

SauceDemo Automation Framework

QA Automation Home Assignment Documentation

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Framework: Python + Pytest + Playwright

Application Under Test: <https://www.saucedemo.com>

1. Objective

- Design a scalable UI automation framework.
- Follow industry best practices (Page Object Model).
- Ensure maintainability and modular structure.
- Integrate CI/CD pipeline using GitHub Actions.
- Ensure stability in headless execution.

2. Technology Stack

Tool	Purpose
Python	Programming language
Pytest	Test execution framework
Playwright	Browser automation engine
Git	Version control
GitHub	Code repository
GitHub Actions	CI/CD pipeline
pytest-html	HTML reporting
pytest-rerunfailures	Flaky test handling

3. Test Coverage

- Authentication Tests (Valid, Invalid, Locked User, Session Persistence)
- Product Tests (Sorting, Navigation, Price Filters)
- E-commerce Flow (Add to Cart, Remove, Checkout)
- Advanced Tests (API Mocking, Visual Regression)

4. Framework Architecture

The framework follows the Page Object Model (POM) design pattern. Tests are organized by feature modules for scalability and maintainability. Reusable fixtures are implemented in `conftest.py`. Markers are used to separate smoke and regression suites.

5. Continuous Integration

- Automated execution on every push to main branch.
- Environment setup using GitHub Actions.
- Headless execution using Playwright.
- HTML report generation.

6. Stability Strategy

- Explicit load state handling (`networkidle`).
- Isolated browser context per test.
- Retry mechanism for flaky tests.
- Headless execution validation.

7. Final Outcome

- All scenarios implemented and validated.
- CI integrated and stable.
- Professional test architecture.
- Maintainable and scalable structure.

End of Documentation