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**FACULTY OF INFORMATION TECHNOLOGY**

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**FINAL PROJECT REPORT**

**SOFTWARE VALIDATION**

**TOPIC: TEST REPORT DOCUMENT FOR COMPUTER STORE MANAGEMENT WEBSITE PROJECT**

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**PREFACE**

The Test Report is designed to summarize and evaluate the entire software testing process. This is an important document that helps verify the system's responsiveness to the functional and non-functional requirements outlined in the specification document (SRS/SDS). The report provides detailed information on the number of test cases that have been run, the success rate, the errors detected, along with the severity and status of the treatment. From there, it helps the development team, project management or customers make decisions about whether to deploy the system or continue to test and fix errors. In addition, the Test Report is also the basis for improving the software development process, proposing solutions to optimize performance, improve test quality such as adding automated tests or expanding security test scenarios. In an academic environment, the report is also a testament to the serious and professional work of the testing team and demonstrates compliance with current software accreditation standards. As a result, the Test Report not only serves as a summary but also guides the next stages of development

# 1. Introduction

## 1.1. Purpose

This computer store management website test report was created to summarize the actual results of the software testing process compared to the previously developed testing plan. Thereby, evaluating the quality of the system, verifying the level of meeting software requirements and proposing improvements.

## 1.2. Test Scope

**Tested:**

* User functions: registration, login, shopping cart, ordering, product review, personal information update.
* Admin function: manage products, orders, statistical dashboards, account management.
* Security features: SQLi, XSS, authentication, encryption.
* Performance: measures response time when there are 100 concurrent users.
* Responsive UI: interface on desktop, tablet, mobile.

**No Testing:**

* In-depth security (DDoS, pentest).
* OpenAI API integration (not yet implemented).
* Tested with more than 1000 users.

# 2. Test Summary

**Project Name:** Testing a website project for a computer store

**System Name:** Website Management of computer stores

**Version Number:** 1.0

**Additional Comments:** Tested for all functionality on the site.

## 2.1. Functional Testing

* **Test Owner:** Group 06
* **Test Date:** 5/5/2025 - 15/5/2025
* **Test Results:** 313 cases (Pass: 290, Fail: 23)
* **Additional Comments:** Most of the test failures have been updated, and a few complex bugs are still being fixed.

## 2.2. Compatibility Testing

* **Test Owner:** Group 06
* **Test Date:** 10/5/2025 - 16/5/2025
* **Test Results:** 73 cases (Pass: 73, Fail: 0)
* **Additional Comments:** Tests have been completed

## 2.3. Performance Testing

* **Test Owner:** Group 06
* **Test Date:** 13/5/2025 - 18/5/2025
* **Test Results:** 12 cases (Pass: 12, Fail: 0)
* **Additional Comments:** Tests have been completed

## 2.4. Negative Testing

* **Test Owner:** Group 06
* **Test Date:** 16/5/2025 - 20/5/2025
* **Test Results:** 41 cases (Pass: 41, Fail: 0)
* **Additional Comments:** Tests have been completed

## 2.5. UI testing

* **Test Owner:** Group 06
* **Test Date:** 20/5/2025 - 21/5/2025
* **Test Results:** 17 cases (Pass: 17, Fail: 0)
* **Additional Comments:** Tests have been completed

# 3. Test Assessment

The testing process was carried out according to the set plan, covering the main functions of the system as well as non-functional requirements such as performance, compatibility, security, and user interface. A total of 456 test cases have been designed and executed, with a pass rate of about 98%, reflecting the high level of stability and reliability of the system at the present time.

Concrete:

* **Functional testing** has been fully performed for both users and admins. Although there are still 23 failed test cases, most of the errors have been fixed or are in the process of being processed. The critical errors are mainly related to the ordering process and cart updates, which affect the user experience.
* **UI Testing**, **Compatibility Testing** and  **Performance Testing** showed very good results, 100% of the test cases passed. This shows that the system has a flexible interface, stable performance and cross-platform compatibility.
* **Negative testing** shows that the system handles invalid inputs well, without basic security errors such as SQLi, XSS or CSRF. This helps to enhance the security of the system.

