

# Unit Testing

Unit:

Container of functionality

Specific responsibility

Clearly defined boundary

Most commonly a class in Java (and other OO languages)

Testing:

Ensuring that “the thing” does what it’s supposed to do

Unit testing:

Ensuring that a class does what it's supposed to do\*

Method calls with predefined arguments



Unit

Assert expected behavior



JUnit:

Unit testing framework for Java

JUnit4 in this course

Compatible with JUnit5

First unit test is an important milestone:

Historically, no unit testing culture among Android developers

Many projects don't have unit test

Developers discuss testability without writing unit tests

First unit test is a step in the right direction

## Recommendations:

Don't write unit tests for your project until the end of this course

Commit to complete this course

Do all the exercises

Add first unit test to your project

Celebrate



Naming of the unit tests:

When properly named unit test fails, you can investigate and fix the issue without reading unrelated source code

General guidelines for method names do not apply

Unit test name pattern:

<unitOfWork>\_<stateUnderTest>\_<expectedBehavior>

Nullability:

Method arguments and return values are non-null by default

Nullable values will be explicitly annotated with `@Nullable`

No need to test nulls in most cases

Requires discipline and sanitization of input data

How to choose test cases:

100% line coverage is necessary, but not sufficient to ensure good coverage of SUT functionality

Identify different groups of input combinations corresponding to different states

Write at least one test case for representative of each group

Write test cases for boundary conditions between different groups of inputs

# Unit Testing Fundamentals

## What you learned:

Unit tests ensure that the system under test (unit) behaves according to the requirements

Unit tests names should provide all the information required for failure investigation and debug

Treat all arguments and return values as non-nullable unless annotated with `@Nullable`

Think about different groups of combinations of state under test and test at least one representative from each group

Identify and test boundary conditions

**Complete the course!**