**Test Plan of Swag Labs Automation Framework**

1. **Introduction**

This document outlines the test plan for automating the Swag Labs demo application (saucedemo.com). The goal is to validate core e-commerce workflows using Java, Selenium WebDriver, Cucumber (BDD), and Junit, ensuring functional coverage, maintainability, and scalability of the automation suite.

1. **Objective**

* Verify critical user journeys (login, product catalog, add to cart, checkout).
* Showcase automation framework design with reusable components (BaseSetup, utilities, page objects).
* Demonstrate use of BDD Gherkin syntax for readability and collaboration.
* Provide a foundation for regression testing and future CI/CD integration.

1. **Scope**

In-Scope

* Functional testing of Swag Labs web application (UI layer).
* Cross-browser tests (Chrome, Edge).
* Positive and negative login scenarios.
* Add to cart, remove from cart, checkout flows.
* Validation of error messages and field validations.

Out-of-Scope

* Performance testing.
* Security testing.
* Mobile device coverage.
* Back-end API validation.

1. **Test Approach**

* Framework: Java + Selenium WebDriver + Cucumber (BDD).
* Design Pattern: page Object Model (POM).
* Execution: Maven with Surefire plugin.
* Test Data: Cucumber Data Tables and properties file (application-configuration.properties).
* Reports: Cucumber HTML/JSON reports (basic, extendable to Masterthought/ExtentReports).
* CI/CD: Can be integrated with GitHub Actions or Jenkins.

1. **Test Scenarios**

Login

* Valid login with (standard\_user).
* Invalid login (wrong credentials).
* Empty username/password fields.

Product Catalog

* Validate product listing page loads after login.
* Sort products (Price low 🡪high, high🡪low, etc.).
* View product details page.

Cart Functionality

* Add single/multiple items to cart.
* Remove item from cart.
* Validate cart badge count.

Checkout

* Checkout with valid details.
* Checkout with missing mandatory fields.
* Verify final confirmation page.

Error Handling

* Verify proper error messages for invalid login.
* Field validation messages during checkout.

1. **Test Environment**

* Application URL: <https://www.saucedemo.com/v1/index.html>
* Browsers: Chrome (primary), Edge (secondary).
* Java Version: 22
* Maven Version: 3.9+
* OS: macOS (local), extendable to Windows/Linux CI/CD.

1. **Entry & Exit Criteria**

Entry Criteria

* Test environment is accessible.
* Test data is available
* WebDriver and dependencies are resolved.

Exit Criteria

* All smoke test scenarios executed successfully.
* No critical/P1 defects remain open.
* Test results are reported and stored.

1. **Risks & Mitigation**

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| Risk | Mitigation |
| Flaky UI elements (dynamic IDs) | Use stable locators (id, name, and explicit waits |
| Browser/driver mismatch | Use Selenium Manager for automatic driver management |
| Application downtime | Implement retry logic in setup hooks |
| Time constraints | Prioritize smoke + regression tests |

1. **Deliverables**

* Automation framework (pom.xml, java classes, feature files).
* Test Plan (docs/test-plan.md).
* Reports (target/cucumber-report.html).

1. **Schedule**

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| Week | Deliverable |
| Week 1 | Framework setup + login feature automated |
| Week 2 | Cart + Checkout features automated |
| Week 3 | Add regression suite + basic reporting + polish |