Opencart Test Plan

Version-1.0

Prepared By:
Ojasva Gupta

Meet the Team

Role		Name
Project Manager		MNO
Development Team	Senior Software Engineer	ABC
	Software Engineer	EFG
	Software Engineer	JKL
Testing Team	Test manager	XYZ
	Test Lead	GHI
	Test Engineer	Ojasva Gupta
	Test Engineer	PQR

Document History

Version	Author	Contact Details	Description of Change
1.0	Ojasva Gupta	abc@gmail.com	Test plan 1.0 developed

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1. Introduction

The test plan for the Opencart web application outlines the strategy, objectives, criteria, environment, deliverables, schedule, and estimation of testing activities. It specifies testing scopes including features to be tested and not to be tested, types of testing, testing tools, test environments, personnel responsible for testing, and addresses the risks associated with test plan and describes the mitigation plans for all the included risks. The test plan serves as an overview for new team members and provides insights into testing details for non-testing team members.

1.1 Overview of Opencart Web Application

Opencart is a free, open-source e-commerce platform for a diverse user base, from web developers to shop owners offering foundational support for building online stores. The e-commerce application consists of Opencart store front and admin section. As the project is based on Opencart store front, the test plan specifically addresses Opencart Store front section, highlighting its core features which are given below:

- Allows free user registration and user login.
- Features a homepage with a header, footer, and menu bar, product search option.
- Includes a product display page.
- Enables users to change and manage their information.

- Incorporates a shopping cart for adding and managing products.
- Offers a checkout page with international payment options for purchasing.
- Allows users to submit product reviews.
- Provides the option to purchase gift vouchers.

1.2 Purpose of Opencart Test Plan

The test plan serves as a comprehensive guide for the testing team documenting every testing activities with details along with their overall cost, effort and duration. It ensures a planned testing approach that the testing team can follow and overcome any confusion regarding the testing of the Opencart application. It also serves as a document that can be reused for other projects too.

2. Test Strategy

Test strategy defines the overall testing approach for the Opencart web application. It describes the testing techniques, the different types of testing the application needs to produce the best results to meet the client requirements. Testing strategy consists of test approach including process of testing, testing types and testing tools etc.

2.1 Test Approach

Test approach is a component of the test strategy which outlines the testing process, various types of testing, and specifies the methods for conducting testing in the Opencart application.

2.1.1 Process of Testing

The testing process defines the way of carrying out all the testing activities for Opencart web application. A step-by-step testing process outlined for the Opencart web application is given below.

Step-1: Understanding the Requirements

- The client will provide requirement specifications.
- The manager, lead and developer will raise any queries, if there are any.
- Any queries raised will be forwarded to the client. The client will respond to the queries.

Step-2: Developing Testing Artifacts

Test Plan: A detailed test plan will be generated by the testing team for the Opencart application.
Test Scenarios and Test Cases: Testing team will develop test scenarios for all the modules of the Opencart application. Test cases will be generated based on these scenarios, employing various test design techniques which are given below:

- Equivalence Class Partition
- Boundary Value Analysis
- State Transition Testing
- Decision Table Testing

- Error Guessing (Using the testing team expertise)

Test scenarios and test cases will be documented in Microsoft excel and later it will uploaded into test management tool.

Requirement Traceability Matrix (RTM): Testing team will create a Requirement Traceability Matrix (RTM) based on test cases and the requirement specifications to ensure all the requirements have been covered in the test cases and test scenarios. Microsoft Excel will be used to generate the RTM.

Test Data: The respective test engineer will develop the test data required for executing tests on the application. Appropriate test data including test data for positive and negative testing according to the test cases will be included in the test data document. Test data will be developed in Microsoft Excel.

Step-3: Executing Test Cases

- After creating the necessary testing artifacts testing team will execute the developed test cases and thoroughly test all the modules of Opencart application.
- Execution result of all the test cases will be logged in test execution result document. Microsoft Excel will be used to build the document. **Step-4: Defect Reporting**
- During testing if any bugs are identified, testing team will log and report the bugs using both Microsoft Excel and Jira. The bugs are categorized based on the priorities as follows:
    1) **High:** Serious errors preventing system tests or serious data type issues.
    2) **Medium:** Serious or missing data errors without preventing implementation.
    3) **Low:** Minor errors with no impact on functionality.
- Any identified bugs will be assigned to the developer and tracked by the test engineer until it's resolution according to the project's bug life cycle.

