TDD with Spring and JUnit5

INTRODUCTION

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Course Overview

Introduction to TDD in Spring and JUnit

Testing a Service with a SQL Backend

Testing a Service with a MongoDB Backend

Testing a Service that connects to a third-party API

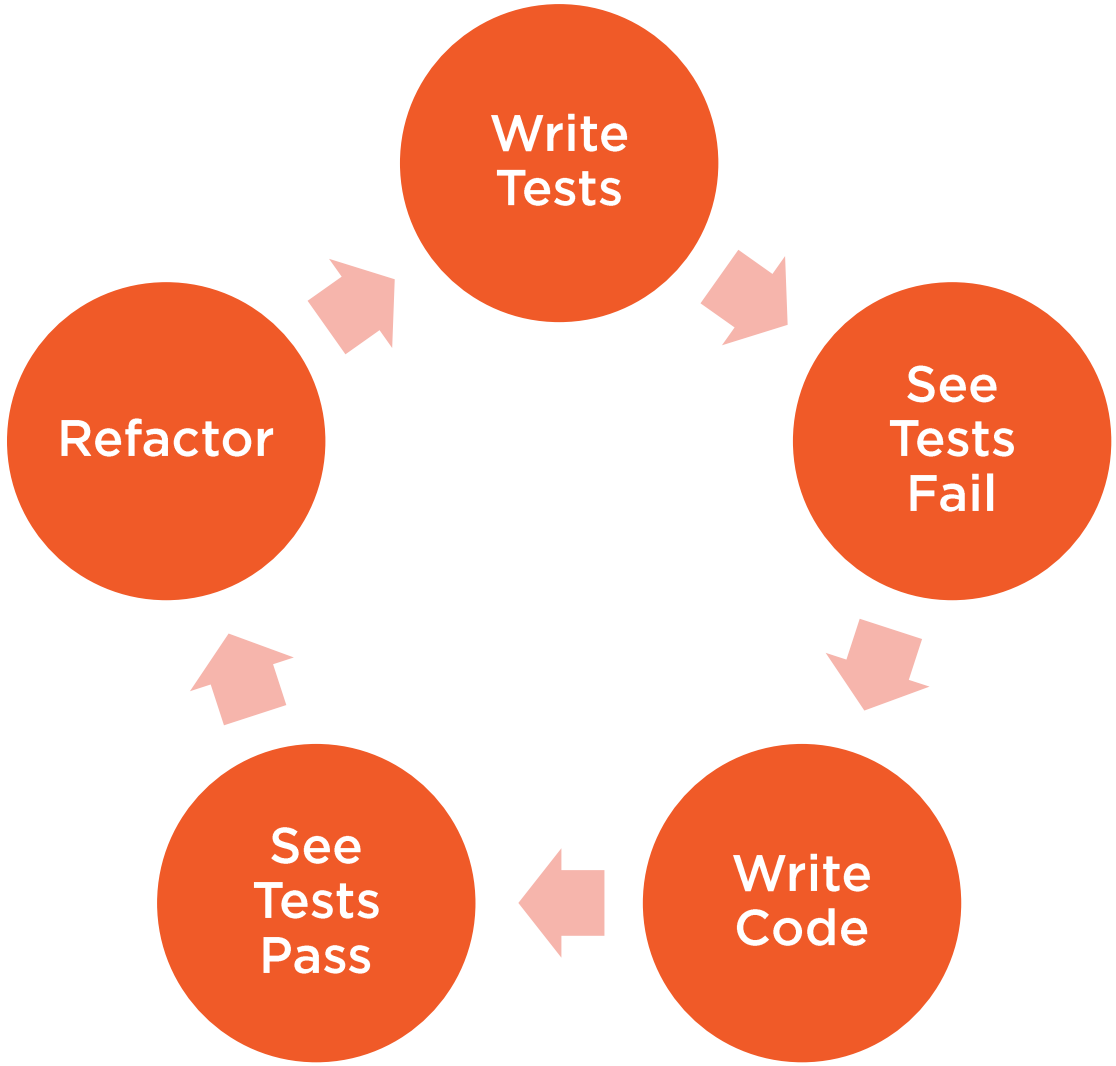
Integration Testing

Introducing to Test-Driven Development

Test-Driven Development

A software development process that encourages developers to write tests for their code before writing the code itself.

