Project Test Plan and Test

Management

For Sauce Demo Website

Version 9.0

**Team Members:**

Abdalla Mohamed Mohamed (TL)

Bishoy Hany Halim

Fatma Ahmed Raslan

Sara Mohamed Elsayed

**Supervisor:**

Eng.Abdelrahman Elfeky

Table of Context:

1. Project Overview
   * Introduction
   * Test Objective
   * Reference Material
2. Test Context
   * Test Scope
   * Software Risks
3. Test Plan and Test Strategy
   * Test Design Approach
   * Defect Management
   * Metrics and Reporting
   * Test Data Requirement
   * Test Environment Requirement
   * Test Tools
   * Automation Plan
   * Criteria
4. Test Management
   * Administration
   * Approval Authority

# 1) Project Overview

* Introduction

Sauce Demo is an e-commerce website designed to simulate online shopping, allowing users to browse products, add them to their cart, and complete the checkout process. The site features product listings, user login functionality, and basic cart management, providing a simple yet effective demonstration of an online store environment.

* Test Objective
  + 1. **Evaluating Work Products:**

Assess and review all relevant work products, including user guides, to ensure they meet the specified quality standards and align with the project’s objectives.

* + 1. **Causing Failures and Finding Defects:**

Intentionally test the system to cause failures and uncover defects in the Sauce Demo website.

* + 1. **Reducing the Risk Level of Inadequate Software Quality:**

Identify potential risks associated with software quality by performing comprehensive testing, thus enhancing reliability of the website. 4. **Verifying Core Functionalities:**

Verify the core functionalities of the Sauce Demo website, ensuring that essential features such as booking, and user authentication work correctly and efficiently. 5. **Performance, and Usability Aspects:**

performance testing to check responsiveness and stability under different loads, and

usability testing to ensure an intuitive and user-friendly interface.

6. **Identifying and Reporting Defects for Resolution:**

Document identified defects with detailed descriptions, reproducibility steps, and severity levels to facilitate effective resolution by the development team.

* Reference Material

The following reference materials were used in the development of the Master Test Plan for Sauce Demo website.

* + International Software Testing Qualification Board (ISTQB) – Standard glossary of terms used in Software Testing Version 4.0.1 ( September 15, 2024)
  + IEEE 829-2008 – IEEE Standard for Software and System Test Documentation
  + IEEE Standard 1012-2012: System and Software Verification and Validation
  + ISO/IEC 16085-2006: System and Software Engineering – Lifecycle Processes – Risk Management
  + ISO/IEC/IEEE 29119-1:2013 Software and Systems Engineering – Software Testing Part 1: Concepts and Definitions
  + ISO/IEC/IEEE 29119-2:2013 Software and Systems Engineering – Software Testing Part 2: Test Processes.

# 2) Test Context

## ❖ Test Scope (1) Functional Testing

* Login

Validate login with correct credentials.

Validate login with incorrect credentials or locked-out user.

Verify proper error messages are displayed.

* Product Page

Verify products are displayed correctly (name, price, image, and description).

Check product sorting functionality (e.g., by name or price).

Validate the “Add to Cart” button for each product

* Cart

Verify added products appear in the cart.

Test removing items from the cart.

Validate navigation to the checkout page.

* Checkout

Test entering user information (first name, last name, zip/postal code).

Verify step-by-step checkout flow (Step One, Step Two).

Confirm order completion and thank-you message.

## 2) Compatibility Testing

Check website behavior on multiple browsers (Chrome, Firefox, Edge, Safari). Verify responsiveness across different screen sizes (mobile, tablet, desktop).

### 3) API Testing

Validate API responses for login, product listing, and checkout.

Check response time and data accuracy.

❖ Software Risks

### 1. Technical Risks

* Performance issues causing slow page loads and delayed responses.
* Compatibility issues with different browsers and devices.
* Payment failures due to third-party integrations.

### 2. Management Risks

* Changes in project requirements affecting timelines.
* Limited resources such as developers, testers, or infrastructure.
* Delays in release schedules impacting business operations.

### 3. Operational Risks

* System downtime due to server failures.
* Incorrect booking details affecting users' travel plans.
* User errors leading to payment failures or incorrect reservations

# 3) Test Plan and Test Strategy

1. Test Design Approach
   * **Equivalence Partitioning**: Divide test cases into valid and invalid input categories, such as correct vs. incorrect login credentials, valid vs. empty product selections, and correct vs. invalid checkout data.
   * **Boundary Value Analysis**: Test edge cases like minimum and maximum quantities of products added to the cart, cart limits (e.g., 0 or 100 items), and price boundaries.
   * **Decision Table Testing**: Evaluate different combinations of user actions such as login status (logged in vs. guest), product availability (in stock vs. out of stock), and cart behavior (add/remove multiple items).
   * **State Transition Testing**: Verify system behavior during transitions such as product added → cart → checkout → order complete, and test failure paths like payment not completed.
   * **Error Guessing**: Anticipate common failures like incorrect password, adding duplicate items to the cart, network timeouts during checkout, or clicking "Checkout" with an empty cart.
2. Defect Management

To ensure efficient tracking and resolution of defects, we implement a structured **Defect Management Process**.

