Test Plan | Group 4: Automation Exercise and OpenCart Integration

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1. Project Information

1.1. Project Overview

This project encompasses a comprehensive quality assurance initiative for two distinct web applications: Automation Exercise and OpenCart. The primary objective is to validate the functional integrity, performance, and data consistency across various testing paradigms. For Automation Exercise, the focus will be on validating user interface interactions through manual and automated testing, alongside verifying backend service reliability via API testing. Concurrently, OpenCart will undergo rigorous database testing to ensure data integrity, schema adherence, and transactional accuracy. This integrated approach aims to deliver a robust and error-free user experience across both platforms.

1.2. Websites Under Test

- **Automation Exercise:** https://automationexercise.com/
    - **Description:** A full-fledged practice website designed for automation engineers to hone their skills in UI, API, and functional testing. It provides various features such as user registration, product browsing, cart management, and checkout processes.
- **OpenCart:** https://demo.opencart.com/
    - **Description:** A demonstration instance of the popular open-source e-commerce platform. For this project, it will serve as the target for database-level validation, focusing on data storage, retrieval, and manipulation integrity.

1.3. Testing Types

This project will employ a multi-faceted testing strategy to ensure comprehensive coverage:

- **Functional Testing:** Verification that all features and functionalities of Automation Exercise operate in accordance with specified requirements.
- **Regression Testing:** Ensuring that new changes or bug fixes do not adversely impact existing functionalities on Automation Exercise.
- **UI/UX Testing:** Assessment of the user interface and overall user experience for Automation Exercise, focusing on usability, aesthetics, and responsiveness.
- **API Testing:** Validation of the RESTful APIs exposed by Automation Exercise, including endpoint functionality, data payloads, status codes, and error handling.
- **Database Testing:** Direct examination of the OpenCart database to confirm data integrity, consistency, schema validation, and the correct execution of database operations.

1.4. Browsers and Environment Used

Testing for Automation Exercise will be conducted across modern web browsers to ensure cross-browser compatibility. Database testing for OpenCart will utilize standard database management tools.

Category	Component	Details
Operating System	Workstations	Windows 10/11
Browsers (Automation Exercise)	Primary	Google Chrome (latest stable)
	Secondary	Microsoft Edge (latest stable)
Database (OpenCart)	Database System	MySQL (version compatible with OpenCart demo)

2. Team Members and Roles

2.1. Team Structure

The Quality Assurance team for this project comprises five dedicated members, each contributing their expertise across various testing domains. The team operates collaboratively, ensuring shared knowledge and mutual support throughout the testing lifecycle.

2.2. Roles and Responsibilities

Name	Role	Key Responsibilities
Steven Hany	**Team Leader / QA Lead**	Oversees the entire testing process, defines strategy, allocates resources, manages stakeholder communication, and ensures timely delivery of test artifacts. Provides technical guidance and mentorship to the team.
Karem Ehab	**QA Engineer**	Designs, executes, and maintains manual and automated test cases to ensure software quality across UI/UX, API, and database layers. Performs exploratory, regression, and functional testing using automation frameworks, API tools, and SQL queries to validate functionality, usability, and data integrity.
Mahmmod Amr	**QA Engineer**	Designs, executes, and maintains manual and automated test cases to ensure software quality across UI/UX, API, and database layers. Performs exploratory, regression, and functional testing using automation frameworks, API tools, and SQL queries to validate functionality, usability, and data integrity.

Name	Role	Key Responsibilities
Ahmed Hossam	**QA Engineer**	Designs, executes, and maintains manual and automated test cases to ensure software quality across UI/UX, API, and database layers. Performs exploratory, regression, and functional testing using automation frameworks, API tools, and SQL queries to validate functionality, usability, and data integrity.
Khaled Salah	**QA Engineer**	Designs, executes, and maintains manual and automated test cases to ensure software quality across UI/UX, API, and database layers. Performs exploratory, regression, and functional testing using automation frameworks, API tools, and SQL queries to validate functionality, usability, and data integrity.

