1. Test Objectives

Automate and validate key user journeys in the Demoblaze application, such as:
- Login functionality (valid & invalid credentials)
- Product selection and cart addition
- Cart price verification and content assertion
- Error handling and screenshot logging
- Ensure regression stability by regularly executing critical smoke tests.
- Generate comprehensive reports (HTML + Excel) for analysis and tracking.

2. Scope of Testing

In Scope:
- UI automation for:
- Login Page
- Home Page (Product Search)
- Product Detail Page
- Cart Page
- Pop-up handling (alerts after add-to-cart or login)
- Excel-based test result logging
- Screenshot capture on pass/fail

Out of Scope:
- Payment gateway testing
- API testing
- Mobile responsiveness
- Performance or load testing

3. Features to be Tested

Feature	Tests Involved	Test File
Login functionality	Valid & invalid login credentials	test_login.py
Add to Cart	Add Samsung Galaxy S6, check alert	test_login_and_cart.py
Product availability	Search non-existent product (iPhone 16)	test_login_and_cart.py
Price assertion	Verify Samsung Galaxy S6 price is $360	test_price_assert.py
Screenshot & Excel log	On both pass/fail scenarios	utils/helpers.py
Pop-up/Alert validation	Show/accept alerts at key stages	utils/popup.py

4. Test Deliverables

- test_cart_report.html: HTML report (auto-generated by PyTest)
- xl_report/test_results.xlsx: Structured Excel log for each test result
- Screenshots in /screenshots: For visual evidence
- Console logs via utils/logger.py

5. Test Environment

Component	Details
OS	Windows 10 (64-bit)

Browser	Google Chrome (latest version)
Python	3.12.10
Selenium	WebDriver (latest via webdriver-manager)
IDE	VS Code
Test Framework	PyTest + Pytest-html plugin
Excel Utility	openpyxl for reading/writing .xlsx

6. Test Tools and Scripts

Tool	Purpose
Selenium	Browser automation
PyTest	Organize and run tests
pytest-html	Generate HTML reports
openpyxl	Handle Excel test logs
logging module	Capture info/error/debug logs

7. Roles & Responsibilities

Role	Responsibility
Test Engineer	Write test scripts, validate scenarios
Automation Dev	Build and structure POM-based test framework
Reviewer/QA Lead	Review scripts, verify coverage, approve plan

8. Entry & Exit Criteria

Entry:
- Application is up and running
- Valid user credentials provided
- Target product available (Samsung Galaxy S6)

Exit:
- All test cases executed
- Failures are logged, screenshot captured
- Test reports generated

9. Pass/Fail Criteria

Criteria	Status
All assertions pass	PASS
Assertion fails or alert not handled	FAIL
Element not found or exception raised	FAIL

10. Risks and Mitigation

Risk	Mitigation
Product name changes or disappears	Use flexible locators (text + fallback)
Alert/popup not loading properly	Add wait or fallback to try-except
Network/browser issues during execution	Retry or rerun test cases