**Case Study: E-commerce Website Test Cases**

**1. Test Strategy**

The testing approach for the E-commerce website ensures robust validation of business-critical flows including product browsing, purchase lifecycle, and seller interactions. The focus is on functional accuracy, performance, and usability across browsers and devices.

**Framework Approach**

* **BDD (Behaviour Driven Development):** Test cases designed in **Cucumber BDD** format for better readability and stakeholder collaboration.
* **Page Object Model (POM):** Implemented to enhance code reusability and maintainability.
* **TestNG with XML Integration:** Parallel test execution and modular test grouping via XML configuration.
* **Data-Driven Testing:** Leveraging BDD Examples/DataTables for different input datasets.
* **Modular Framework:** Segregating modules like Login, Registration, Cart, Payment, etc. for scalability.

**Additional Strategies**

* **Cross-Browser Execution:** Ensuring compatibility across Chrome, Firefox, Safari, and Edge.
* **Coding Standards:** Following Java coding conventions, meaningful method names, proper logging, and exception handling.
* **Screenshot Capture:** Automatic screenshots on pass/failure for traceability.
* **Extent Reports Integration:** Detailed execution reports with step-wise status, logs, and screenshots.

**2. Functional Test Cases**

**2.1 General Website Test Cases**

* Verify navigation across categories and product listings.
* Validate all internal/external links (no broken links).
* Check company logo, product titles, descriptions, and pricing visibility.
* Ensure product images and category listings load correctly.
* Validate product counts on category pages.

**2.2 Login Page Test Cases**

* Verify mandatory field validations (email, password).
* Display appropriate error messages for blank/invalid inputs.
* Verify session persistence while browsing.
* Validate session timeout and auto logout after inactivity.
* Ensure secure logout functionality prevents access to user pages.

**2.3 Registration Page Test Cases**

* Validate presence and marking of required fields.
* Verify usability elements (dropdowns, radio buttons, checkboxes).
* Validate form submission with proper and improper inputs.
* Client-side validations for email, date, numeric fields.
* Ensure trimming of spaces and error display for blank mandatory fields.
* Verify reset/cancel button clears inputs correctly.

**2.4 Address Book Test Cases**

* Validate address field formats and mandatory checks.
* Add, edit, and delete addresses successfully.
* Verify product availability based on entered address.

**2.5 Search Functionality Test Cases**

* Validate relevance of displayed search results.
* Ensure product details (image, name, price, reviews) are visible.
* Verify pagination (no duplicates across pages).
* Validate sorting and filtering persistence across navigation.
* Ensure product counts match filtered/sorted criteria.

**2.6 Wishlist Test Cases**

* Verify products added to wishlist are displayed.
* Validate update and share wishlist functionality.
* Ensure items can be added to cart directly from wishlist.

**2.7 Product Details Page Test Cases**

* Validate accuracy of product details and description.
* Ensure add-to-cart and add-to-wishlist functionality works.
* Verify product availability checker.
* Allow rating/review submission.

**2.8 Cart Test Cases**

* Verify product addition, updates, and removals.
* Validate cart details (product name, image, price, total).
* Ensure coupon discounts and error handling for invalid coupons.
* Validate cart persistence across sessions (as per requirements).

**2.9 Product Purchase Flow Test Cases**

* Validate selection of product attributes (size, color, etc.).
* Ensure checkout works for single/multiple products.
* Validate location-based availability and COD/payment methods.
* Verify error handling for exceeding purchase limits.
* Ensure order cancellation and product return flows work.

**2.10 Payment Page Test Cases**

* Verify presence of multiple payment methods (Card, PayPal, Bank Transfer, Installments).
* Ensure payment gateway security (encryption, tokenization).
* Validate successful transactions and handling of declined payments.

**2.11 Seller Panel Test Cases**

* Validate authorized access for sellers.
* Ensure product creation for single/multiple entries.
* Restrict duplicate or invalid product entries.
* Validate seller updates (price, description) reflect after approval.
* Verify product visibility on site after publishing.

**2.12 Post-Purchase Test Cases**

* Ensure order cancellation and quantity update are functional.
* Verify order history and recent order details.
* Validate account management (billing/shipping updates, password changes, account deletion).

**3. Reporting & Deliverables**

* **Extent Reports** with detailed execution logs, screenshots, and results summary.
* **Defect Reports** logged in JIRA/bug tracking tool with severity and priority.
* **Traceability Matrix** mapping test cases to requirements.
* **Daily Execution Summary** for stakeholders.