

Requirements Traceability Matrix (RTM)

Demo Web Shop - <https://demowebshop.tricentis.com/>

Project: SQE Coursework - Software Testing
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1. Document Purpose

This Requirements Traceability Matrix (RTM) establishes a clear link between:

- **Testing Requirements** (TR-001 to TR-008)
- **Manual Test Cases** (TC001 to TC040)
- **Automated Test Cases** (AT-001 to AT-004)

The RTM ensures complete test coverage and provides traceability from requirements to test execution.

2. Traceability Summary

Metric	Count
Total Requirements	8
Total Manual Test Cases	40
Total Automated Test Scenarios	4
Total Automated Test Cases	30
Requirements Covered	8/8 (100%)

3. Requirements to Test Cases Matrix

TR-001: User Registration Must Work Correctly

Requirement ID		TR-001	
Priority		Critical	
Description		The registration form must allow new users to create accounts successfully	
Test Case ID	Test Case Title	Type	Automation Status
TC001	Verify homepage loads successfully	Functional	✗ Manual
TC002	Verify user registration with valid details	Functional	☑ AT-001
TC003	Verify login with valid credentials	Functional	-

Test Case ID	Test Case Title	Type	Automation Status
TC027	Register with empty mandatory fields	Boundary/Negative	<input checked="" type="checkbox"/> AT-001
TC028	Register with invalid email format	Boundary/Negative	<input checked="" type="checkbox"/> AT-001
TC029	Register with mismatched passwords	Boundary/Negative	<input checked="" type="checkbox"/> AT-001

Automated Tests (AT-001: Registration):

Auto Test ID	Test Name	Status
AT-001-01	should display registration form correctly	<input checked="" type="checkbox"/> Pass
AT-001-02	should show validation errors for empty form submission	<input checked="" type="checkbox"/> Pass
AT-001-03	should show error for invalid email format	<input checked="" type="checkbox"/> Pass
AT-001-04	should show error for password mismatch	<input checked="" type="checkbox"/> Pass
AT-001-05	should show error for weak password	<input checked="" type="checkbox"/> Pass
AT-001-06	should successfully register with valid data	<input checked="" type="checkbox"/> Pass
AT-001-07	should show error when registering with existing email	<input checked="" type="checkbox"/> Pass

TR-002: User Authentication Must Be Secure

Requirement ID	TR-002		
Priority	Critical		
Description	Users must be able to securely log in and log out		
Test Case ID	Test Case Title	Type	Automation Status
TC003	Verify login with valid credentials	Functional	<input checked="" type="checkbox"/> AT-002
TC004	Verify logout functionality	Functional	<input checked="" type="checkbox"/> AT-002
TC030	Login with incorrect password	Boundary/Negative	<input checked="" type="checkbox"/> AT-002
TC031	Login with non-existent email	Boundary/Negative	<input checked="" type="checkbox"/> AT-002
TC035	Verify session timeout behavior	Boundary/Negative	<input type="checkbox"/> Manual

Automated Tests (AT-002: Login):

Auto Test ID	Test Name	Status
AT-002-01	should display login form correctly	<input checked="" type="checkbox"/> Pass
AT-002-02	should show validation error for empty email	<input checked="" type="checkbox"/> Pass
AT-002-03	should show error for non-existent account	<input checked="" type="checkbox"/> Pass
AT-002-04	should show error for incorrect password	<input checked="" type="checkbox"/> Pass

Auto Test ID	Test Name	Status
AT-002-05	should login successfully with valid credentials	<input checked="" type="checkbox"/> Pass
AT-002-06	should display user email after login	<input checked="" type="checkbox"/> Pass
AT-002-07	should remember login with Remember Me option	<input checked="" type="checkbox"/> Pass
AT-002-08	should logout successfully	<input checked="" type="checkbox"/> Pass
AT-002-09	should redirect to login page after logout	<input checked="" type="checkbox"/> Pass

