Unit Testing

Course code: ATUT

Unit tests are a fundamental method for verifying the quality of a developer's work. They are not only highly useful during the development of software itself but also invaluable during later modifications, refactoring, and similar activities, where they seamlessly function as regression tests without requiring any changes.

Who is the course for

- The course is designed for Java developers who may have little to no knowledge of testing.
- On the other hand, the course is not suitable for testers, as its content does not align with their job roles.

What we teach you

Unit tests are a fundamental method for verifying the quality of a developer's work. They are not only highly useful during the development of software itself but also invaluable during later modifications, refactoring, and similar activities, where they seamlessly function as regression tests without requiring any changes.
When a suitable framework is used alongside a modern development environment, writing unit tests requires only minimal extra effort from developers. However, this effort brings significant benefits, such as better-structured code, a higher level of confidence in the correct functionality of the code, and an overall positive contribution by the developer to the improved quality of the entire application under development.
Importantly, most of the topics covered will be applied practically to a gradually evolving application. Practical application of the knowledge gained will take up half of the course's allotted time.

Teaching materials

As a bonus, you'll take home extensive learning materials (70+ pages) and a wealth of demonstration programs.

Course outline

Early Testing Saves Time and Money

- This well-proven principle finds a perfect demonstration in unit testing, which can be implemented right from the beginning of the coding process. Before diving into programming, it's useful to familiarize yourself with a few key terms related to testing.

JUnit 5 as the De-Facto Industry Standard

- Understanding the basic structure and modules of this framework is essential. While not all features will be utilized from the outset, writing unit tests will gradually incorporate more of JUnit's capabilities step by step.

Truly Fundamental Knowledge in Practice

- Through a practical example, we'll thoroughly explore three core sets of features essential for anyone working with unit tests: assertion methods, handling exceptions, and using actions before and after executing test cases.

Convenient Extras

- JUnit offers numerous 'quality of life' features that make life easier not just for developers but also for those involved in subsequent DevOps activities.

Parameterized Tests

- The DRY (Don't Repeat Yourself) principle is, or should be, omnipresent in software development. Unsurprisingly, it applies to unit testing as well. We'll demonstrate JUnit's extensive options in this regard, allowing for clean and elegant tests.

Code Coverage Measurement

- Code-based metrics are among the most accurate indicators of product quality and progress in development. While detailed coverage measurement isn't the primary focus of this course, you'll learn and practice fundamental skills in this area. These skills will enable you to convincingly demonstrate the quality of your work both to others and yourself.

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