# **Test Strategy (opencart.com)**

## **Objective:** The objective is to test the end-to-end functionality, usability and performance of the ecommerce website and ensure it meets the business and technical requirements.

## **Scope of Testing**

* **In-Scope:**
  + User Registration and Login
  + Product Search and Navigation
  + Product Details Page
  + Shopping Cart Functionality (Add/Remove Items)
  + Checkout Process (Payment Gateway Integration and Order Confirmation)
* **Out-of-Scope:**
  + Advanced features such as third-party integrations (e.g., analytics tools)
  + Custom extensions or plugins not part of the default OpenCart setup
  + Backend server configurations and database optimization

## **Testing Levels**

* **Unit Testing:**Testing individual components such as login functionality and cart updates to ensure they operate correctly.
* **Integration Testing:**Verifying the interactions between modules such as product search, cart operations, and the checkout process.
* **System Testing:**Conducting end-to-end testing of the website to validate the entire user journey from login to order placement.
* **Acceptance Testing:**Confirming that the website meets the predefined requirements and is ready for deployment.

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## **Testing Types**

* **Functional Testing:**
  + Verify user registration and login workflows.
  + Test product search, filtering, and sorting.
  + Validate cart operations (add, update, remove items).
  + Ensure seamless checkout and order confirmation processes.
* **Non-Functional Testing:**
  + **Performance Testing:**Measure the website's response time under normal and peak load conditions (e.g., 500 concurrent users).
  + **Compatibility Testing:**Validate the website’s behavior across multiple browsers and devices.
* **Security Testing:**
  + Identify and address vulnerabilities such as SQL Injection and Cross-Site Scripting (XSS).
  + Ensure secure data transmission, especially during user registration and payment.
* **Usability Testing:**
  + Ensure ease of navigation and accessibility for all users.
  + Validate the visual and functional alignment across different devices.

## **Test Environment**

* **Hardware:**
  + Testing on devices like desktops, tablets, and smartphones.
  + Web servers hosting the OpenCart platform.
* **Software:**
  + Supported browsers: Chrome, Firefox, Safari, and Edge (latest versions).
  + Supported operating systems: Windows, macOS, Android, and iOS.
* **Test Data:**
  + Valid and invalid user credentials.
  + Sample product catalogs with various attributes (price, stock, etc.).
  + Test payment credentials for sandbox environments.

## **Entry and Exit Criteria**

* **Entry Criteria:**
  + Test environment setup is complete.
  + Test data is prepared and available.
  + Test cases are reviewed and approved.
* **Exit Criteria:**
  + All critical and high-priority test cases are executed.
  + Defects are logged and resolved or deferred with approval.
  + Test summary report is reviewed and signed off by stakeholders.

## **Defect Management**

* **Defect Logging:**All defects identified during testing will be logged in JIRA with detailed descriptions, steps to reproduce, severity, and priority.
* **Defect Tracking:**Regular status updates will be shared to monitor defect resolution.
* **Defect Retesting:**Once fixed, defects will be retested to ensure they are resolved without introducing new issues.

## **Tools and Resources**

* **Test Management:** JIRA, TestRail
* **Automation Tools:** Selenium for repetitive scenarios
* **Performance Tools:** JMeter for load and stress testing
* **Defect Tracking:** JIRA

## **Risk Analysis**

* **Potential Risks:**
  + Delays in environment setup or test data availability.
  + Frequent changes in requirements affecting test coverage.
  + High number of defects discovered late in the cycle.
* **Mitigation Measures:**
  + Engage stakeholders early to finalize requirements.
  + Prepare test data and environments well in advance.
  + Include buffer time in the test schedule to accommodate unexpected changes.

## **Test Reporting**

* **Daily Test Execution Reports:**Shared with the project team, highlighting progress, passed/failed test cases, and defect status.
* **Final Test Report:**A comprehensive document summarizing test execution results, defects found, and overall quality assessment.