TR-003: Navigation Must Work Correctly

Requirement ID	TR-003		
Priority	High		
Description	All navigation elements must function correctly		
Test Case ID	Test Case Title	Type	Automation Status
TC005	Verify main navigation menu works	Functional	<input checked="" type="checkbox"/> Manual
TC006	Verify footer links work correctly	Functional	<input checked="" type="checkbox"/> Manual
TC015	Verify category filtering works	Functional	<input checked="" type="checkbox"/> Manual
TC016	Verify product sorting functionality	Functional	<input checked="" type="checkbox"/> Manual
TC021	Verify consistent header across pages	Usability	<input checked="" type="checkbox"/> Manual
TC022	Verify footer is present on all pages	Usability	<input checked="" type="checkbox"/> Manual
TC025	Verify navigation elements are styled consistently	UI/UX	<input checked="" type="checkbox"/> Manual
TC026	Verify active menu state indication	UI/UX	<input checked="" type="checkbox"/> Manual

TR-004: Shopping Cart Must Function Properly

Requirement ID	TR-004		
Priority	Critical		
Description	The shopping cart must accurately manage products and calculations		
Test Case ID	Test Case Title	Type	Automation Status
TC007	Verify adding product to cart	Functional	<input checked="" type="checkbox"/> AT-003
TC008	Verify cart page displays added items	Functional	<input checked="" type="checkbox"/> AT-003
TC009	Verify updating product quantity in cart	Functional	<input checked="" type="checkbox"/> AT-003
TC010	Verify removing product from cart	Functional	<input checked="" type="checkbox"/> AT-003
TC032	Add zero/negative quantity to cart	Boundary/Negative	<input checked="" type="checkbox"/> AT-003

Test Case ID	Test Case Title	Type	Automation Status
TC033	Update quantity to zero	Boundary/Negative	<input checked="" type="checkbox"/> AT-003
TC036	Test cart with maximum quantity	Boundary/Negative	<input checked="" type="checkbox"/> AT-003

Automated Tests (AT-003: Shopping Cart):

Auto Test ID	Test Name	Status
AT-003-01	should add a simple product to cart	<input checked="" type="checkbox"/> Pass
AT-003-02	should display added product in cart page	<input checked="" type="checkbox"/> Pass
AT-003-03	should add configurable product with options	<input checked="" type="checkbox"/> Pass
AT-003-04	should update product quantity in cart	<input checked="" type="checkbox"/> Pass
AT-003-05	should show correct total after quantity update	<input checked="" type="checkbox"/> Pass
AT-003-06	should remove product from cart	<input checked="" type="checkbox"/> Pass
AT-003-07	should handle empty cart state	<input checked="" type="checkbox"/> Pass
AT-003-08	should add multiple different products	<input checked="" type="checkbox"/> Pass
AT-003-09	should calculate correct subtotal for multiple items	<input checked="" type="checkbox"/> Pass

TR-005: Product Search Must Return Accurate Results

Requirement ID	TR-005		
Priority	High		
Description	The search functionality must return relevant products		
Test Case ID	Test Case Title	Type	Automation Status
TC013	Verify product search functionality	Functional	✗ Manual
TC014	Verify search with no results	Functional	✗ Manual
TC017	Verify breadcrumb navigation	Functional	✗ Manual
TC034	Search with special characters	Boundary/Negative	✗ Manual

TR-006: Checkout Process Must Complete Successfully

Requirement ID	TR-006		
Priority	Critical		
Description	Users must be able to complete the full checkout process		
Test Case ID	Test Case Title	Type	Automation Status

Test Case ID	Test Case Title	Type	Automation Status
TC011	Verify checkout process initiation	Functional	☑ AT-004
TC012	Verify complete checkout flow	Functional	☑ AT-004
TC023	Verify checkout progress indicators	Usability	☑ AT-004
TC037	Proceed to checkout without terms acceptance	Boundary/Negative	✗ Manual
TC038	Checkout with empty required fields	Boundary/Negative	✗ Manual

Automated Tests (AT-004: Checkout):

Auto Test ID	Test Name	Status
AT-004-01	should navigate to checkout page	☑ Pass
AT-004-02	should require terms of service acceptance	☑ Pass
AT-004-03	should complete billing address step	☑ Pass
AT-004-04	should complete full checkout process	☑ Pass
AT-004-05	should display order confirmation	☑ Pass

