

# Advanced API Testing and Automation Practices

## 5.2 Mocking and Stubbing APIs

# Learning objectives

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- ▶ Understand the purpose of mocking and stubbing external APIs.
- ▶ Recognize the benefits of using mock APIs during development and testing.

# Why Mock External APIs?

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- ▶ External APIs may be:
  - ▶ Unstable
  - ▶ Slow
  - ▶ Rate-limited
  - ▶ Not available in dev/test
- ▶ Mocks allow:
  - ▶ Predictable responses
  - ▶ Fast test execution
  - ▶ Testing error scenarios
  - ▶ Isolation of your service

# What Are Mocks and Stubs?

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- ▶ Mock API
  - ▶ Simulates an external HTTP service and can record/verify calls.
- ▶ Stub
  - ▶ Predefined response returned for a specific request.
    - ▶ No logic
    - ▶ Always returns the same response

# Tools: WireMock & MockServer

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- ▶ WireMock
  - ▶ Simple to configure
  - ▶ Runs as a standalone server or embedded
  - ▶ Supports JSON stubs, request matching, delays, etc.
- ▶ MockServer
  - ▶ More advanced request verification
  - ▶ Supports dynamic expectations, proxying

# Benefits for Development

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- ▶ Work on integrations before the real API exists
- ▶ Run tests offline
- ▶ Share mock definitions across teams
- ▶ Recreate bugs by replaying specific responses

# Key Takeaways

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- ▶ Mocking allows testing external API behavior without the real service.
- ▶ WireMock and MockServer simulate predictable, controlled responses.
- ▶ Essential for testing:
  - ▶ Error handling
  - ▶ Edge cases
  - ▶ Slow/unavailable external systems
- ▶ Makes integration testing fast, safe, and reproducible.