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Java Test-Driven Development

(2 days)

Course overview

All developers want to build good quality software but not all developers test their software as they go along. Why not? A common explanation is "I don't have time to write tests!" The more pressure they feel, the fewer tests they write. This leads to less accurate and stable code, less productivity, less confidence and, ultimately, more pressure. It's a vicious cycle.

This course is designed to help you break out of the cycle by embracing unit-testing and, in particular, test-driven development. We will introduce the techniques and the tools necessary to prove your code as you go along.

What you'll learn

- Creating tests using JUnit 5
- Using assertions and Hamcrest matchers
- Adopting a test-driven approach to development
- Using stubs and mock objects
- Understanding behaviour-driven development

Prerequisites

- At least 3 months Java programming experience

Course details

- **Introduction to JUnit:** Getting started with unit testing using JUnit 5; Using assertions; Running tests; Test statuses; Dealing with exceptions; Best practice
- **Going Further with Unit Testing:** Organizing projects; Performing setup and teardown operations; Using Hamcrest matchers; Defining a custom matcher; Test suites
- **TDD and Agile Development:** Understanding the TDD process; Test, code, refactor; TDD strategies; Refactoring techniques; Testing patterns; Best practice
- **Unit Testing with Mock Objects:** Managing dependencies; Defining test doubles; Stubs, mocks, dummies, and fakes; How to use Mockito for mocking
- **Additional testing techniques:** Integration testing; Testing the user interface using Selenium WebDriver; Behaviour-driven development (BDD); Using Cucumber for BDD