexpected behavior.
8. Text and Labels	Checks that all UI text (labels, headers, buttons) is clear, concise, and matches the specifications.
9. Data Display	Ensures that data displayed on the UI (tables, lists, forms) is correct and updates as expected.
10. Modal Dialogs and Popups	Verifies that modals, alerts, popups, and confirmation dialogs appear and function correctly when triggered.
11. Date/Time Picker Functionality	Ensures that date/time picker controls are working correctly, allowing valid selections and handling edge cases.
12. File Upload/Download	Tests the file upload and download functionality, ensuring files are processed and displayed correctly.
13. Localization/Language Support	Verifies that the application works correctly across different languages and regional settings (if applicable).
14. Radio Buttons and Checkboxes	Ensures that radio buttons and checkboxes are functioning, including mutual exclusivity for radio buttons.
15. Tab Navigation	Ensures that tabbed interfaces are functioning correctly, and keyboard navigation is supported (Tab key).

Here’s a clear comparison between **Sanity Testing** and **Smoke Testing**:		
Aspect	**Smoke Testing**	**Sanity Testing**
Purpose	Verifies the basic functionality of the application after a new build or major changes.	Ensures that specific functionalities work as expected after changes or bug fixes.
Scope	Broad and shallow testing, covering the application's critical paths.	Narrow and focused testing, validating specific features or areas impacted by recent changes.
Test Depth	Shallow, does not go into detail, just confirms core features work.	Deeper testing of specific functionalities or bug fixes.
Test Focus	Focuses on whether the application is stable enough to proceed with further testing.	Focuses on verifying the correctness of specific features or bug fixes.
Frequency	Performed on every new build or major release.	Performed after fixes, updates, or after smoke testing passes.
Test Execution Time	Quick, often takes less time as it covers only the most critical functionalities.	Quick, but might take slightly longer than smoke testing, as it is more focused on specific areas.
Outcome of Failure	If it fails, the build is rejected and not further tested.	If it fails, the feature or fix is rejected, and further testing cannot proceed.
Test Type	It’s a **shallow, high-level test** that confirms basic functionality.	It’s a **deep, focused test** on specific areas or features.
When Performed	Performed first, usually after a new build or release is deployed.	Performed after smoke testing, often after bug fixes or minor updates.
Automated or Manual	Can be automated due to its broad scope and basic checks.	Typically manual, as it focuses on specific features or fixes.



Aspect	Smoke Testing	Sanity Testing
Purpose	Ensures build stability.	Ensures correctness of specific changes.
Focus	Core functionality of the system.	Targeted areas impacted by changes.
Scope	Broad and shallow.	Narrow and deep.
Timing	Performed on every new build.	Performed after changes or fixes.
Automation	Often automated.	Typically manual.
Goal	Accept or reject the build.	Validate specific updates or fixes.



	A	B
1	**SMOKE TESTING**	**SANITY TESTING**
2	Smoke testing is nothing but we are going to check whether the build is ready for testing or not.	Sanity testing is subset of regration testing in that we are going to focus is on perticular part of out application.
3	Perform by dev and test	Perform by tester
4	Its part of build acceptance testing	its part of regression testing
5	Usually Documented	Usually not documented
6	Check stability	focus on perticular functionality
7		

Here are the **10 key points** of **Regression Testing**, with unnecessary details r

#	Key Point	Details
1	**Purpose**	Ensures new code changes do not affect existing functionality.
2	**When to Perform**	After bug fixes, new features, or before major releases.
3	**Scope**	Retest impacted modules, interconnected functionalities, and core features.
4	**Test Case Selection**	Prioritize high-risk areas, recently modified code, and critical functionalities.
5	**Automation**	Automate stable, repetitive test cases to save time and resources.
6	**Continuous Testing**	Integrate into CI/CD pipelines for early detection of issues.
7	**Risk-Based Approach**	Focus on high-risk or frequently modified areas to optimize testing effort.
8	**Challenges**	Handling test maintenance, flaky tests, and time constraints.
9	**Test Suite Maintenance**	Regularly update test cases to reflect changes and remove obsolete ones.
10	**Monitoring and Reporting**	Continuously monitor test results and report trends, failures, or bottlenecks.

