

# Advanced Testing Patterns

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**8 Years of Service**

**Coach @ [codingcoach.io](https://codingcoach.io)**

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Manager immediately  
yells at you: “WTF is  
going on!?!?”

Monitoring is red

You are “on-call”  
today

More calls arrive  
at helpdesk

Bug caused data  
corruption

Broken Systems  
= BAD



A photograph of a baseball player in a white uniform and blue cap, captured mid-swing. The player is positioned behind a chain-link fence, which is in the foreground. The background shows a blurred view of a baseball field with green grass and a blue sky. The text "Tests as a safeguard" is overlaid on the right side of the image in a large, black, sans-serif font.

# Tests as a safeguard

Give us **more** certainty that our  
code will work in production.





# Code Coverage Gatherer

Testing trivial code just  
to increase “code coverage”.



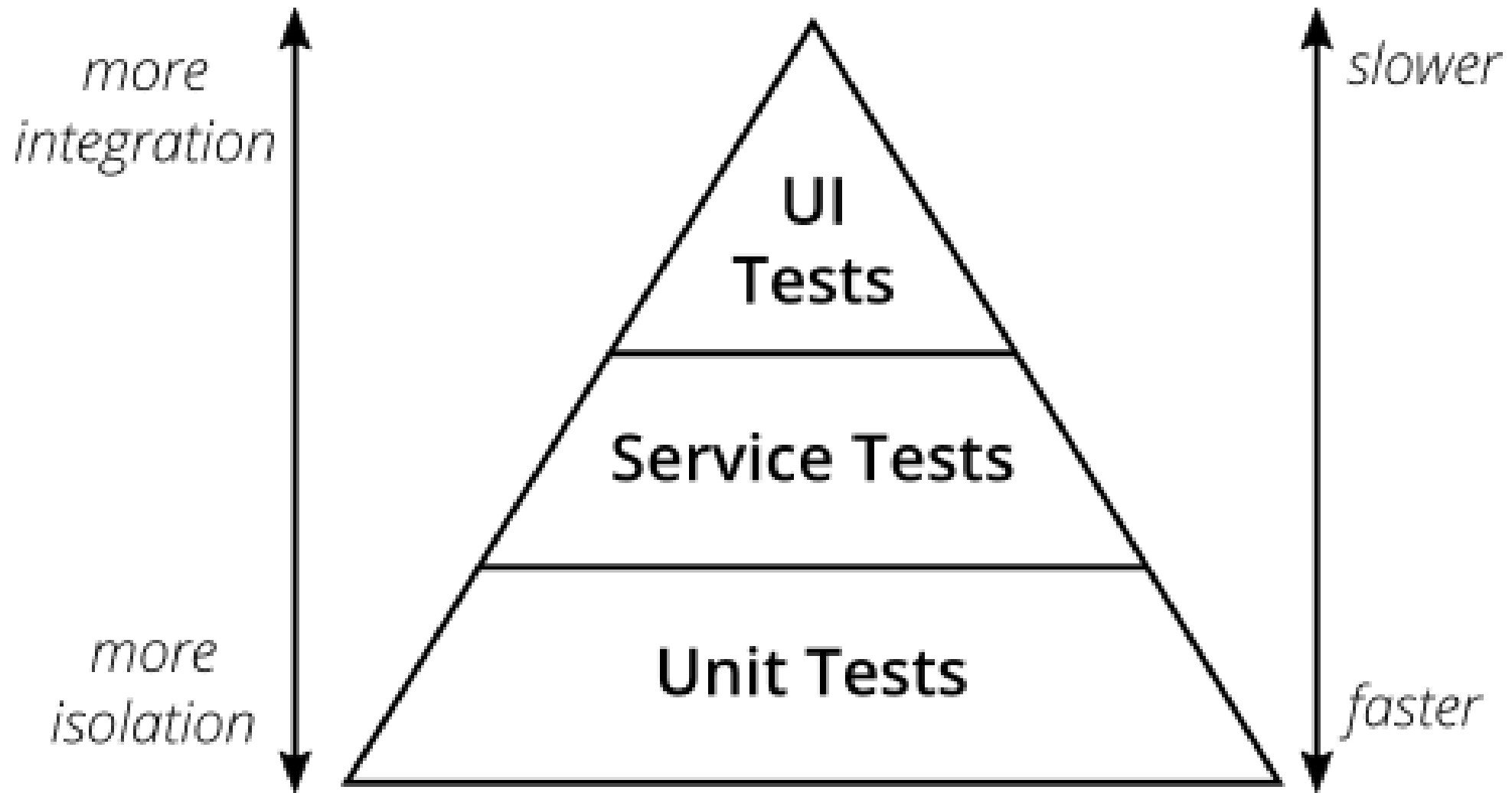


# “Mocking all the things”

A test that mimics a pingpong ball through a tube. Nothing happened to the pingpong ball... it's just a test to add test coverage.









# Improving Database Tests



# H2 In memory with Spring

# H2 In memory with Spring + Liquibase





# H2 In memory with Spring + Liquibase

- + Quick Tests
- + Database setup is same as production (constraints, FKs, ...)
- Slower startup, because database needs to be constructed
- Not the real database

# TestContainers <3 Spring (and Liquibase)



# TestContainers <3 Spring

- + Use the actual database!
- + Database setup is same as production (constraints, FKs, ...)
- Slower startup due to testcontainers, depends on containers used and their “reusability”
- Requires external software to be installed (Docker)



# ATOMICJAR



Following

**AtomicJar**

@AtomicJarInc

The [@testcontainers](#) company. We're here to change testing, and we promise you're going to love it.

[atomicjar.com](#)  Joined March 2021

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# Improving API Tests

# Using TestContainers for APIs





# TestContainers for APIs

- + Very accurate testing
- + Easy to maintain on changes of API
- Availability of API in a Docker container?
- Transient dependencies (API container requires other containers?)

# Wiremock





# Wiremock

- + Easy to setup/configure
- + Recording functionality for updates of API
- + Options to test for network issues (delays/faults)
- Synchronization between API and Wiremock setup?
- Often doesn't include all request details

# Test By Contract





# Contract Testing

- + Encourages up-front design and collaboration
- + Generates both Tests (Producer) and Stubs (Consumer)
- + If Consumer Driven: See what consumers you will break
- More complex setup
- Both Consumer and Producer need to agree to work like this



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Wiremock

Contract Testing

Testcontainers





Improve your tests with regards to  
COSTS/BENEFITS

Be able to sleep at night!



# Thank you

Tom Cools  
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<https://tomcools.be/talks/voxxed-days-romania-2021/>