3. Scope

3.1. In-Scope

- **Automation Exercise:**
  - **User Interface (UI) Functionality:** Navigation, form submissions (e.g., registration, login, contact us), product browsing, search, add to cart, checkout process.
  - **User Experience (UX):** Usability, responsiveness, and overall user flow.
  - **API Endpoints:** Verification of key API functionalities related to user authentication, product information, and order processing.
  - **Regression Testing:** Automated validation of critical user journeys to detect unintended side effects from code changes.
- **OpenCart:**
  - **Data Integrity:** Ensuring accuracy and consistency of data within the database (e.g., product details, user accounts, orders).
  - **Schema Validation:** Verification of database table structures, relationships, and constraints.
  - **Transactional Accuracy:** Confirming that database operations (e.g., adding a product, placing an order) are correctly reflected in the database.

3.2. Out-of-Scope

To maintain focus and optimize resource allocation, the following areas are explicitly excluded from this test plan:

- Performance and Load Testing for OpenCart.
- Security Vulnerability Assessment for OpenCart.
- Localization and Internationalization testing for both applications.
- Compatibility testing for legacy browser versions (e.g., Internet Explorer).
- Source code review or white-box testing beyond API interactions.

4. Testing Objectives

The overarching objectives of this testing initiative are:

- To confirm that Automation Exercise functions precisely as intended across its UI and API layers, delivering a reliable user experience.
- To guarantee the absolute integrity and consistency of data within the OpenCart database, reflecting accurate business operations.
- To proactively identify, document, and facilitate the resolution of all critical and major defects before project completion.
- To establish a robust set of test artifacts (manual and automated) that can be leveraged for future regression cycles.

5. Test Schedule (Agile Sprints)

This project will follow an Agile sprint methodology, with all testing activities culminating by **November 27, 2025**. The schedule is designed to be iterative, allowing for continuous feedback and adaptation.

Sprint	Duration	Key Objectives	Deliverables
Sprint 1: Planning & Environment Setup	Oct 14 – Oct 16, 2025	Finalize test strategy, set up test environments, and configure necessary tools. Conduct initial exploratory analysis of Automation Exercise.	Approved Test Plan, Environment Configuration Document, Initial Exploratory Test Notes
Sprint 2: Test Case Design & Initial Automation	Oct 17 - Oct 29, 2025	Develop detailed manual test cases for Automation Exercise UI, design API test cases, and formulate SQL queries for OpenCart database validation. Begin development of automated scripts for critical paths.	Manual Test Cases (Automation Exercise), API Test Specifications, Database Test Scripts (SQL), Initial Automated Test Suite
Sprint 3: Execution & Defect Management	Oct 30 - Nov 7, 2025	Execute all designed test cases (manual, automated, API, database). Log, prioritize, and track defects. Conduct retesting of resolved issues.	Comprehensive Test Execution Logs, Detailed Defect Reports, Retest Verification Reports
Sprint 4: Reporting & Finalization	Nov 8 - Nov 27, 2025	Consolidate all test results, generate a comprehensive Test Summary Report, and ensure all test artifacts are properly documented and archived. Prepare for project closure and knowledge transfer.	Final Test Summary Report, Archived Test Artifacts, Project Closure Document

6. Entry Criteria

Testing for each phase will commence only upon the fulfillment of the following conditions:

- The Test Plan document has been formally reviewed and approved by all relevant stakeholders.
- All designated test environments are fully provisioned, stable, and accessible.
- Necessary testing tools and software are installed, configured, and operational.
- Sufficient and representative test data is available for execution.
- The application builds for Automation Exercise and OpenCart are deployed and verified for basic functionality (smoke testing).

7. Exit Criteria

Project testing will be deemed complete when the following conditions are met:

- All planned test cases, across all testing types, have been executed.
- All critical and high-severity defects have been resolved, retested, and closed.
- The achieved test coverage meets or exceeds the predefined targets.
- The Test Summary Report has been finalized, reviewed, and approved by the Test Lead and stakeholders.
- No open blocking issues remain that could impede the release or subsequent development phases.