Here's the revised version of the **Webpage Testing** table without the **Tools** column:

Testing Type	Purpose	Key Points
Tab Validation	Ensure the proper functioning of tabs within the webpage.	- Verify correct tab selection and switching.
		- Test active/inactive states.
		- Ensure the tab content loads correctly.
		- Verify tab functionality across devices and browsers.
		- Check for overflow handling when there are too many tabs.

		- Ensure accessibility with keyboard navigation (Tab key).
		- Test for smooth transition between tabs (no flickering).
Link Validation	Ensure all hyperlinks (internal and external) are working properly.	- Check for broken links (404 errors).
		- Ensure correct redirection.
		- Test anchor links.
		- Verify secure protocol (HTTPS) for links.
		- Ensure links open in the correct window/tab (if specified).
		- Validate links with special characters or query strings.
		- Check for external links to ensure they load correctly.
Page Validation	Ensure pages load and display content correctly.	- Verify content is loading as expected.
		- Test page rendering across devices and browsers.
		- Validate page performance (load time).
		- Check SEO elements (meta tags, headers).
		- Verify images and multimedia (videos, audio) load correctly.
		- Ensure no content is cut off or hidden, especially on responsive views.
		- Validate forms and interactive elements on the page.
		- Test for proper error handling (e.g., form submission errors).
GUI (Graphical User Interface) Validation	Ensure the graphical elements and interface are visually and interactively correct.	- Verify UI consistency with design.
		- Test responsiveness (layout adapts to different screen sizes).
		- Ensure interactive elements (buttons, sliders, etc.) work.
		- Test accessibility features (focus, ARIA).
		- Check for proper font sizes, colors, and alignment.
		- Verify visual appearance on different screen resolutions and orientations.

Key Components of a Test Plan

Section	Description
1. Test Plan Identifier	A unique identifier for the test plan document. This helps in version control and tracking.

2. Introduction	Overview of the project, including its goals and objectives, and a summary of what the test plan covers.
3. Test Objectives	Clear goals of what the testing aims to achieve, such as verifying functionality, performance, security, etc.
4. Test Scope	Defines the boundaries of testing—what will and will not be tested, and any exclusions or limitations.
5. Test Strategy	The approach or methodology that will be used to conduct testing. This could be functional, performance, security testing, etc.
6. Test Criteria	Specifies the entry and exit criteria for testing. These criteria define when testing can begin and when it is considered complete.
7. Test Environment	Describes the hardware, software, network configurations, and other tools needed for testing.
8. Test Deliverables	Lists the deliverables for the testing process, such as test cases, test scripts, defect reports, and final test results.
9. Test Schedule	The timeline for testing, including milestones and deadlines for each testing phase (e.g., unit testing, integration testing).
10. Resource Requirements	Specifies the required personnel, tools, and infrastructure for testing, including the roles and responsibilities of the testing team.
11. Test Types	Specifies the types of testing to be performed, such as functional, regression, smoke, sanity, security, load, etc.
12. Test Approach	Describes the specific techniques and methods to be used in testing, including manual testing or automated testing strategies.
13. Risk Assessment	Identifies potential risks that could affect the testing process (e.g., resource limitations, tight deadlines) and how to mitigate them.
14. Defect Management	Describes how defects will be logged, tracked, and resolved, including the severity levels and priority for fixing them.
15. Test Suspension Criteria	Defines when testing should be paused or halted due to issues such as critical defects or resource unavailability.

16. Approval and Sign-Off	The process for getting the test plan approved by stakeholders or management and any necessary sign-offs for each phase.

Test Scenario vs Test Case:

Aspect	Test Scenario	Test Case
Definition	A high-level description of a feature or functionality to be tested.	A detailed step-by-step guide to test a specific condition.
Scope	Broad; defines what to test.	Specific; defines how to test.
Purpose	Ensures coverage of key functionalities.	Verifies detailed behavior of the system.
Level of Detail	High-level, usually in simple language.	Detailed, including inputs, expected results, and execution steps.
Example	Verify login functionality.	Verify that the user can log in with a valid username and password.

A typical **test case** includes the following components:

Test Case Component	Description
Test Case ID	A unique identifier for the test case (e.g., TC001, TC002).
Test Case Name	A brief name or description of the test case.
Test Objective/Description	A brief description of what the test case is intended to validate (e.g., verify login functionality).
Pre-Conditions	The necessary setup or conditions required before executing the test (e.g., user must be registered).
Test Steps	A sequence of actions or steps to be followed during the execution of the test case.
Test Data	The input data to be used in the test (e.g., username, password, etc.).