However, there are still some limitations:

* A few critical errors related to the payment and order processing process have not been thoroughly remediated, which can affect data integrity if not processed early.
* In-depth security testing and testing with a large load (>1000 users) have not been performed due to resource limitations.
* Automated testing has not been widely adopted, leading to difficulties in retesting and regression testing.

**Overall Rating:**

The team has carried out full, detailed and serious testing with a reasonable scope. The test results meet the set software quality criteria. The project can conduct actual testing, and at the same time, it is necessary to continue maintenance, fix existing errors, and expand testing in subsequent versions.

# 4. Bug Results

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Date Tested** | **Tester** | **Pass/File** | **Severity of Defect** | **Summary of Defect** | **Closed prior to Production Release?** | **Comments** |
| TC\_06\_User | 01/06/2025 | Group 06 | Fail | Medium | Allow registrations with malformed emails | Yes | Updated input validation |
| TC\_03\_User | 01/06/2025 | Group 06 | Fail | Medium | Allow registration with the wrong formatted phone number | Yes | Fixed Regex test phone |
| TC\_89\_User | 01/06/2025 | Group 06 | Fail | Medium | Successful login with incorrectly formatted email | Yes | Added email formatting checks |
| TC\_04\_User | 01/06/2025 | Group 06 | Fail | Medium | Skip the authentication code check at sign-in | Yes | Added code verification step |
| TC\_90\_User | 01/06/2025 | Group 06 | Fail | Medium | Login does not require user authentication | Yes | Validation request processed |
| TC\_33\_User | 02/06/2025 | Group 06 | Fail | Critical | Products that don't disappear from the cart after checkout | Full | Processing cart logic update |
| TC\_34\_User | 02/06/2025 | Group 06 | Fail | Critical | Don't create an order after successful checkout | Full | Fixing transaction processing errors |
| TC\_37\_Admin | 03/06/2025 | Group 06 | Fail | Critical | Allow adding new products with duplicate IDs | Yes | Added ID duplicate check in DB |
| TC\_91\_User | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost | Yes | Added connection error message |
| TC\_63\_User | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost | Yes | Processed display of lost connection message |
| TC\_18\_User | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (Page forgot password) | Yes | Clear message handled |
| TC\_58\_User | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (Registration page) | Yes | Updated network notifications |
| TC\_26\_User | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (About page) | Yes | Applies to the whole page |
| TC\_35\_User | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (Cart Page) | Yes | Sync network error handling |
| TC\_28\_User | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (Order confirmation page) | Yes | Updated bug handling |
| TC\_34\_Admin | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (Manage Orders) | Yes | Added alerts and reloads |
| TC\_37\_Admin | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (Product Manager) | Yes | Processed the entire Admin page |
| TC\_31\_Admin | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (Feedback Management Page) | Yes | Showing a clear connection error |
| TC\_35\_Admin | 03/06/2025 | Group 06 | Fail | Medium | The app still works when the network connection is lost (User Management Page) | Yes | Sync errors with the entire Admin dashboard |

# 5. Variances

During the testing process, some discrepancies (variances) between the original test plan and the actual implementation were recorded as follows:

* **Deviation in test scope**
* **Plan:** Initially, it is planned to test both the integration with the OpenAI API and the system to handle >1000 concurrent users.
* **Reality:** These two items have been eliminated due to technical delays and testing infrastructure limitations.
* **Impact:** Does not affect core functions, however reduces the level of comprehensiveness in non-functional testing.
* **Test time difference**
* **Plan:** Each set of features will be tested for about 3–4 days.
* **Fact:** The occurrence of serious errors in the order processing process caused the functional testing time to take longer than expected, and some tests were pushed at the end of the period.
* **Impact:** Putting pressure on the regression testing phase, but the team remedied it by reallocating resources.
* **Differences in test environment and operating environment**
* **Testing is carried out:** on an internal server and an emulator device.
* **Actual environment expected:** deploy on real hosting (with domain and CDN).
* **Impact:** There may be small deviations in performance and latency when put into operation, but not significant with the current user size (<100 people).
* **Simplify some test scenarios**
* **Why:** Some low-priority test cases (e.g., social media logins, profile picture changes, etc.) have been shortened or grouped together to save time.
* **Impact:** Overall test rates are not significantly impacted, but additional testing of these features should be noted in the next batch.

