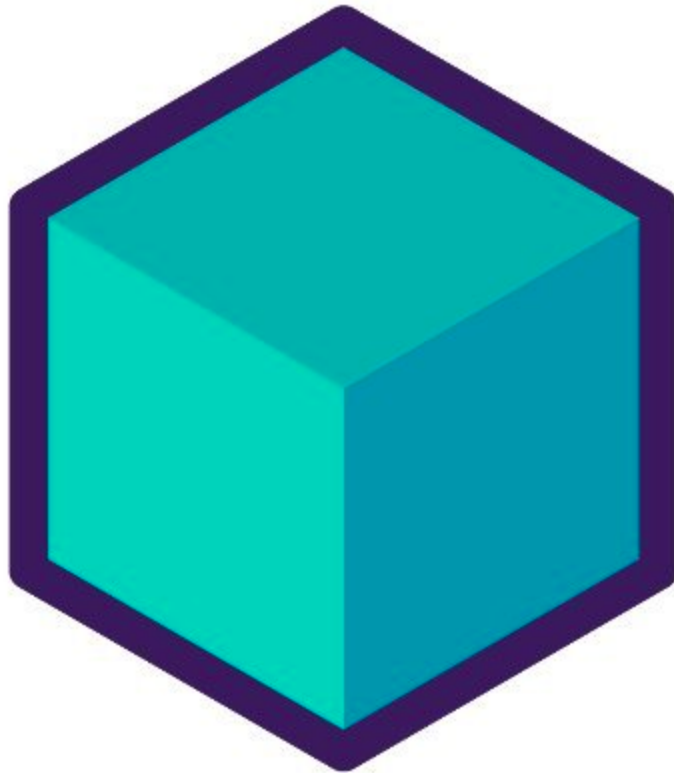


# **HOW TO USE TESTCONTAINERS WITH INTEGRATION TESTS**

# HOW TO USE TESTCONTAINERS WITH INTEGRATION TESTS



# TESTING

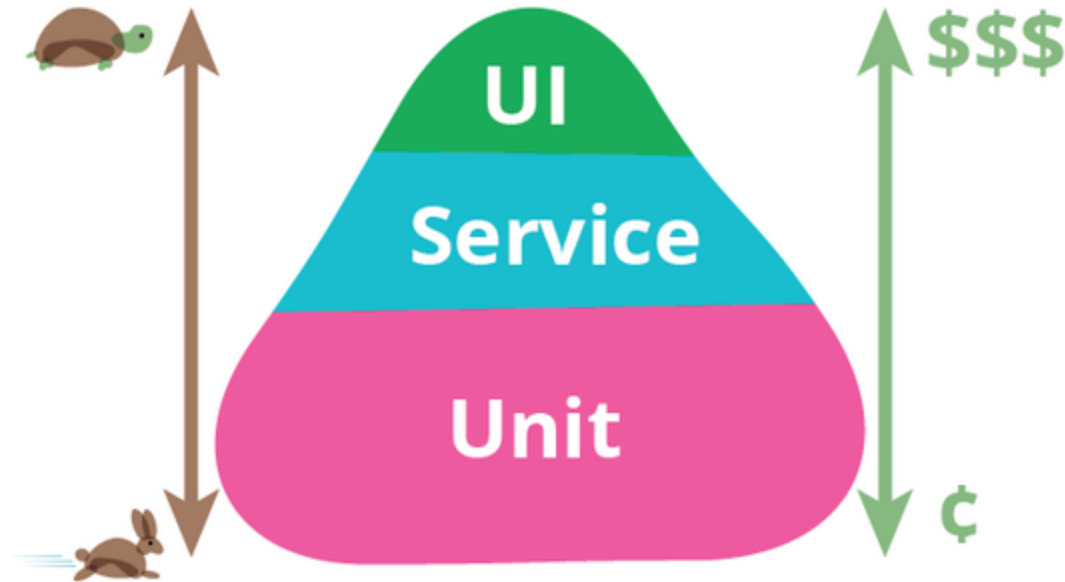
One of the key tasks in software development is testing.

# TEST LEVELS

According to the test levels pyramid of Mike Cohn;  
there are 3 main levels:

1. Unit Test
2. Integration Test
3. UI Test

# TEST PYRAMID



<https://martinfowler.com/bliki/TestPyramid.html>

# INTEGRATION TEST

Unit tests as a basis, and integration tests to verify interaction with external components outside the business logic.

# TESTCONTAINERS

Testcontainers is a java library that we can use to run different testing frameworks (as JUnit or Spock) with docker containers. Docker as a developer tool, allows us to create easily environments with all its dependencies; they are light and runs quickly and, also are portable.

# NOT ONLY JAVA

There are implementations for Go, dotNet, Python,  
Node, and Rust.



# MODULES

- Databases (SQL, NoSQL)
- Cloud (AWS using localstack, Azure, GCloud)
- Kafka, MockServer, Solr, Vault...
- GenericContainers

# REQUIREMENTS FOR BASED APPLICATIONS

- [Docker](#)
- [junit-jupiter](#) for JUnit 5.

# @NNOTATIONS

- `@Testcontainers`: This annotation handles automatically the container's lifecycle. It is in charge of start-up and closed-up every container in our tests.
- `@Container`: Marks containers to be managed by the Testcontainers extension.

**DEMO TIME!**

# CONCLUSIONS 1/2

- Working with Testcontainers doesn't require a lot of setup.
- The `withTmpFs` option allows us to map the container volume to our host memory.
- If we want to speed up our integration tests we can declare containers as static fields to share between tests. In our case, our test run on an average bellow to 150ms.

# CONCLUSIONS 2/2

- Testcontainers provides the benefit of 100% database compatibility (since it runs a real database inside a container).
- The database always starts in a known state, without contamination between test runs.

# MORE INFO

- <https://testcontainers.org>
- [@testcontainers](#)

# JUAN MORENO

- Blog: <https://proitcsolution.com.ve>
- Twitter: [@JuanMorenoDev](https://twitter.com/JuanMorenoDev)
- Presentation link: <https://bit.ly/testcontainers-career-2023>
- Github Repository:  
<https://github.com/JuanMorenoDeveloper/testcontainers-samples>