A. Defect Lifecycle:

* + - 1. **Defect Identification:** Bugs are found during manual or automated (Selenium) testing.
      2. **Defect Logging:** Defects are recorded in a shared Google Sheet with:

○Issue Summary

○Steps to Reproduce

○Expected vs. Actual Results

○Severity & Priority

○Screenshots or Logs (if applicable)

* + - 1. **Defect Assignment:** Assigned to the relevant developer for fixing.
      2. **Defect Fixing:** Developer analyzes and fixes the issue.
      3. **Retesting:** Tester verifies the fix using Selenium scripts and manual testing.
      4. **Defect Closure:** If fixed, it's marked Closed; otherwise, Reopened.

B. Defect Reporting & Tracking:

* + - * **Tool:** Google Sheets used to track status (Open, In Progress, Fixed, Closed).
      * **Weekly Review:** Team checks progress weekly.
      * **Priority Levels:**

○**Critical:** Blocks major functionalities (e.g., checkout failure)

○**High:** Affects key features but has a workaround

○**Medium:** Minor functionality issues

○**Low:** UI/UX inconsistencies C. Key Performance Metrics:

* + - * **Defect Density:** Number of defects per module
      * **Defect Fix Rate:** Percentage of fixed defects compared to logged defects
      * **Defect Retest Time:** Time taken to verify defect fixes
      * **Defect Closure Rate:** Ratio of closed defects vs. open defects

1. Test Data Requirement
   * Use realistic product data (item names, prices, descriptions).
   * Test different user types (e.g., standard, locked out, problem user).
   * Cover various cart actions (add, remove, empty cart). Include valid/invalid shipping info during checkout.
   * Test data can be created manually or via automation.
2. Test Environment Requirement A. Hardware Requirements:
   * + - **Operating System:** Windows 11
       - **Processor:** Intel Core i5 / i7 (or equivalent)
       - **RAM:** Minimum 8GB (Recommended: 16GB)
       - **Storage:** At least 50GB free space for logs, reports, and automation scripts

B. Software Requirements:

* + - * **Testing Tools:** Selenium WebDriver for automation testing ●
      * **Browsers for Testing:**

○Google Chrome (Latest Version)

○Mozilla Firefox (Latest Version)

○Microsoft Edge (Latest Version)

* + - * **Programming Language for Test Automation:** Java (used with Selenium)

C. Network Requirements:

* + - * Stable internet connection (minimum 10 Mbps)
      * Access to the staging and production environments for testing
      * Proper firewall settings to allow communication with test servers D. Test Execution Environment:
      * **Manual Testing:** Conducted on Windows 11 with real browsers
      * **Automation Testing:** Executed using Selenium WebDriver with test scripts written in Java.

1. Test Tools

## 1. Automation & Functional Testing

* **Selenium –** for testing web applications across different browsers.
* **TestNG** – Works well with Selenium for structured test execution and reporting.

## 2. API Testing

● **Postman –** Helps in sending requests (GET, POST, PUT, DELETE) and checking responses.

1. Reports
   * **Excel**- for Test cases and bug report

6) Automation Plan

This plan aims to detect the website's reliability, functionality, and performance through automated testing. Automated testing tests the efficiency and accuracy by running tests faster, eliminating human errors, and allowing test reuse and comparison of actual outcomes with predicted outcomes. It also supports continuous integration, scalability, and detailed reporting for analysis.

## 1. Scope of Automation Testing

* Login/logout functionality
* Search functionality
* Add to cart & checkout process
* Payment and transaction systems.
* User authentication
* Data integrity
* Performance Testing

2. Test Script Design

● Automation scripts will be developed using Selenium with Java.

## 3. Test Execution

* The test scripts will be executed regularly to verify the stability and performance of the website.
* Test Execution Frequency: Weekly

## 4. Conclusion

● This automation plan provides a road-map for the quality of the Sauce Demo website through automated testing. Continuously testing the platform's robustness, reliability, and user-friendliness throughout the testing process.

# 4) Test Management

Test Management is the planning, estimating, monitoring, and controlling of test activities, typically carried out by the Test Manager Team. For **Sauce Demo**, test management and administrative responsibilities for test execution will be performed by the tester team.

* Administration
  + Responsible for overall test management and strategy.
  + Plans, monitors, and controls all testing activities.
  + Prepares test plans, estimates resources, schedules testing, and tracks progress.
  + Oversees defect management and ensures testing objectives are met.
* Schedules

The tester team are the responsible for all this test activity.

|  |  |  |
| --- | --- | --- |
| Activity | Start Date | Deadline |
| Test Plan | 4/11/2025 | 4/15/2025 |
| Define requirements | 4/11/2025 | 4/15/2025 |
| Prioritizing Test Case For Automation | 4/7/2025 | 4/15/2025 |
| Environment Setup | 4/16/2025 | 4/18/2025 |
| Test Script and Execution | 4/18/2025 | 4/25/2025 |
| Test Analysis and Reporting | 4/26/2025 | 5/5/2025 |