TR-007: Product Display Must Be Accurate




Requirement ID	TR-007		
Priority	Medium		
Description	Product information must be displayed accurately		
Test Case ID	Test Case Title	Type	Automation Status
TC018	Verify product details page displays all info	Functional	✗ Manual
TC019	Verify product comparison feature	Functional	✗ Manual
TC020	Verify recently viewed products	Functional	✗ Manual
TC039	Access non-existent product page	Boundary/Negative	✗ Manual
TC040	Test product comparison with maximum items	Boundary/Negative	✗ Manual

TR-008: Form Validations Must Prevent Invalid Data

Requirement ID	TR-008
Priority	High

Requirement ID TR-008			
Description All forms must validate user input and prevent invalid data			
Test Case ID	Test Case Title	Type	Automation Status
TC027	Register with empty mandatory fields	Boundary/Negative	<input checked="" type="checkbox"/> AT-001
TC028	Register with invalid email format	Boundary/Negative	<input checked="" type="checkbox"/> AT-001
TC029	Register with mismatched passwords	Boundary/Negative	<input checked="" type="checkbox"/> AT-001
TC030	Login with incorrect password	Boundary/Negative	<input checked="" type="checkbox"/> AT-002
TC031	Login with non-existent email	Boundary/Negative	<input checked="" type="checkbox"/> AT-002
TC024	Verify error message display is clear	Usability	<input checked="" type="checkbox"/> AT-001, AT-002

4. Complete Traceability Matrix (Summary View)

Req ID	Requirement Name	Priority	Test Cases	Automated Tests	Coverage
TR-001	User Registration	Critical	TC001, TC002, TC027, TC028, TC029	AT-001 (7 tests)	<input checked="" type="checkbox"/> Full
TR-002	User Authentication	Critical	TC003, TC004, TC030, TC031, TC035	AT-002 (9 tests)	<input checked="" type="checkbox"/> Full
TR-003	Navigation	High	TC005, TC006, TC015, TC016, TC021, TC022, TC025, TC026	-	 Manual Only
TR-004	Shopping Cart	Critical	TC007, TC008, TC009, TC010, TC032, TC033, TC036	AT-003 (9 tests)	<input checked="" type="checkbox"/> Full
TR-005	Product Search	High	TC013, TC014, TC017, TC034	-	 Manual Only
TR-006	Checkout Process	Critical	TC011, TC012, TC023, TC037, TC038	AT-004 (5 tests)	<input checked="" type="checkbox"/> Full
TR-007	Product Display	Medium	TC018, TC019, TC020, TC039, TC040	-	 Manual Only
TR-008	Form Validations	High	TC024, TC027-TC031	AT-001, AT-002	<input checked="" type="checkbox"/> Full

5. Test Case to Requirement Mapping

Test Case	Title	Requirement(s)	Priority	Auto
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Test Case	Title	Requirement(s)	Priority	Auto
TC001	Homepage loads successfully	TR-001	High	✗
TC002	User registration with valid details	TR-001	Critical	☑
TC003	Login with valid credentials	TR-002	Critical	☑
TC004	Logout functionality	TR-002	High	☑
TC005	Main navigation menu works	TR-003	High	✗
TC006	Footer links work correctly	TR-003	Medium	✗
TC007	Adding product to cart	TR-004	Critical	☑
TC008	Cart page displays items	TR-004	Critical	☑
TC009	Updating product quantity	TR-004	High	☑
TC010	Removing product from cart	TR-004	High	☑
TC011	Checkout process initiation	TR-006	Critical	☑
TC012	Complete checkout flow	TR-006	Critical	☑
TC013	Product search functionality	TR-005	High	✗
TC014	Search with no results	TR-005	Medium	✗
TC015	Category filtering works	TR-003	High	✗
TC016	Product sorting functionality	TR-003	Medium	✗
TC017	Breadcrumb navigation	TR-005	Medium	✗
TC018	Product details page	TR-007	High	✗
TC019	Product comparison feature	TR-007	Medium	✗
TC020	Recently viewed products	TR-007	Low	✗
TC021	Consistent header across pages	TR-003	Medium	✗
TC022	Footer on all pages	TR-003	Low	✗
TC023	Checkout progress indicators	TR-006	Medium	☑
TC024	Error message display is clear	TR-008	Medium	☑
TC025	Navigation styled consistently	TR-003	Low	✗
TC026	Active menu state indication	TR-003	Low	✗
TC027	Register with empty fields	TR-001, TR-008	High	☑
TC028	Register with invalid email	TR-001, TR-008	High	☑
TC029	Register with mismatched passwords	TR-001, TR-008	High	☑
TC030	Login with incorrect password	TR-002, TR-008	High	☑

