

■ Test Strategy Document – UI & API Automation Framework

■ 1. Objective

The objective of this automation framework is to validate the functional behavior of:

- A React + Node.js based web application through UI automation
- A Swagger Petstore Node.js-based API through API automation

Both modules are integrated into a single unified framework using BDD principles.

■ 2. What Is Being Tested

UI Automation

- Open-source React Admin demo web app
- Functional UI flows:
 - Login to the application
 - Create a new poster
 - Validate if the poster was created
 - Delete the poster

API Automation

- Swagger Petstore API (<https://petstore3.swagger.io>)
- API endpoints tested:
 - POST – Create a new pet
 - GET – Retrieve pet by ID
 - PUT – Update pet details
 - DELETE – Delete the pet entry

■ 3. Test Coverage Areas

Area	Description
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Functional	CRUD operations on both UI and API layers
Integration	End-to-end flow covering UI interaction and API state validation
Negative	(Planned) Validation of improper data handling in future scope
CI Pipeline	Integrated GitHub Actions for automated execution (fixes in progress)

■ 4. Tools & Technologies Used

Tool	Purpose
Java + Maven	Language & dependency management
Cucumber (BDD)	Test scenarios written in Gherkin for clarity and collaboration
Selenium	UI test automation
Rest Assured	API test automation
JUnit	Test execution with Cucumber integration
Cucumber Reports	HTML reports generation
GitHub Actions	CI/CD integration (configured but needs final tuning)

■ 5. Why These Tools and Technologies

Tool/Tech	Reason for Selection
Java + Maven	Stable ecosystem with community support & easy dependency management
Cucumber (BDD)	Readable test scenarios for stakeholder collaboration
Selenium	Widely adopted browser automation tool
Rest Assured	Fluent API for testing REST services
JUnit	Default runner for Java, compatible with Cucumber
Cucumber Reports	Simple HTML report generation
GitHub Actions	Automated test execution on push/PR

■■ 6. How to Run the Tests

Step 1: Clone the GitHub Repository

```
git clone https://github.com/mahimagupta0701/UIAPIAutomationFramework.git
```

```
cd UIAPIAutomationFramework
```

Step 2: Run Test Suite

```
mvn clean install
```

OR run a specific tag:

```
mvn test -Dcucumber.filter.tags="@debug"
```

Reports: <target/cucumber-reports/cucumber.html>

■ 7. Assumptions

- UI: React Admin Demo
- API: Swagger Petstore
- Test data is parameterized or generated at runtime
- Requires internet access

■■ 8. Limitations

- CI/CD GitHub Actions integration needs display/headless config fixes
- No negative testing yet
- Logging and screenshot functionality not fully matured
- Extent report not yet integrated

■ 9. Future Enhancements

- Add ExtentReport support
- Implement full logging framework
- Fix CI configuration
- Add more negative & edge case validations