Expected Result	The expected behavior or output after executing the test steps.
Actual Result	The actual behavior or output observed during the test execution.
Status (Pass/Fail)	The result of the test case based on the comparison of expected and actual results.
Priority	The importance or priority of the test case (e.g., High, Medium, Low).
Test Case Type	The type of test (e.g., Functional, Regression, Usability).
Assigned To	The tester responsible for executing the test case.
Comments/Notes	Additional comments or notes relevant to the test case (e.g., known issues, assumptions).
Example Test Case	
Test Case Component	**Example**
Test Case ID	TC_001
Test Case Name	Verify login functionality with valid credentials.
Test Objective/Description	To verify that a user can log in successfully with valid credentials (username and password).
Pre-Conditions	User should be registered in the system.
Test Steps	1. Open the application login page.
	2. Enter valid username and password.
	3. Click the login button.
Test Data	Username: testuser
	Password: Test123!
Expected Result	User should be successfully logged in and redirected to the dashboard page.
Actual Result	User is logged in and redirected to the dashboard.
Status (Pass/Fail)	Pass
Priority	High
Test Case Type	Functional
Assigned To	Tester A
Comments/Notes	N/A

Test Scenario 1:	**Verify User Login Functionality**			

Test Case ID	**Test Case Description**	**Test Steps**	**Expected Result**	**Priority**
TC_001	Verify login with valid username and password.	1. Open the login page.	User should be successfully logged in and redirected to the dashboard.	High
		2. Enter valid username and valid password.		
		3. Click the "Login" button.		
TC_002	Verify login with invalid username and valid password.	1. Open the login page.	Error message: "Invalid credentials" should be displayed.	High
		2. Enter invalid username and valid password.		
		3. Click the "Login" button.		
TC_003	Verify login with valid username and invalid password.	1. Open the login page.	Error message: "Invalid credentials" should be displayed.	High
		2. Enter valid username and invalid password.		
		3. Click the "Login" button.		
TC_004	Verify login with both invalid username and password.	1. Open the login page.	Error message: "Invalid credentials" should be displayed.	High
		2. Enter invalid username and invalid password.		
		3. Click the "Login" button.		
TC_005	Verify the "Forgot Password" link works during login.	1. Open the login page.	User should receive a password reset link via email.	Medium
		2. Click on "Forgot Password" link.		
		3. Enter registered email address.		
Test Scenario 2:	**Verify User Registration**			
Test Case ID	**Test Case Description**	**Test Steps**	**Expected Result**	**Priority**
TC_006		1. Open the registration page.	User should be registered	High

	Verify successful user registration with valid data.	2. Enter valid username, email, and password. 3. Click on "Register".	successfully and redirected to the login page.	
TC_007	Verify user registration with missing required fields.	1. Open the registration page. 2. Leave one or more required fields empty. 3. Click on "Register".	Error message: "All fields are required" should be displayed.	High
TC_008	Verify user registration with invalid email format.	1. Open the registration page. 2. Enter an invalid email (e.g., "user@domain"). 3. Click on "Register".	Error message: "Invalid email format" should be displayed.	Medium
TC_009	Verify user registration with existing username.	1. Open the registration page. 2. Enter a username already used by another user. 3. Click on "Register".	Error message: "Username already exists" should be displayed.	High
TC_010	Verify the password strength requirement during registration.	1. Open the registration page. 2. Enter a password that doesn't meet strength requirements (e.g., too short). 3. Click on "Register".	Error message: "Password must be at least 8 characters long" should be displayed.	High
Test Scenario 3:	**Verify Search Functionality**			
Test Case ID	**Test Case Description**	**Test Steps**	**Expected Result**	**Priority**
TC_011	Verify search results are displayed for a valid search term.	1. Enter a valid search term (e.g., "Laptop") in the search bar. 2. Click the "Search" button.	Relevant search results should be displayed.	High

