**Test Strategy**

**Test Strategy for OpenCart Application**

**1. Introduction:**

This test strategy outlines the approach to be followed for testing the **OpenCart application** to ensure that it meets functional, security, performance, and usability requirements. OpenCart is an open-source shopping cart system that offers a platform for e-commerce applications. This strategy covers all testing phases, including functional, integration, and regression testing for various modules such as product catalog, shopping cart, checkout, and payment gateways.

**2. Testing Objectives:**

* To validate the functionality and usability of the OpenCart application.
* To ensure the application is free of critical defects and works as intended for end users.
* To verify the integration of various external systems (e.g., payment gateways, shipping services).
* To ensure the system meets performance expectations under load and stress conditions.
* To ensure that security requirements are met to prevent common vulnerabilities.

**3. Test Scope:**

**In-Scope:**

* **Functional Testing**:
  + User registration and login.
  + Product catalog and search functionality.
  + Shopping cart and checkout process.
  + Payment gateway integrations (e.g., PayPal, Stripe).
  + Admin panel (order management, product management).
  + Order management (view, edit, delete).
  + Customer profile management.
* **Usability Testing**:
  + UI/UX review for user-friendliness.
  + Mobile responsiveness (testing across different screen sizes).
* **Performance Testing**:
  + Load and stress testing (checking the performance under multiple concurrent users).
* **Security Testing**:
  + Checking for vulnerabilities such as SQL injection, Cross-Site Scripting (XSS), session management issues, etc.
* **Compatibility Testing**:
  + Testing the application across different browsers (Chrome, Firefox, Safari, Edge).
  + Testing on various operating systems (Windows, MacOS, Linux).
  + Mobile compatibility testing for responsive design.

**Out of Scope:**

* Any custom modules that are not part of the default OpenCart setup.
* Development-related tasks (e.g., fixing bugs, writing code).

**4. Test Deliverables:**

* **Test Plan**: Document outlining the testing scope, objectives, and resources.
* **Test Cases**: A comprehensive set of test cases covering functional and non-functional aspects of the application.
* **Test Execution Reports**: Detailed reports after executing each test case, including pass/fail status.
* **Defect Reports**: Reports that detail the defects found during testing (severity, reproduction steps, etc.).
* **Test Summary Report**: A summary of all testing activities, including the number of test cases executed, defects identified, and the overall quality of the application.

**5. Testing Types and Approach:**

**a. Functional Testing:**

* **Test Case Creation**: Test cases will be created based on the functionality of various OpenCart modules.
* **Test Execution**: Test cases will be executed manually, with detailed checks for each feature such as login, product listing, cart functionality, checkout, etc.
* **Expected Results**: Each test case will define the expected output, and the actual results will be compared to verify if the application is working as expected.

**b. Regression Testing:**

* After each code change or bug fix, the previously executed test cases will be re-executed to ensure that no new defects are introduced.

**c. Integration Testing:**

* Ensure that external integrations like **payment gateways** (PayPal, Stripe), **shipping modules**, and **third-party services** work seamlessly with OpenCart.

**d. Security Testing:**

* Perform security checks to ensure that the system is resistant to common attacks such as:
  + SQL Injection
  + Cross-Site Scripting (XSS)
  + Session Hijacking
  + Cross-Site Request Forgery (CSRF)
  + Password Management

**e. Performance Testing:**

* **Load Testing**: Ensure the application can handle multiple users accessing the application simultaneously, especially the checkout and product listing pages.
* **Stress Testing**: Push the system beyond its limits to determine how it behaves under extreme conditions.
* **Response Time Testing**: Check the time taken for important actions, such as loading product pages, completing checkout, etc.

**f. Usability Testing:**

* Assess the UI/UX to ensure that the OpenCart application is intuitive and easy to navigate for users.
* Perform tests on the **mobile responsiveness** of the site, checking how it adjusts to various screen sizes (smartphones, tablets, desktops).

**g. Compatibility Testing:**

* Test the application’s compatibility across various **browsers** (Chrome, Firefox, Safari, etc.) and **operating systems** (Windows, MacOS, Linux).
* Test how the application performs across various devices (laptop, desktop, tablet, mobile).

**6. Resource Requirements:**

* **Testers**: Manual testers with expertise in web applications and e-commerce platforms.
* **Test Environment**: OpenCart instance hosted on a testing server, with access to an admin panel and necessary credentials for testing.
* **Tools**:
  + **Bug Tracking**: Excel
  + **Test Case Management**: Bugasura

**7. Test Execution:**

* **Test Case Execution**: Manual execution of test cases based on the modules being tested.
* **Defect Logging**: When defects are found, they will be logged into the bug tracking tool (Bugasura) with a detailed description, severity, and steps to reproduce.
* **Test Reporting**: After completing the test execution, detailed test reports will be shared with the development team, including the number of passed, failed, and blocked test cases.

**8. Risks and Mitigation:**

* **Risk**: Changes in the OpenCart application during the testing phase.
  + **Mitigation**: Regular communication with the development team to ensure timely updates and changes.
* **Risk**: Unavailability of third-party services like payment gateways during testing.
  + **Mitigation**: Use sandbox environments or mock services for payment gateways.

**9. Entry and Exit Criteria:**

**Entry Criteria:**

* The testing environment should be set up with the latest stable build of the OpenCart application.
* Test cases must be created and reviewed.

**Exit Criteria:**

* All test cases must be executed.
* All critical and major defects should be resolved or deferred.
* A test summary report should be completed, and sign-off should be obtained from the stakeholders.

**10. Timeline:**

| **Phase** | **Start Date** | **End Date** |
| --- | --- | --- |
| Test Planning | 10-07-2024 | 15-07-2024 |
| Test Case Creation | 15-07-2024 | 20-07-2024 |
| Test Case Execution | 20-07-2024 | 10-08-2024 |
| Defect Reporting | 10-09-2024 | 10-09-2024 |
| Test Summary and Sign-off | 10-11-2024 | 10-11-2024 |
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**11. Conclusion:**

This test strategy ensures a thorough and structured approach to testing the OpenCart application, focusing on functionality, performance, security, and usability. Following this strategy will help deliver a high-quality product that meets both the business requirements and user expectations.