UI Automation Test Plan for SauceDemo

1. Test Scope and Objectives

1.1 Scope

- Login functionality
- Product inventory management
- Shopping cart operations
- Checkout process
- User session handling
- Field validations
- Sorting and filtering capabilities

1.2 Objectives

- Verify core business flows function correctly
- Ensure UI elements are accessible and interactive
- Validate data integrity across the application
- Confirm proper error handling and user feedback

2. Test Environment

2.1 Technical Stack

- Test Framework: Playwright with TypeScript
- Reporting Tool: Allure Reporter
- CI Integration: Configurable for various CI platforms
- Base URL: https://www.saucedemo.com

2.2 Browser Coverage

- Chromium (default)
- Firefox
- WebKit

3. Test Strategy

3.1 Framework Structure

Project/	
tests/	Test suites
pages/	Page Object Models
utils/	Helper functions
data/	Test data

3.2 Core Testing Approaches

1. Page Object Model (POM) Pattern
    - Separate page objects for each functional area
    - Reusable methods for common actions
    - Centralized selectors
2. Data-Driven Testing
    - External test data sources
    - Multiple user types
    - Various product combinations
3. Error Handling
    - Robust error capture
    - Screenshot on failure
    - Detailed logging

4. Test Scenarios Priority

4.1 Critical Path (P0)

1. Login/Logout
    - Valid login with standard user
    - Successful logout
    - Session verification
2. Product Management
    - View product listing
    - Sort products

    - Product detailed view
3. Cart Operations
    - Add/remove items
    - Update quantities
    - Cart persistence
4. Checkout Process
    - Complete purchase flow
    - Order confirmation
    - Price calculations

4.2 High Priority (P1)

1. Validation Scenarios
    - Empty field validation
    - Invalid data handling
    - Error message verification
2. User Management
    - Different user types
    - Locked user handling
    - Session management

4.3 Medium Priority (P2)

1. UI/UX Verification
    - Responsive design
    - Element visibility
    - Navigation paths
2. Performance Aspects
    - Page load times
    - Response handling
    - Animation smoothness

5. Test Implementation

5.1 Base Test Structure

```
test.describe('Feature Name', () => {
    let pageManager: PageManager;

    test.beforeEach(async ({ page }) => {
        pageManager = new PageManager(page);
        await pageManager.init();
    });
    test('TC_XX - Test Description', async ({ page }) => {
        // Test steps
    });
});
```

5.2 Test Categories

1. Smoke Tests (@smoke)
    - Critical functionality verification
    - Quick validation suite
2. Regression Tests (@regression)
    - Comprehensive test coverage
    - Edge cases and negative scenarios
3. Integration Tests (@integration)
    - Cross-functional flows
    - Data consistency checks
4. End-to-End Tests (@e2e)
    - Complete user journeys
    - Full business flows from start to finish
5. Negative Tests (@negative)

- Invalid login attempts
- Form validation errors
- Boundary conditions

6. Test Execution

6.1 Run Configurations

`npm run test`	`All tests`
`npm run test:smoke`	`Smoke tests only`
`npm run test:regression`	`Regression suite`
`npm run test:allure`	`Run tests with Allure reporter`
`npm run allure:report`	`Full cycle: run tests, generate and open report`

6.2 Parallel Execution

- Tests configured for parallel running
- Independent test cases
- Shared resource management

6.3 Reporting

- Allure reports for detailed analysis
- Screenshots for failed tests
- Video recording for debugging

7. Maintenance Strategy

7.1 Code Organization

- Modular test structure
- Reusable components
- Clear naming conventions

7.2 Updates and Reviews

- Regular framework updates
- Code review process
- Documentation maintenance

8. Success Criteria

- All P0 tests passing
- 95% pass rate for regression suite
- Comprehensive error logging
- Clear test reports
- Maintainable test code

9. Risk Mitigation

- Regular backup of test data
- Version control for test code
- Environment isolation
- Fallback mechanisms