0019-The-Sentinel-Stack: Test Plan-v1.0

- **Project Name:** Sentinel Stack
- **Website Under Test:** StyleMate
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- **Date Prepared:** 07/15/2025

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Introduction 👋:

The Sentinel Stack project aims to conduct comprehensive testing of the StyleMate e-commerce website to ensure optimal functionality, performance, and security. This test plan covers E2E, Performance & Security testings. The objective is to simulate and validate real-world e-commerce flows in a scalable and modular testing environment.

Test Plan ID: TP-2025-007

Learning Objectives 🚀:

This project demonstrates proficiency in:

- **Test Planning & Strategy:** Comprehensive test planning for complex web applications.
- **Automation Testing:** Selenium WebDriver with Java and TestNG framework.
- **Performance Testing:** JMeter for load, stress, and volume testing.
- **Security Testing:** Burp Suite for vulnerability assessment.
- **Industry Best Practices:** Page Object Model, Data-Driven Testing.

Testing Scope 🔬:

In-Scope

The following functionalities will be covered in the automation testing framework:

- 🏠 Homepage Navigation
- 🔎 Product Catalog
- 🛒 Shopping Cart & Wishlist
- 💰 Checkout Process
- 🛍️ Order Management
- 👤 User Management

Out of Scope

- Real transaction payments.
- Actual redirection to affiliate shopping sites.
- API Testing

Approach 🧭:

The testing phase will follow a structured framework using Selenium & the Cucumber. This ensures scalability, reusability, and ease of maintenance while validating critical user interactions.

Testing Methodology

- Manual Testing
- Automation Testing
- Performance Testing
- Security Testing

Test Implementation Steps:

1. **Prepare Documentation:** Well-documented test scenarios and test cases.
2. **Implement Cucumber**: Structure test scripts using Cucumber + POM.
3. **Write & Execute Tests**: Develop reusable test cases for the required features.
4. **Report & Summarize**: Run test cases, log results & generate reports for analysis.

Tools & Technologies Used:

- **Selenium**: Test Automation framework.
- **Java**: Test scripting language.
- **Microsoft Excel:** For Documentation
- **Jira:** Bug tracking and Management

Academic Learning Demonstration

This project structure demonstrates understanding of:

- **Behavior Driven Development:** Cucumber testing framework
- **Test Organization:** Layered architecture with clear separation of concerns
- **Industry Standards:** Maven project structure, proper package organization
- **Scalability:** Framework designed for easy maintenance and extension
- **Clean Code Practices:** Proper naming conventions, code organization
- **Reporting:** ExtentReports integration with screenshots.
- **Assertions:** Hard and soft assertions for comprehensive validation

This approach ensures comprehensive automation coverage while maintaining efficiency.

Entry Criteria 🔑:

The following conditions must be met before starting test automation:

- **Test Environment Readiness:** Cypress is set up with dependencies installed.
- **Test Cases & Data Availability:** – Well-documented test cases & test data are available.

Exit Criteria 🔚:

The following conditions must be fulfilled before concluding the testing phase.

- All test cases executed with documented results.
- Critical defects are resolved or logged for further action.
- The test summary report is submitted.

Cross-Browser Testing Strategy

- **Parallel Execution:** Use TestNG parallel execution for multiple browsers
- **Responsive Design Testing:** Validate layout across different screen resolutions

Performance Testing with JMeter

Performance Test Objectives

- **Response Time:** Ensure page load times are under 3 seconds
- **Throughput:** Measure requests per second capacity
- **Scalability:** Test system behavior under increasing load
- **Resource Utilization:** Monitor CPU, memory, and bandwidth usage

Security Testing with Burp Suite

Security Test Objectives

- **Authentication Security:** Verify secure login mechanisms
- **Authorization:** Ensure proper access controls
- **Data Protection:** Validate sensitive data handling
- **Input Validation:** Test for injection vulnerabilities

Test Environment 🖥️:

- **Devices:** Desktops, laptops, tablets, mobiles etc.
- **OS:** Windows 10, Windows 11, etc.
- **Browsers:** Chrome, Edge, Electron etc.
- **Network:** 50-75 Mbps Fibre, VPN Enabled.

Scheduling 📅:

Activities	Durations	Responsible Persons
Necessary Documentation & Manual Testing.	1 Day	Nazish Jehangir
Selenium & Test Frameworks Setup	1 Day	Nazish Jehangir
Test Scripts Praparation & Execution.	3 Day	Nazish Jehangir
Debugging & Final Reporting	2 Day	Nazish Jehangir

Deliverables 📄:

- Test plan & necessary documentation.
- Folder structure with framework & files.
- Executable test cases with assertions.
- Bug report & summary report documents.

Roles & Responsibilities 👷:

Role	Assigned To	Responsibility/Assignment
Test Author & Reviewer	Nazish Jehangir	Coordinating the testing efforts.
Executor & Reporter	Nazish Jehangir	Executing automation scripts and reporting logs.

Risks & Assumptions ⚠️:

- Limited time for testing across all browsers and devices.
- Test execution failures due to network issues.

Assumptions 🛡️:

- Focus on the most commonly used browsers & devices.
- Execute in a reliable network environment to reduce network failures.
- The internet connection is stable & the test user accounts exist.

Sign Off/Conclusion 🏁:

This test plan serves as the foundation for comprehensive testing of the StyleMate e-commerce website under the Sentinel Stack project. Regular updates and refinements will be made based on project evolution and findings during test execution.