TC_012	Verify no results message for invalid search term.	1. Enter an invalid search term (e.g., "xyz123") in the search bar. 2. Click the "Search" button.	Message: "No results found" should be displayed.	Mediu m
TC_013	Verify search results can be sorted by price (low to high).	1. Enter a valid search term in the search bar. 2. Apply "Sort by Price: Low to High".	Search results should be sorted by price in ascending order.	Mediu m
TC_014	Verify search results can be filtered by category.	1. Enter a valid search term in the search bar. 2. Apply category filter (e.g., "Electronics").	Search results should display only products from the selected category.	Mediu m
TC_015	Verify the "Clear Search" functionality.	1. Enter a search term. 2. Click on the "Clear Search" button.	The search bar should be cleared and the results reset.	Low
Test Scenario 4:	**Verify Add to Cart Functionality**			
Test Case ID	**Test Case Description**	**Test Steps**	**Expected Result**	**Priorit y**
TC_016	Verify adding a product to the cart.	1. Browse through available products. 2. Select a product and click "Add to Cart".	The selected product should be added to the cart.	High
TC_017	Verify cart updates with multiple products.	1. Add multiple products to the cart. 2. Check cart icon for updated count.	The cart should display the correct number of products.	High
TC_018	Verify adding out-of-stock product to the cart.	1. Select an out-of-stock product. 2. Try to add it to the cart.	A message "Out of Stock" should appear and the product should not be added to the cart.	Mediu m
TC_019	Verify cart displays correct price and quantity for each item.	1. Add multiple items to the cart. 2. Verify item prices and quantities.	The cart should display the correct total price for each item.	High
TC_020	Verify removal of a product from the cart.	1. Add a product to the cart.	The product should be removed from	Mediu m

		2. Click the "Remove" button next to the product.	the cart and the cart should update accordingly.	
Test Scenario 5:	**Verify Logout Functionality**			
Test Case ID	**Test Case Description**	**Test Steps**	**Expected Result**	**Priority**
TC_021	Verify user can log out successfully.	1. Log in to the application. 2. Click on the "Logout" button.	The user should be logged out and redirected to the login page.	High
TC_022	Verify that after logout, the user is redirected to the login page.	1. Log out of the application. 2. Check if the user is redirected to the login page.	The user should be redirected to the login page.	High
TC_023	Verify session expiration after logout.	1. Log out of the application. 2. Try to access a restricted page.	User should be redirected to the login page with an error message.	Medium

Key Deliverables in Test Closure

Deliverable	**Description**
Test Closure Report	A summary of the testing effort, including test execution status and defect information.
Defect Logs	Final list of defects, including their status (open/closed/deferred).
Test Artifacts	All test-related documents (test cases, scripts, data, results).
Test Metrics	Metrics and analysis regarding test effectiveness and coverage.
Lessons Learned Document	A document capturing insights for process improvement.
Sign-off	Formal approval from stakeholders indicating completion of testing.

Release Notes	Details for end users about known issues, limitations, and fixes.
Test Environment Cleanup	Confirmation of environment reset for future use.

Key Steps in a Build Process:

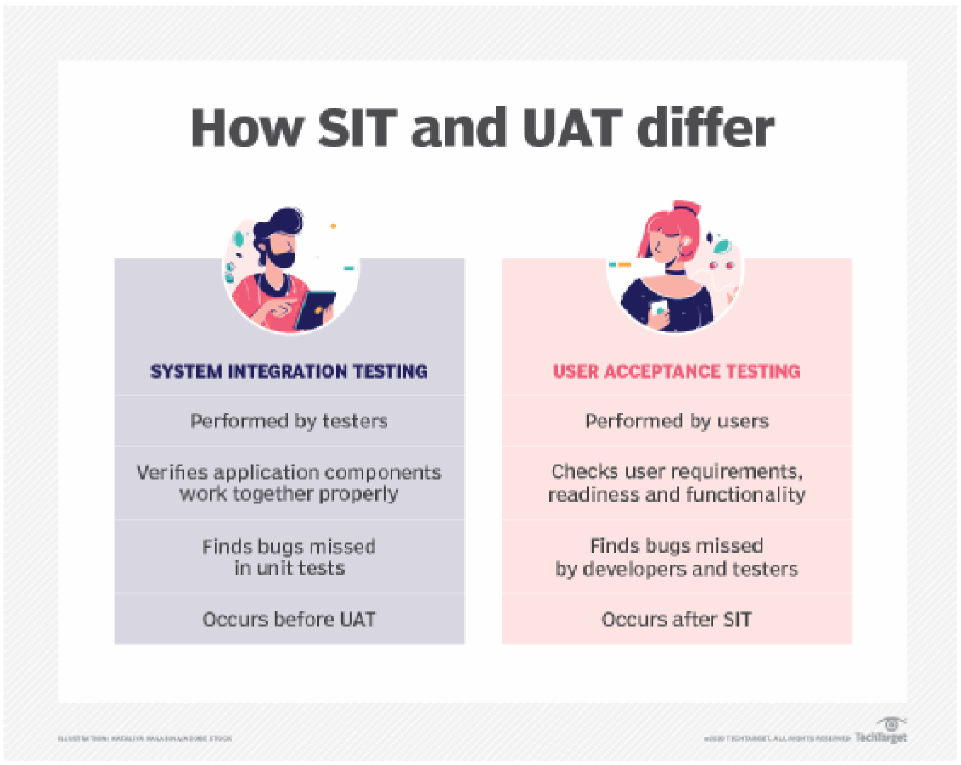
Step	**Description**
Source Code Management	Developers write and commit code to a version control system (e.g., Git, SVN). This is the starting point of the build process.
Compilation	The source code is compiled into machine-readable code or an executable (e.g., .exe, .apk, .jar, etc.).
Unit Tests	Automated unit tests are often run to verify that individual parts of the code (e.g., functions or methods) work as expected.
Linking	The compiled code is linked with external libraries, resources, and dependencies to form a complete application.
Packaging	The build is packaged into a deployable unit (e.g., a .zip file, .apk for Android, .exe for Windows).
Deployment	The built and tested version is deployed to a staging or production environment for further validation or release.