Bug Life Cycle: Bug life cycle provides a detail overview of the various stages of a bug from it's discovery to it's resolution. Bug life cycle that has been followed in the Opencart project is given below:

Step-1: Assigned

- From the defect report, test engineer will report the newly identified defects to the developer.
- If the bug is a blocker tester should mention that in defect report.

Step-2: Resolving

- The developer will open the defect and if the developer does not accept the defect the defects will be addressed according to the followings by the developer:
    1. **Duplicate:** The identified bug can be a duplicate bug.
    2. **Not an issue:** The developer will mark the defect as "Not an issue" if the defect is not an issue.
    3. **Won't fix:** The developer will label the defect as "Won't fix" because here the defect is a feature.

4. **Future releases:** Low priority bug can be addressed for "Future releases" according to the client preference.

- But if it is an appropriate defect the developer will accept it and resolved it.
- After resolving the assigned bug, the developer will mark it as 'Dev done' and assign it to the testing team for verification.

Step-3: Verification

- The testing team will conduct a thorough testing of the fixes on the assigned bugs.
- Testing team will also verify the "duplicate", "Not an issue", "Future releases" and "Won't fix" defects.

Step-4: Closure

- Upon successful verification of the bug fix, testing team will close the bug.
- The testing team will label the closed bug as "Test done".

Step-5: Unresolved

- If the bug is not successfully fixed, tester will re-assign it to the developer for further resolution.

This cycle will continue to track the progress of bug resolution and ensures that issues are addressed effectively before Opencart is released. **Step-5: Deployment**

- After all the bug has been resolved, the application will be ready to deploy in the production environment.
- After the overall test completion, test summary report will be send to client.
- Test engineer can do one round of testing in the client site according to the client preference.

2.1.2 Testing Types

Testing types are standardized procedures designed for specific bug identification and ensuring early bug detection before product release. In this project two types of testing are performed which are given below:

1. **Functional Testing:** To ensure the fulfillment of client-provided functional requirements, functional testing is conducted to verify that the functions within Opencart are operating correctly and meeting the requirement specifications.
2. **Exploratory Testing:** Exploratory Testing in software testing involves testers checking the system on the fly without pre-defined test cases. To build a better application using the testers expertise exploratory testing will be conducted in the Opencart application.

2.2 Testing Tools

The tools used for testing the Opencart web application include:

- **Microsoft Word:** For creating the test plan.

- **Microsoft Excel:** To design test scenarios and test cases, document bug reports and to generate requirement traceability matrix (RTM).
- **Jira:** For bug tracking and project management.
- **ClickUp:** For project management.
- **Lightshot:** For capturing screenshots.

3. Test Objectives

For Opencart project the test objectives are listed below:

- Develop Opencart product according to the customer specifications ensuring high quality performance.
- Ensures registration and login page functionalities works effortlessly.
- All the products available in the store can be accessed and can be viewed with detail information.
- All users can seamlessly add any products to the cart and complete purchases from the checkout features.
- Ensure user can submit reviews of any products.
- Gift voucher functionality can successfully send any type of gift voucher to the user preferred recipient without causing any error.
- All defects must be identified, tracked and solved before release.
- Ensure all functionalities of opencart are defect free in the final release. Prioritize fixing medium and high priority defects before release while addressing low priority defects depend on the client preference for current or future release.

4. Test Items

Test items discussed about the features or functionalities in the opencart application that are going to be tested. The features included in the test items are given below:

- Home
- Account
- Register
- Login
- Forgot Password
- Logout
- Edit Account
- Change Password
- Address Book
- Wishlist
- Payment
- Order History
- Downloads

- Reward Points
- Product Returns
- Transactions
- Affiliate Account
- Newsletter
- Gift Certificate
- Shopping Cart
- Checkout
- Contact Us
- Specials
- Site Map
- Brands
- Product Compare
- Product Display

5. Features to be Tested

This section discussed the components of Opencart application that are included in the testing procedure in details. The modules and sub modules of the web application that are included in the testing are discussed with details given below:

Modules and Sub-Modules	Description
Home	The homepage is the entry point for users which features a header with a top menu bar and a footer section for easy navigation. The header includes a search box for users to explore available products throughout the Opencart store.
Account	After successfully login, users access their own personalized account page to view and manage their account information.
Account->Register	User can register their information on the register page.
Account->Login	After registration user will automatically login to Opencart but after logout user must manually log back in each time.
Login->Forgot Password	If a user forgets their account password, they can retrieve it through this page, which provides a password reset link.
Account->Logout	User can logout from the application.
Account->Edit Account	User can edit their account information.
Account->Change Password	User can change their previous password to a new one.
Account->Address Book	Users can manage multiple addresses, but must have a mandatory default address.