# 6. Test Instances

## 6.1. Resolved Test Incidents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Error ID** | **Related Test Case** | **Error description** | **Degree** | **Condition** |
| BUG-001 | TC\_06\_User (Register page) | The registration page still allows account registration when entering an email in the wrong format | Medium | Updated fix |
| BUG-002 | TC\_03\_User (Register page) | The registration page still allows account registration when entering the wrong format | Medium | Updated fix |
| BUG-003 | TC\_89\_User (Login page) | The login page still allows account login when entering an email in the wrong format | Medium | Updated fix |
| BUG-004 | TC\_04\_User (Login page) | The login page still allows account login when entering an incorrect authentication code | Medium | Updated fix |
| BUG-005 | TC\_90\_User (Login page) | The login page still allows account login without authentication | Medium | Updated fix |
| BUG-006 | TC\_33\_User (Cart page) | The product doesn't disappear from the cart despite a successful checkout | Critical | Fixing |
| BUG-007 | TC\_34\_User (Cart page) | No orders were created despite successful checkout | Critical | Fixing |
| BUG-008 | TC\_37\_Admin (Admin page) | It is still possible to add new products with IDs that already exist in existing products | Critical | Updated fix |
| BUG-009 | TC\_91\_User (Login page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-010 | TC\_63\_User (Main page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-011 | TC\_18\_User (Forgotpassword page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-012 | TC\_58\_User (Register page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-013 | TC\_26\_User (About us page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-014 | TC\_35\_User (Card page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-015 | TC\_28\_User (Confirmorder page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-016 | TC\_34\_Admin (Adminorder page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-017 | TC\_37\_Admin (Adminproduct page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-018 | TC\_31\_Admin (Adminviewfeedback page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |
| BUG-019 | TC\_35\_Admin (Adminuser page) | Web functionality remains active even when the connection is lost | Medium | Updated fix |

## 6.2. Unresolved Test Incidents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Error ID** | **Related Test Case** | **Error description** | **Degree** | **Condition** |
| BUG-001 | TC\_33\_User (Card page) | The product doesn't disappear from the cart despite a successful checkout | Critical | Fixing |
| BUG-002 | TC\_34\_User (Card page) | No orders were created despite successful checkout | Critical | Fixing |

# 7. Overview reports via charts

| **Quota** | **Result** |
| --- | --- |
| Total number of test cases | 456 |
| Test case Pass | 433 |
| Test case Files | 23 |
| Pass Rate | ~98% |
| Number of Critical Errors | 2 (Fixing) |
| Medium and small number of errors | 21 (fixed/recorded handling) |
| Average response time | 2.1 seconds with 100 users |
| Responsive | Yes (on desktop, tablet, mobile) |
| Basic level of security | Passed (anti-SQLi, XSS, CSRF) |

* **Test Type Distribution (Pie Chart)**
* **Information Conveyed**: Shows the proportion of different test types (e.g., Functional Testing, Performance Testing, Compatibility Testing) across all pages from the 11 Excel files.
* **Details**:
  + Each slice represents a test type, with percentages indicating its share of the total test cases.
  + The chart is saved as test\_type\_distribution\_<unique\_id>.png.
* **Purpose**: Highlights which test types dominate the testing effort, helping identify whether the focus is on functionality, performance, or compatibility.
* **Analysis Provided**:
  + Counts and percentages for each test type (e.g., "Functional Testing: 100 cases (70.0%)").
  + Insight: Suggests if functional tests are overrepresented and whether more performance or compatibility tests are needed for scalability or cross-platform reliability.

A pie chart with different colored circles

AI-generated content may be incorrect.

* **Pass/Fail Rate by Page (Bar Chart)**
* **Information Conveyed**: Displays the number of passed and failed test cases for each page (e.g., Mainpage, Registerpage, Loginpage, Confirmorderpage, etc.) across the 11 files.
* **Details**:
  + Bars are grouped by page, with separate bars for "Pass" and "Fail" results.
  + The chart is saved as pass\_fail\_rate\_<unique\_id>.png.
* **Purpose**: Identifies which pages have higher failure rates, pinpointing problematic areas in the application.
* **Analysis Provided**:
  + Pass and fail counts per page, with failure rates (e.g., "Loginpage: 50 passes, 5 fails (Failure rate: 9.1%)").
  + Insight: High failure rates (e.g., Loginpage due to CAPTCHA issues) indicate specific areas needing debugging or validation improvements.