Major QA Points in the Build Process

Key Point	**Description**
Build Verification Testing (BVT) / Smoke Testing	**QA** performs **Smoke Testing** on each new build to ensure core functionalities are working, validating that the build is stable enough for further testing.
Regression Testing	**QA** runs **regression tests** on every build to ensure new changes haven't broken existing functionality.
Automated Testing in Build Pipeline	**QA** integrates **automated tests** in the build pipeline, enabling quick feedback on each new build for faster defect detection.

Cross-platform Testing	**QA** ensures the build works across all intended platforms (e.g., web, mobile) to maintain consistency in functionality and performance.

Level of Functional Testing	Key Point
Unit Testing	Verifies individual components or functions to ensure correct behavior.
Integration Testing	Checks interactions between components or systems to ensure they work together as expected.
System Testing	Validates the complete system's functionality to ensure it meets the specified requirements.
User Acceptance Testing (UAT)	Performed by end-users to verify the system meets business needs and is ready for release.



How SIT and UAT differ

SYSTEM INTEGRATION TESTING	USER ACCEPTANCE TESTING
Performed by testers	Performed by users
Verifies application components work together properly	Checks user requirements, readiness and functionality
Finds bugs missed in unit tests	Finds bugs missed by developers and testers
Occurs before UAT	Occurs after SIT

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Key Points of SIT Testing:

Key Point	**Description**
Purpose	Validates that different subsystems or external systems interact correctly with each other.
Scope	Covers end-to-end interactions between various systems and their integrations, including third-party systems.
Focus Areas	Focuses on verifying communication, data exchange, protocols, and interactions between integrated systems.
Performed After	SIT is typically performed after **Unit Testing** and **Integration Testing** but before **System Testing**.
Test Environment	Requires a **realistic environment** where all systems and components to be integrated are available and can interact.
Test Types	Includes testing of interfaces, data flow, network communication, error handling, and overall system interactions.
Test Cases	Test cases in SIT are designed based on the interactions between systems, focusing on data integrity, consistency, and communication.
Tools	SIT can be done manually or with the help of automated testing tools, depending on the complexity of integration points.
Defects	Identifying integration issues such as incorrect data mapping, protocol mismatches, and improper error handling between systems.
End Goal	Ensures that all systems work as expected when integrated, ensuring the end-to-end functionality of the application or system.

Key Points of UAT Testing:

Key Point	**Description**
Purpose	To validate that the software meets the business requirements and is ready for production deployment.
Who Performs UAT	Performed by **end-users** or **stakeholders** (typically non-technical users) to confirm the software's functionality.

