

WEB TECHNOLOGIES USING **JAVA**

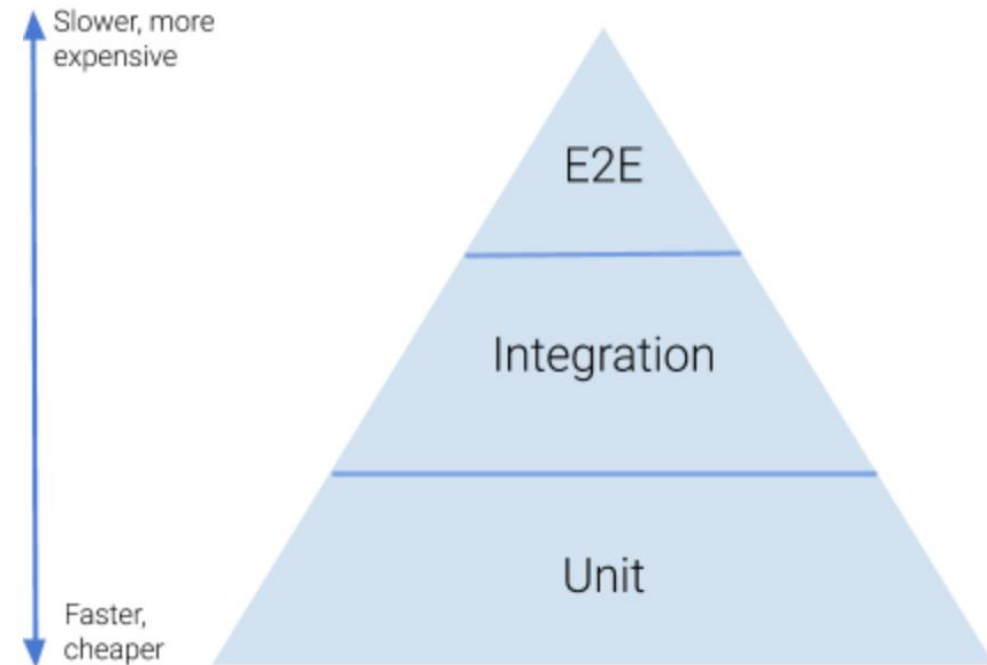
COURSE 11 – UNIT TESTING WITH JUNIT5 AND MOCKITO.

AGENDA

- SOFTWARE TESTING
- UNIT TESTING
- MOCKING DEPENDENCIES

SOFTWARE TESTING

- Functional testing:
 - Unit tests: tests that cover one single method
 - Integration tests: tests that cover the system
 - End-to-end tests: tests that cover the system in integration with other systems
- Non-functional testing:
 - Performance testing
 - Security testing

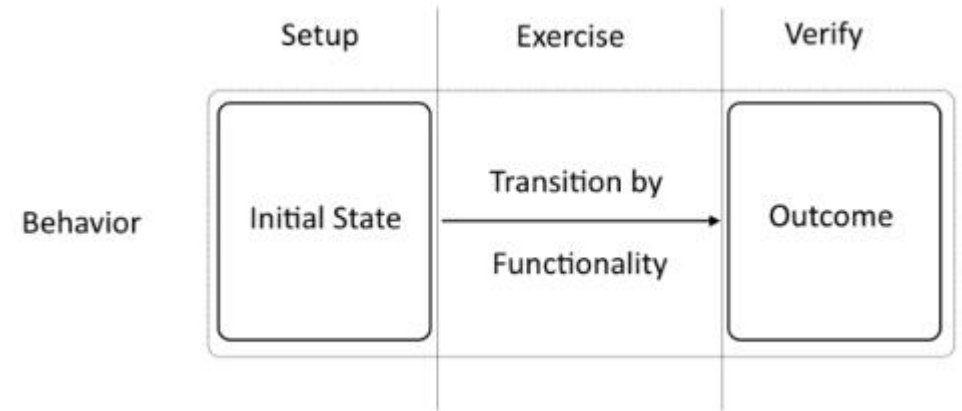


UNIT TESTING

- Benefits of unit tests:
 - allow greater test coverage than end-to-end tests
 - increase team productivity
 - detect regressions and limit the need for debugging
 - give us the confidence to refactor and, in general, to make changes
 - improve implementation
 - document expected behavior
 - enable code coverage and other metrics

UNIT TESTING

- Structure of a unit test:
 - **setup** (arrange, build): this state constitutes well-defined test input and precondition; it is also called the fixture of a test
 - **exercise** (act, operate): this state is used to invoke the functionality the test intends to check
 - **verify** (assert, check): this state verifies that the outcome actually matches the specified behavior
 - **teardown**: this state makes sure the test leaves its environment in the same condition as it was in before the execution of the test.



MOCKING DEPENDENCIES

- mock frameworks:
 - aim to ease stand-in component creation and configuration
 - make it easier to replace third-party components, which otherwise might be expensive to create
 - fluent interface API style
 - configuration is done prior to the exercise phase by means of the tool API. This allows us to stub return values and verify indirect outputs and interactions easily
 - allow for verification of dependent method calls
- well-known mock frameworks: Mockito, PowerMock, EasyMock



BIBLIOGRAPHY

- Java Unit Testing with Junit 5, by Shekhar Gulati, RahulSharma
- Pragmatic Unit testing in Java 8 with Junit, by Jeff Langr

Q&A



THANK YOU

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