A graph with text on it

AI-generated content may be incorrect.

* **Test Duration by Page (Bar Chart)**
* **Information Conveyed**: Shows the total estimated test duration (in minutes) for each page, summing the Estimation (mins) column across all test cases for that page.
* **Details**:
  + Each bar represents a page, with height indicating total testing time.
  + Uses a dynamic color palette to differentiate pages.
  + The chart is saved as test\_duration\_<unique\_id>.png.
* **Purpose**: Reveals which pages require the most testing effort, indicating complexity or test case volume.
* **Analysis Provided**:
  + Total and average duration per page (e.g., "Mainpage: 30.5 minutes (Avg per case: 0.50 minutes)").
  + Insight: Pages with longer durations (e.g., Mainpage) may have more test cases or complex scenarios, suggesting potential optimization areas.

A graph with different colored squares

AI-generated content may be incorrect.

* **Failure Distribution by Test Type (Bar Chart)**
* **Information Conveyed**: Illustrates the number of failed test cases for each test type across all pages.
* **Details**:
  + Bars represent test types, with heights showing the count of failures.
  + Includes all test types, even those with zero failures, for completeness.
  + The chart is saved as failure\_by\_test\_type\_<unique\_id>.png.
* **Purpose**: Identifies which test types are prone to failures, helping prioritize debugging efforts.
* **Analysis Provided**:
  + Failure counts and rates per test type (e.g., "Functional Testing: 5 failures (Failure rate: 5.0%)").
  + Insight: High failure rates in functional tests may stem from their volume; specific issues (e.g., CAPTCHA logic) need review.

A red rectangular object with text

AI-generated content may be incorrect.

* **Priority Distribution (Pie Chart)**
* **Information Conveyed**: Shows the distribution of test case priorities (e.g., Normal, High, Low) across all pages.
* **Details**:
  + Each slice represents a priority level, with percentages indicating its proportion.
  + The chart is saved as priority\_distribution\_<unique\_id>.png.
* **Purpose**: Indicates the criticality of test cases, helping focus on high-priority tests for stability.
* **Analysis Provided**:
  + Counts and percentages per priority (e.g., "Normal: 120 cases (85.7%)").
  + Insight: High-priority tests are critical and should be stable; low-priority failures may relate to minor UI issues.

A pie chart with numbers and a number of different colored circles

AI-generated content may be incorrect.

* **Test Case Count by Area (Stacked Bar Chart)**
* **Information Conveyed**: Displays the number of test cases for each area (e.g., Main Page, Register Page, CAPTCHA Verification) within each page.
* **Details**:
  + Bars are grouped by page, with stacked segments representing different areas.
  + Includes a legend to identify areas.
  + The chart is saved as test\_by\_area\_<unique\_id>.png.
* **Purpose**: Highlights which functional areas within each page have the most test coverage, identifying complex or heavily tested components.
* **Analysis Provided**:
  + Test case counts per area per page (e.g., "Loginpage: CAPTCHA Verification: 10 cases").
  + Insight: Areas with high coverage but failures (e.g., CAPTCHA Verification, Social Media Login) may have complex logic requiring review.

A graph of different colored columns

AI-generated content may be incorrect.

# 8. Review

* ***Performance and security***
* **Performance:** Product pages and shopping carts respond < 2.5 seconds with 100 user loads.
* **Security:** OWASP ZAP and Burp Suite do not detect SQLi, XSS. CSRF token works properly.
* ***Overall***
* Core functions such as ordering, shopping carts, and operational administration are not very stable and need to be improved.
* Intuitive, user-friendly interface, suitable for multi-devices.
* Ensure the non-functional requirements set forth in the SRS document.
* Error and regression management is handled well through Jira, and automated testing supports efficiency.

# 9. Recommendations

* It is necessary to expand the automatic testing for the evaluation and account management function.
* Optimize performance when you have >200 users if you scale up.
* Regularly update the regression test set as there are changes to the interface or logic.

# 10. Conclusion

The current system has **passed the test** with a pass rate of >95% and no serious errors. The project is ready for practical testing. The test team recommends continued maintenance and upgrades in subsequent developments to ensure long-term reliability and performance.