Test-Driven Development Process



Test-Driven Development Benefits

Less Debugging

Code proven to meet requirements

Faster time-to-market

Regression Suite

Test-Driven Development in Spring

Spring Boot Support for JUnit

SpringBootTest

Loads the Spring Application Context into tests

MockMvc

Comprehensive testing of Spring Controllers

Mockito Integration

@MockBean annotation for easy Mockito Integration

Third-party Extensions for Back-end Resources

DBUnit

Pre-populate and clean up database between tests

MongoDB

Custom Extension to manage MongoDB data

WireMock

Simulate third-party API responses

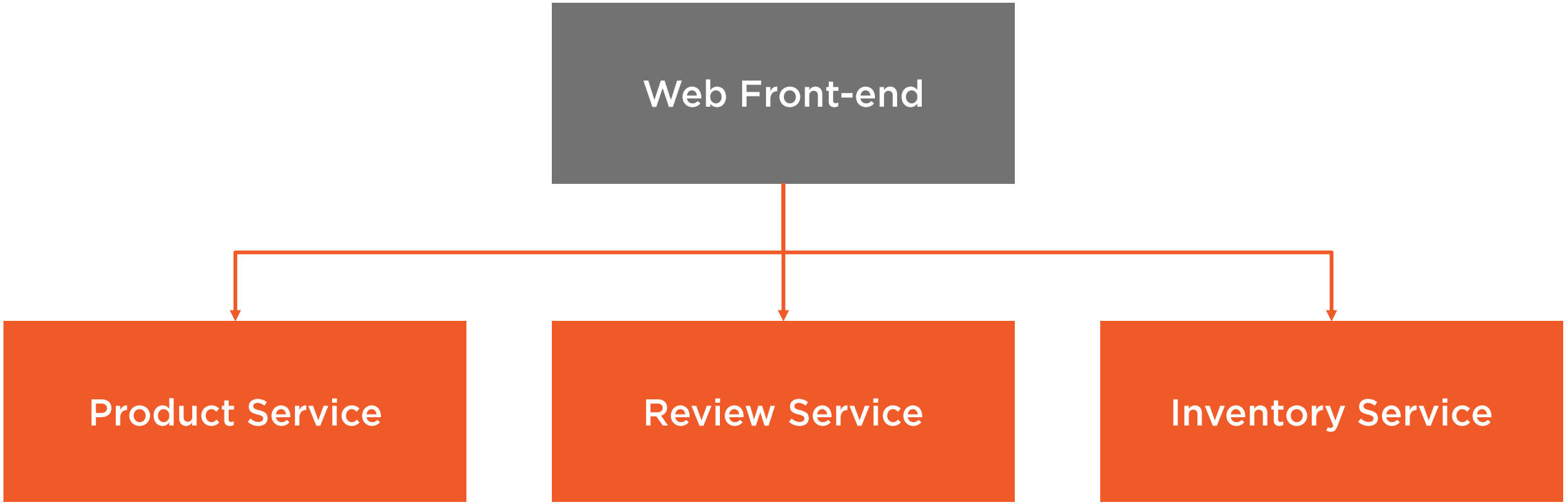
Demo

Setting up a Spring Boot Application

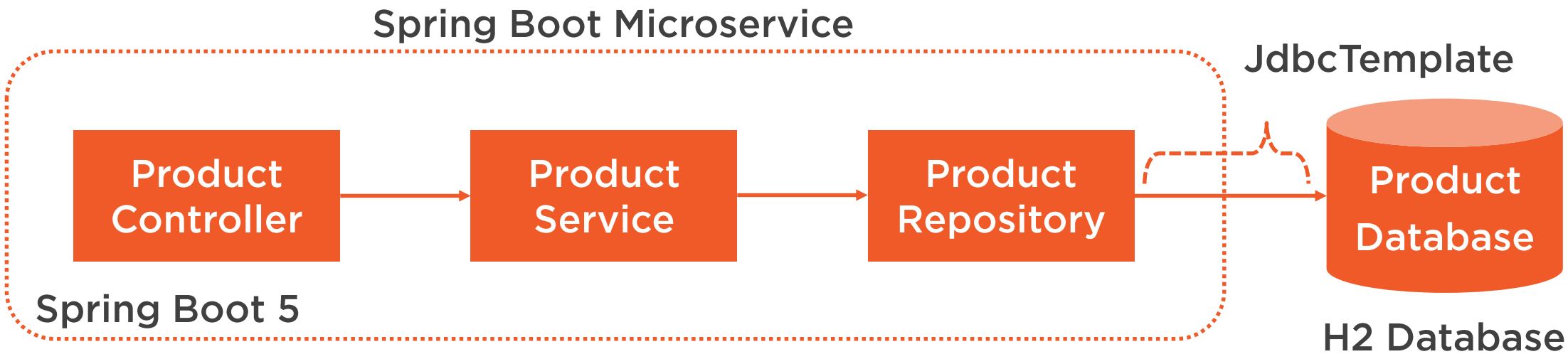
Adding JUnit 5 Support

Module Overview

Project Overview: Globomantics Web Site



Product Service



Spring Boot 5

RestController

Autowiring, Convention over Configuration

H2 Database

Embedded Database

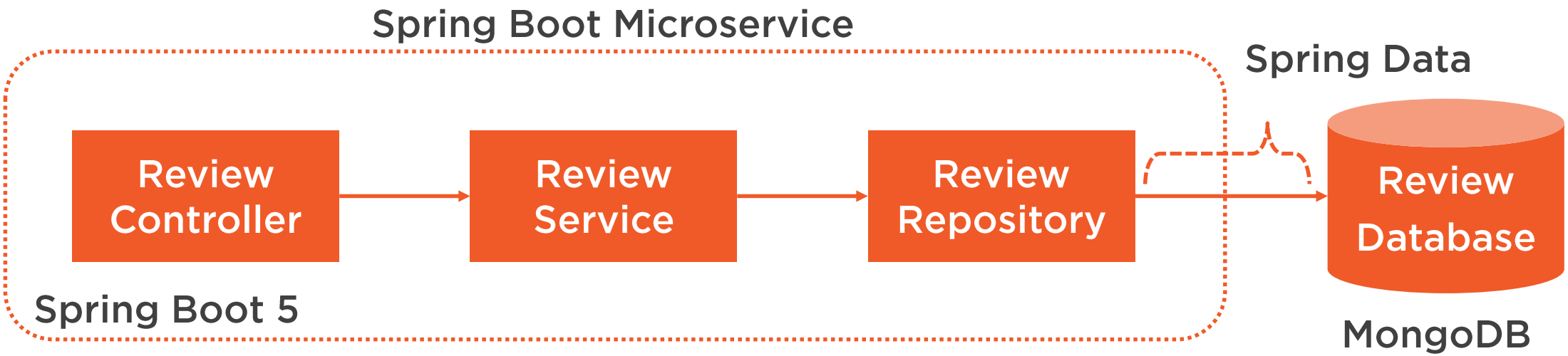
Use at runtime for simplicity

JdbcTemplate

Hand-written SQL

Template Design Pattern

Review Service



Spring Boot 5

RestController

Autowiring, Convention over Configuration

MongoDB

Embedded Mongo