Account->Wishlist	Users can add products to wishlist for future purchases, with the option to move them to the shopping cart when users are ready to make a purchase.
Account->Payment	User can manage their payment method information.
Account->Order History	User can view their previous all order history information.
Account-> Downloads	If a user's purchase includes downloadable stuff, user can access them through the downloads page.
Account ->Reward Points	User can view their reward points after purchasing product and utilize their reward points for making additional purchases.
Account->Product Returns	User can return their products through the product return page.
Account->Transactions	User can access and view their transaction history.
Account->Affiliate Account	Users can create an affiliate account and invite others to become affiliates. This enables user to promote the ecommerce platform, earning commissions on boosted sales and traffic.
Account->Newsletter	Users have the option to subscribe to the newsletter.
Gift Certificate	User can send gift vouchers individually to another user.
Shopping Cart	Users can add products and view the total product count and order price of all added items.
Shopping Cart->Checkout	After adding product to shopping cart only then user can access checkout page and then user can proceed to checkout.
Contact US	User can submit their enquiries.
Specials	User can view special offers in the product list.
Site Map	User can view the site map and navigate all the other pages through it.
Brands	Users can see all the brands available in the store and view products list by their brand name.
Product Compare	User can compare multiple products based on specifications, features, and prices.
Product Display	User can view the selected products in detail format through product display page.

6. Features not to be Tested

The components of the Opencart application that are not included in the testing procedure are discussion in the features not to be tested section. Feature that are not included in the application are listed below:

- Test automation.
- Website Security and opencart performance.

- Website Database/Server side. Any third-party features.
- All the features that doesn't mentioned in features to be tested section.

7. Test Criteria

In this Opencart test plan, test criteria includes entry, exit, suspension, resumption criteria. Entry and exit criteria defines when the testing of the application should begin and end. Similarly Suspension criteria defines the conditions for pausing the testing process and resumption criteria specify the conditions to continue the testing process.

7.1 Entry Criteria

Entry criteria conditions are listed below:

1. Unit testing on the build or application must be done before testing.
2. All the requirements must be thoroughly analyzed and understood.
3. Test plan, test scenarios and test case document must be ready and properly reviewed and signoff by the assigned peers and the client.
4. Appropriate test data should be prepared.
5. Build must be ready and properly assigned to the different test or quality assurance engineer.
6. Test environment's hardware and software tools must be installed and functions properly along with all the necessary testing tools.

7.2 Exit Criteria

The following conditions of Exit criteria must be met for the successful completion of a test phase:

1. All the test scenarios and test cases must be executed.
2. Test execution pass rate must be 95% achieved for successful completion.
3. All the high priority bugs assigned to the developers must be fixed and retested.
4. 95% of the medium priority bugs must be fixed and retested.
5. All the remaining low priority defects and 5% of the medium priority defects if accepted as bugs that must be fixed and retested and if not either it must be cancelled or must be documented as Change Request for the future release.
6. Full project team must be comfortable with the quality of the project before going to the production stage.
7. Final signoff by the clients.

7.3 Suspension Criteria

The conditions of suspension criteria are given below:

1. Significant blocker in the testing build.

2. Test environment is unstable during the testing process.
3. All testing resources that needs during the testing are not ready.
4. Changes in the requirement suggested by the client.
5. If there is a 40% failure rate in test cases, testing will be suspended until the development team resolves all the failed cases.
6. Significant network issues.
7. Inappropriate test data.
8. Based on the client decision testing can be suspended.

7.4 Resumption Criteria

Resumption criteria has following conditions:

1. The blocker in the testing build must be fixed.
2. Test environment should be stable to continue the testing process.
3. All testing resources that needs during the testing must be ready.
4. Changes in the requirement suggested by the client must be implemented and integrated in the testing process.
5. Ensure test case failure rate is lower than 40% to continue the testing but if it is reaches or exceeds 40% then those bugs must be fixed to continue the testing.
6. Network issues that suspend the testing must be resolved.
7. Rectify inappropriate test data.
8. Based on the client decision testing can be resumed.