When it Occurs	UAT occurs after **System Testing** and before the system is deployed to production. It’s typically the last phase of testing.
Focus	Focuses on **business requirements** and **user experience** rather than technical aspects of the system.
Test Environment	Conducted in a **staging or pre-production environment** that mirrors the actual production environment.
Test Scenarios	UAT test cases are based on **real-world scenarios**, derived from business processes, user needs, and requirements.
Types of UAT	- **Alpha Testing**: Conducted by internal users within the organization.
	- **Beta Testing**: Conducted by actual users or a small group of external customers.
Success Criteria	The system passes UAT if the users confirm that the software meets the business requirements and functions as expected in real-world usage.
Tools	UAT may be done manually or with the aid of automated tools, but it is often manual testing due to the business-oriented focus.

key points for **Regression Testing**:	
Key Point	**Description**
Purpose	Ensures new changes (bug fixes, new features, updates) do not break existing functionality.
After Bug Fixes	Performed after defects are fixed to ensure the fix doesn’t cause other issues.
After New Features	Validates that newly added features don’t disrupt existing parts of the system.
After Software Updates	Ensures that software updates or patches do not negatively affect the overall system.
After System Maintenance	Verifies that maintenance tasks (e.g., code refactoring) haven’t caused new issues.
During Continuous Integration	Performed with each build or code integration in continuous development processes.
After Performance Improvements	Confirms that performance optimizations don’t impact existing functionality.
After Platform/Environment Changes	Ensures that the software works correctly when moved to a different environment.

After UAT Feedback	Validates that changes made based on user feedback don't introduce new defects.

key points for **when testing starts in software development**:	
Key Point	**Description**
During Requirement Gathering	Testing starts early by reviewing and validating requirements to ensure they are clear and testable.
During Development (Unit Testing)	Testing begins as developers write code, with **unit testing** to verify individual units or components.
After Code Completion (Integration Testing)	Once components are integrated, **integration testing** starts to check if they work together correctly.
After the Build is Ready (Smoke Testing)	**Smoke testing** is done to verify basic functionality and stability before moving to detailed testing.
When the System is Stable (System Testing)	**System testing** begins to validate the overall application and ensure it meets the specified requirements.
After User Feedback (UAT)	**User Acceptance Testing (UAT)** starts once the system is ready, to ensure it meets the end-user needs.
After New Changes (Regression Testing)	**Regression testing** starts whenever there are code changes to ensure nothing else is broken.
During Continuous Integration (CI)	In CI/CD environments, testing is continuou

Testing Review Process	
Step	**Description**
1. Preparation	Collect the necessary artifacts for review, such as requirements documents, test plans, or test cases.
2. Review Initiation	Schedule review meetings with relevant stakeholders, including testers, developers, and business analysts.
3. Individual Review	Team members independently analyse the artifacts to identify potential issues or areas for improvement.

4. Group Review Meeting	Discuss findings, consolidate feedback, and agree on corrective actions or improvements.
5. Report Feedback	Document the review outcomes, including identified issues, decisions, and next steps.
6. Action Implementation	Address feedback by updating test plans, cases, or processes as agreed during the review meeting.
7. Follow-Up	Verify that the recommended changes have been implemented correctly.

Types of Integration Testing			
Type	**Description**	**Advantages**	**Challenges**
1. Big Bang Testing	All modules are integrated and tested simultaneously after development is complete.	- Simple to implement.	- Difficult to isolate and debug defects.
		- No need for a phased approach.	- High risk of major failures.
2. Incremental Testing	Modules are integrated and tested step-by-step in a sequence.	- Easier defect isolation.	- Requires a well-planned integration strategy.
		- Problems are identified early.	- Time-consuming.
3. Top-Down Testing	High-level modules are tested first, and lower-level modules are integrated progressively.	- Helps identify design flaws early.	- Stubs may be required for incomplete lower modules.
		- Major functionality is tested first.	- Some modules may be under-tested.
4. Bottom-Up Testing	Lower-level modules are tested first, followed by higher-level modules.	- Critical lower-level modules are tested early.	- Drivers may be needed for testing higher-level modules.
		- No stubs are needed.	- User interface may be tested late.
5. Sandwich Testing	Combines Top-Down and Bottom-Up testing, testing both high-level and low-level modules simultaneously.	- Faster integration of modules.	- Requires skilled planning.
		- Covers critical high- and low-level modules early.	- May be complex to manage.
6. Hybrid Testing	A customized approach combining multiple integration	- Flexible and adaptable to	- Requires careful planning and expertise.

	strategies based on project requirements.	complex systems.	
		- Allows prioritization of critical modules.	- May involve extra coordina