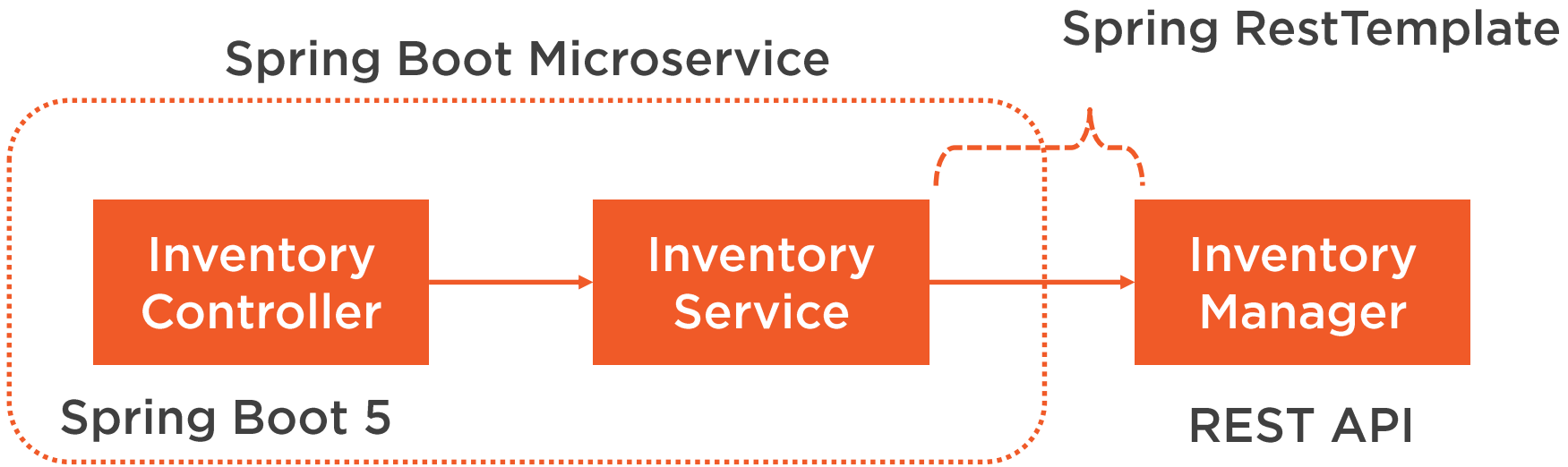
Use at runtime for simplicity

Spring Data

Define Interface

Generated Implementation

Inventory Service



Spring Boot 5

RestController

Autowiring, Convention over Configuration

Inventory Manager

Third-party API

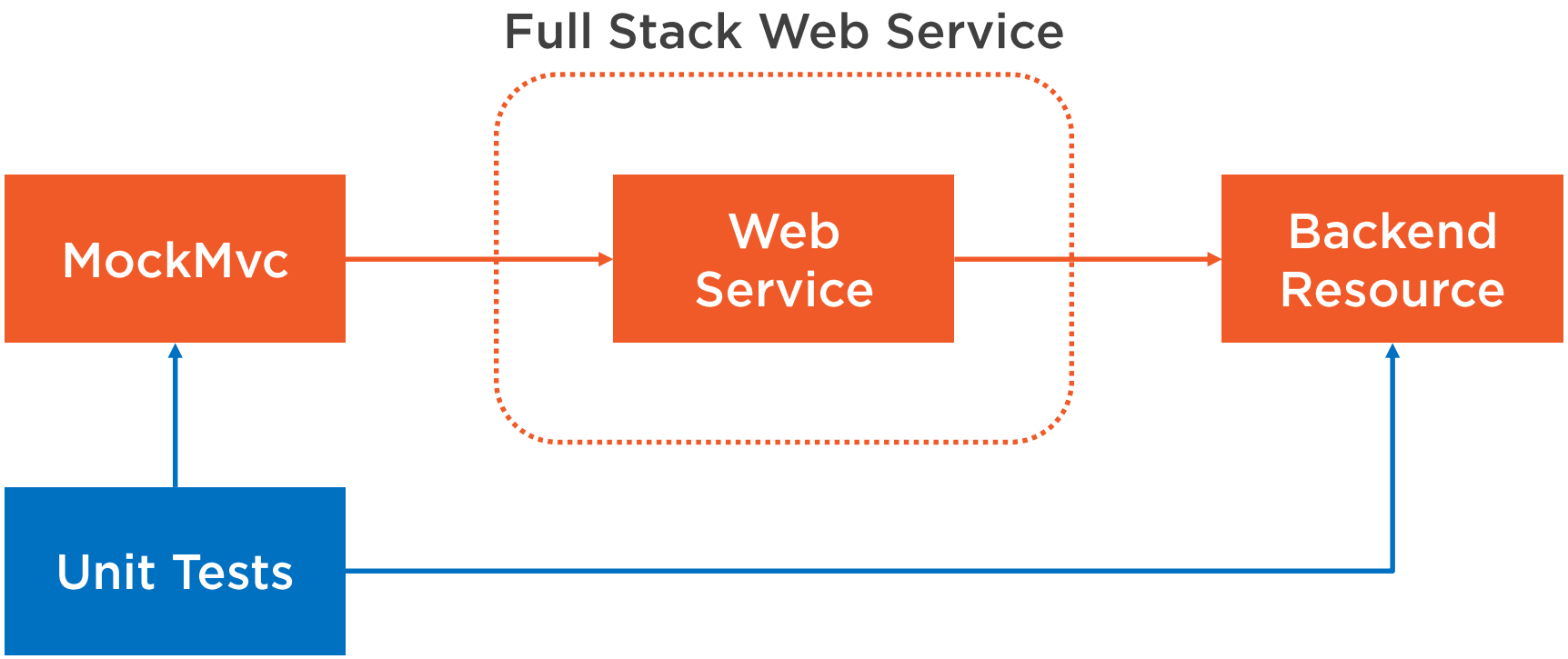
RESTful Interface

RestTemplate

Template Pattern

Easy to translate REST calls to objects

Integration Testing with JUnit 5



Summary

Testing Spring 5 services using JUnit 5

Writing unit tests for services with:

- SQL Back-end
- MongoDB Back-end
- Third-party APIs

Writing integration tests