8. Test Environment

A testing environment is a configured setup of software and hardware where the testing team executes test cases. The components that needed to build the test environment are listed below:

S. I	Name	Description
1.	Web Browser	Google Chrome Browser (Version-120.0.6099.201) for the Opencart web application to run and execute the test cases
2.	Network	A LAN Gigabit network and install one internet line with a minimum speed of 5 Mb/s.
3.	Computer	A computer which has windows 10, RAM 8 GB, CPU 2.10 GHz.

Here in the test environment, testing is performed on a computer running the Windows 10 operating system, utilizing the Google Chrome browser. Test cases for the Opencart web application are executed on the Opencart demo website. Testers access the website through web browsing to conduct the testing. There is a figure below representing the test environment.

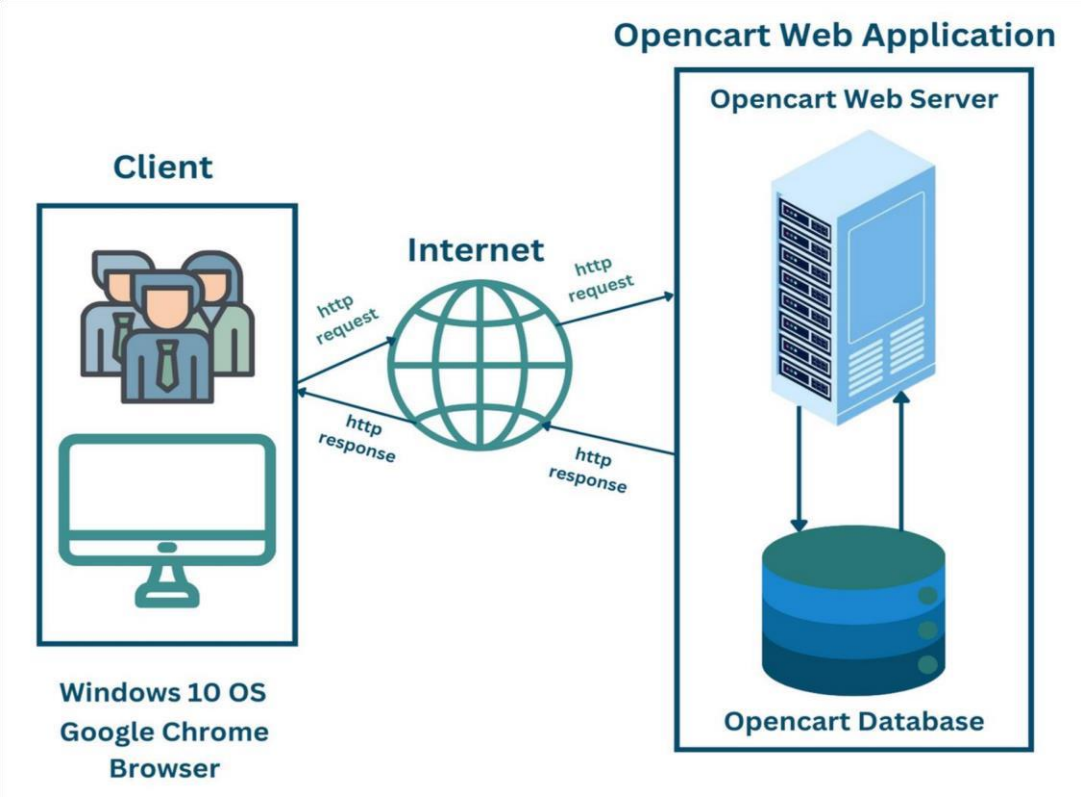

Fig 1: Opencart Test Environment

9. Roles and Responsibilities

The testing team members in the Opencart project includes:

S. I	Roles	Responsibilities
1.	Name: MNO Designation: Project Manager	➢ Responsible for communication between the development team and testing team. ➢ Responsible for the overall project schedule. ➢ Monitors and tracks the progress of the testing. ➢ Communicates and updates the client with the project testing progress.
2.	Name: XYZ Designation: Test Manager	➢ Write and review of Opencart test plan and Opencart test summary report and get client signoff. ➢ Hold a meeting with the development team. ➢ Conduct a meeting with the testing team. ➢ Conduct a meeting with the customer. ➢ Handles risks and issues.