8. Test Deliverables

The following artifacts will be produced and maintained throughout the testing lifecycle:

- Test Plan Document (this document)
- Detailed Manual Test Cases (for Automation Exercise)
- Automated Test Scripts (for Automation Exercise)
- API Test Collections/Specifications (for Automation Exercise)
- Database Test Scripts (SQL queries for OpenCart)
- Defect Reports and Tracking Logs
- Test Execution Reports (summarizing results of each test run)
- Test Summary Report (final comprehensive overview)
- Environment Configuration Document

9. Risks and Mitigation Plan

Effective risk management is crucial for project success. The following table outlines identified risks and their corresponding mitigation strategies:

Risk Category	Identified Risk	Impact	Mitigation Strategy
Environment	Unstable or unavailable test environments.	Delays in testing, inaccurate results, increased retesting effort.	Implement robust environment provisioning (e.g., containerization), conduct daily environment health checks, establish clear escalation paths for environment issues.
Data	Insufficient, irrelevant, or corrupted test data.	Incomplete test coverage, inability to validate specific scenarios, false positives/negatives.	Develop a comprehensive test data management strategy, utilize data generation tools, implement data masking for sensitive information, regularly refresh test data.
Scope	Scope creep or undefined requirements.	Project delays, resource strain, reduced quality in core areas.	Strict adherence to the defined scope, formal change request process for any new requirements, continuous communication with stakeholders to manage expectations.
Resources	Unavailability of key team members or technical expertise.	Delays in specific testing areas, reduced overall team productivity.	Cross-train team members on multiple testing types, maintain detailed documentation for knowledge transfer, proactively identify and address resource gaps.
Technical	Unexpected technical challenges with tools or application under test.	Delays in automation development, inability to execute certain test types.	Conduct proof-of-concept for new tools, maintain up-to-date documentation for tool usage, allocate buffer time for technical troubleshooting.

10. Tools and Technologies

The following tools and technologies will be utilized to facilitate efficient and effective testing:

- **Test Management:** Jira (for test case management, defect tracking, and sprint planning).
- **Automation Testing:** Selenium WebDriver with Python (for UI automation on Automation Exercise).
- **API Testing:** Postman or Insomnia (for designing, executing, and validating API requests for Automation Exercise).

- **Database Testing:** MySQL Workbench or a similar SQL client (for executing SQL queries and verifying data in OpenCart).
- **Version Control:** Git/GitHub (for managing test scripts, documentation, and collaborative development).

11. Communication Plan

Transparent and consistent communication is vital for the success of this project. The following channels and frequencies will be observed:

- **Daily Stand-ups:** Short, focused daily meetings (15 minutes) to discuss progress, immediate plans, and any blockers. All team members participate.
- **Weekly Status Reports:** The Test Lead will provide a concise report to stakeholders, summarizing sprint progress, key achievements, identified risks, and upcoming activities.
- **Defect Review Meetings:** Ad-hoc meetings as required to discuss critical defects, prioritize fixes, and ensure alignment between QA and development teams.
- **End-of-Sprint Reviews:** Formal sessions at the conclusion of each sprint to demonstrate completed work, gather feedback, and plan for the next iteration.

12. Approval

This Test Plan is hereby approved by the undersigned stakeholders, signifying their agreement with the outlined strategy, scope, and objectives.

Role	Name	Signature	Date
QA Team Leader	Steven Hany		16 / 10 / 2025
Project Stakeholder	[Placeholder Name]	_____	_____

13. References

[1] Testplan.pdf (Initial Test Plan Document)
[2] Depiproject.pdf (Project Objective and Agile Framework Reference)
[3] Testplangroup1.pdf.pdf (Example Test Plan Structure Reference)
[4] Automation Exercise:https://automationexercise.com/ [5] OpenCart Demo: https://demo.opencart.com/

14. Conclusion

This revised Test Plan provides a structured and comprehensive framework for ensuring the quality of Automation Exercise and OpenCart. By leveraging a combination of manual, automated, API, and database testing methodologies within an Agile sprint model, the team aims to deliver high-quality results by the stipulated deadline of November 27, 2025. The collaborative efforts of Steven Hany, Karem Ehab, Mahmmod Amr, Ahmed Hossam, and Khaled Salah will be instrumental in achieving the project's quality objectives and contributing to a successful outcome.