trainitek

Testing / Test Maintenance

Hands-on training on how to approach testing and maintain test suites in projects. The course covers writing unit, integration, and end-to-end tests. JUnit and Spock frameworks are used in the examples however this knowledge is easily applicable to other testing libraries. During the course, attendees will learn about the challenges with maintaining a huge number of tests in a project, and how to avoid usual pitfalls related to that.

Audience: Developers, Team Leads, Architects
Duration: 2-3 days

- 1 day: Introduction, JUnit, Spock, Properly written tests
- 2 day: Integration tests based on Spring Boot setup
- 3 day: Tests Maintenance, Performance tests, Mutation testing, Other Testing tools

Format: 60% workshop / 40% lecture

Training program

1. Introduction
    a. Why do we need tests?
    b. Unit, integration, contract, and end-to-end tests
    c. Inverted test pyramid
    d. TDD/BDD
2. JUnit
    a. Features and examples
    b. When to use JUnit
3. Spock
    a. Features and examples
    b. Comparison to other Java testing libraries
    c. Killer features
    d. Parameterized tests
4. Properly written (unit) tests
    a. Good unit tests
    b. Code smells in unit tests
    c. Patterns

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5. Integration tests (with examples in Spring Boot)
    a. Why do we need integration tests?
    b. Different flavours of integration tests
    c. Setup for integration tests
        i. Testing integration with database
        ii. Testing application services
        iii. Testing REST
        iv. Testing communication with external services
6. Tests Maintenance
    a. Challenges with maintaining a big number of tests
    b. Readable and maintainable big suites of tests
    c. Keeping test code base clean
7. Performance tests
    a. Gatling
    b. Jmeter
8. Mutation testing
    a. How to ensure your tests are good?
    b. Pitest and mutation tests
9. Other Testing tools

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