

Advanced API Testing and Automation Practices

5.3 BDD with Cucumber

Learning objectives

- ▶ The purpose and principles of Behavior-Driven Development (BDD).
- ▶ How Gherkin syntax is used to describe API behavior.
- ▶ How Cucumber fits into the testing workflow.
- ▶ The role of Rest Assured and JUnit when used together with Cucumber.
- ▶ The benefits of expressing API tests in a business-readable language.

What Is BDD?

- ▶ Behavior-Driven Development (BDD) focuses on defining expected software behavior before implementation.
- ▶ Encourages collaboration between developers, testers, and stakeholders.
- ▶ Uses a common, readable language to describe system behavior.
- ▶ Promotes clarity, shared understanding, and reduced ambiguity.

Gherkin Syntax Overview

- ▶ Gherkin is a structured language used to write behavior specifications.
- ▶ Features human-readable keywords:
- ▶ Feature – high-level description of behavior
- ▶ Scenario – a specific behavior example
- ▶ Given / When / Then – define context, action, and outcome
- ▶ Helps teams describe requirements in clear, testable statements.

Cucumber in API Testing

- ▶ Cucumber reads Gherkin scenarios and maps them to test logic.
- ▶ Enables executable specifications—documentation that never goes out of sync.
- ▶ Ensures everyone (developers, QA, business) understands the intended API behavior.
- ▶ Encourages test automation that mirrors actual business rules.

Integrating Cucumber with Rest Assured & JUnit

- ▶ Rest Assured performs the actual HTTP calls within step definitions.
- ▶ JUnit acts as the test runner that executes the scenarios.
- ▶ This combination allows:
 - ▶ Natural language test descriptions (Gherkin)
 - ▶ Automated execution via JUnit
 - ▶ Real API calls using Rest Assured
- ▶ Creates a full BDD workflow for API testing.

Benefits of BDD for API Testing

- ▶ Clear communication and expectations across the team.
- ▶ Easily readable and maintainable test scenarios.
- ▶ Business logic and technical tests stay aligned.
- ▶ Improved collaboration and faster feedback loops.
- ▶ Tests describe what the API should do rather than how it does it.

Key Takeaways

- ▶ BDD focuses on defining expected behavior first, improving understanding and alignment.
- ▶ Gherkin provides a shared language for describing API scenarios.
- ▶ Cucumber + Rest Assured + JUnit form a powerful stack for executable specifications.
- ▶ BDD tests improve clarity, maintainability, and team collaboration.
- ▶ Ideal for teams aiming to connect business expectations with automated tests.