Test Case	Title	Requirement(s)	Priority	Auto
TC031	Login with non-existent email	TR-002, TR-008	High	<input checked="" type="checkbox"/>
TC032	Add zero/negative quantity	TR-004	Medium	<input checked="" type="checkbox"/>
TC033	Update quantity to zero	TR-004	Medium	<input checked="" type="checkbox"/>
TC034	Search with special characters	TR-005	Medium	<input checked="" type="checkbox"/>
TC035	Session timeout behavior	TR-002	Medium	<input checked="" type="checkbox"/>
TC036	Cart with maximum quantity	TR-004	Medium	<input checked="" type="checkbox"/>
TC037	Checkout without terms	TR-006	High	<input checked="" type="checkbox"/>
TC038	Checkout with empty fields	TR-006	High	<input checked="" type="checkbox"/>
TC039	Non-existent product page	TR-007	Medium	<input checked="" type="checkbox"/>
TC040	Product comparison max items	TR-007	Low	<input checked="" type="checkbox"/>

6. Coverage Analysis

6.1 Requirements Coverage

Coverage Type	Count	Percentage
Requirements with Automation	5/8	62.5%
Requirements with Manual Tests	8/8	100%
Total Requirements Covered	8/8	100%

6.2 Test Case Distribution by Requirement

TR-001 (Registration):	<div><div></div><div></div><div></div><div></div><div></div></div>	5 test cases
TR-002 (Authentication):	<div><div></div><div></div><div></div><div></div><div></div></div>	5 test cases
TR-003 (Navigation):	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	8 test cases
TR-004 (Shopping Cart):	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	7 test cases
TR-005 (Search):	<div><div></div><div></div><div></div><div></div></div>	4 test cases
TR-006 (Checkout):	<div><div></div><div></div><div></div><div></div><div></div></div>	5 test cases
TR-007 (Product Display):	<div><div></div><div></div><div></div><div></div><div></div></div>	5 test cases
TR-008 (Form Validation):	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>	6 test cases

6.3 Automation Coverage

Category	Manual Only	Automated	Total
Functional	10	10	20
Usability	5	1	6

Category	Manual Only	Automated	Total
UI/UX	6	0	6
Boundary/Negative	3	5	8
Total	24	16	40

Automation Percentage: 40% (16 out of 40 test cases have automated coverage)

7. Risk Assessment

High Priority Requirements (Must be fully tested)

Requirement	Risk Level	Mitigation
TR-001: Registration	Critical	<input checked="" type="checkbox"/> Full automation coverage
TR-002: Authentication	Critical	<input checked="" type="checkbox"/> Full automation coverage
TR-004: Shopping Cart	Critical	<input checked="" type="checkbox"/> Full automation coverage
TR-006: Checkout	Critical	<input checked="" type="checkbox"/> Full automation coverage

Medium Priority Requirements

Requirement	Risk Level	Mitigation
TR-003: Navigation	Medium	Manual testing with screenshots
TR-005: Search	Medium	Manual testing with screenshots
TR-008: Form Validation	Medium	<input checked="" type="checkbox"/> Covered via other automated tests

Lower Priority Requirements

Requirement	Risk Level	Mitigation
TR-007: Product Display	Low	Manual visual verification

8. Approval

Role	Name	Signature	Date
QA Engineer	Lakindu De Silva	**_**	**_**
Reviewer	**_**	**_**	**_**

Document History

Version	Date	Author	Changes
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Version	Date	Author	Changes
1.0	Dec 15, 2024	Lakindu De Silva	Initial RTM creation

This RTM ensures complete traceability between requirements and test cases, supporting the SQE coursework objectives of comprehensive test coverage and documentation.