3.	Name: GHI Designation: Test Lead	➢ Participate in writing and reviewing the Opencart test plan and Opencart test summary report. ➢ Manage all the test engineers. ➢ Review and approve test cases and test scenarios of Opencart. ➢ Prepare RTM and reports. ➢ Assign Modules to the test engineers. ➢ Give appropriate training to skill up the testing team. ➢ Handles the testing schedule of the Opencart application.
4.	Name: Nolak Kapali Designation: Test Engineer	➢ Understand and analyze the Opencart application requirements. ➢ Developed Opencart test cases with test scenarios ➢ Prepares test data. ➢ Prepare RTM for respective modules of Opencart. ➢ Execute test cases. ➢ Prepare defect reports.
5.	Name: PQR Designation: Test Engineer (For Backup)	In case of an emergency, if the assigned test engineer is absent, the backup test engineer will assume the responsibilities of the assigned test engineer in the Opencart Project.

10. Estimation & Schedule

The test schedule and the total test estimation are discussed in this section for Opencart project.

10.1 Test Estimation

In the test estimation phase, the entire project is divided into small tasks and the estimated time is allocated for each task as follows:

Deliverables	Associated Team Member	Estimated Duration
Creating Test Plan	Test Manager, Test Lead, Test Engineer	60-man hour
Test Scenarios and Test Case Development	Test Lead, Test Engineer	150-man hour

Test Data	Test Lead, Test Engineer	20-man hour
Requirement Traceability Matrix (RTM)	Test Lead, Test Engineer	10-man hour
Test Execution	Test Engineer	70-man hour
Documenting Bug Report	Test Engineer	50-man hour
Test Summary Report	Test Manager, Test Lead, Test Engineer	10-man hour
Test Delivery		20-man hour
Total		390-man hour

10.2 Test Schedule

In the test schedule phase, the schedule is designed based on the time allocations provided in the test estimation for the overall testing process, as outlined below:

Task	Start date	Finish Date
Test Plan Creation	24.03.2024	29.03.2024
Test Scenarios and Test Cases Creation	30.03.2024	10.04.2024
Test Data Preparation	11.04.2024	12.04.2024
RTM Submission	13.04.2024	13.04.2024
Test Execution	14.04.2024	19.04.2024
Bug Report Submission	20.04.2024	22.04.2024
Test Summary Report	22.04.2024	22.04.2024

Test Delivery	25.11.2023	25.11.2023

11. Deliverables

The test deliverables are the list of documents, tools and other components that are created to maintain and support the testing. The test deliverables of this Opencart project are given below:

Test Deliverable	Description	Template
Test Plan	Detailed planned document that includes testing process, scope, deliverables and resources required for testing, test schedule and estimation, test environment etc. designed for the Opencart project.	 Test Plan Template.docx
Test Cases	Test cases document include with test scenarios which are developed on the features included in the test items section and based on the test scenarios the test cases are developed in the Opencart project.	 Test Scenarios and Test Cases Template
Test Data	Test data consists of the data that has been utilized during the execution of the testing process of Opencart web application.	 Test Data Template.xlsx
RTM (Requirement Traceability Matrix)	The Requirement Traceability Matrix (RTM) will be provided to the Project Manager upon completion of the bug report to offer a comprehensive overview of the overall testing process.	 RTM Template.xlsx
Test Execution Result	All the test cases that are executed will be documented in Test Execution result document. Microsoft excel is used to build test execution.	 Test Execution Result Template.xlsx
Defect Report	Bugs discovered during testing are reported with screenshots and videos, provided weekly at the discretion of the Project Manager of the Opencart project.	 Opencart 1.0 Defect Report Template.xlsx
Test Summary Report	Test summary report will be generated at the end of the test cycle. Microsoft word will be used to build the report. Test metrics also included in the test summary report.	 Opencart 1.0 Test Summary Report.doc

12. Risks and Mitigations

In the process of testing this web application, specific risks have been identified. It's important to acknowledge that when these risks materialize, they can evolve into issues, signifying potential losses for the entire project. To resolve this risk mitigation strategies are outlined below along with the identified risks.

Risk	Mitigation
Team members lack essential skills for website testing.	Implement a targeted training course to enhance their proficiency in website testing.
With the project schedule being overly tight, project completion is very challenging.	Establish test priorities for each test activity to optimize testing efforts within the tight timeframe.
The Test Manager lacks effective management skills.	Implement leadership training for the manager.
Inadequate cooperation negatively impacts employee productivity.	Motivate each team member in their tasks and inspire them to put forth greater efforts.
Inaccurate budget estimate and cost overruns.	Define the scope before commencing work, prioritize thorough project planning, and consistently monitor and measure progress.