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# Testing Java Microservices

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Hands-On Microservices with Spring Boot and Spring Cloud

Learn Microservices with Spring Boot 3

Building Microservices with .NET Core

Continuous Delivery in Java

Pragmatic Unit Testing in Java 8 with JUnit

Designing Fine-Grained Systems

Build modern, cloud-native, and distributed systems using Spring Boot

Proceedings of the Future Technologies Conference (FTC) 2020, Volume 3

Ji yu Arquillian,Hoverfly,AssertJ,JUnit,Selenium yu Mockito

Unit Test Frameworks

Microservices Best Practices for Java

Testing Microservices with Mountebank

Building Standardized Systems Across an Engineering Organization

Production-Ready Microservices

Enterprise Java Microservices

Learn how the various components of Java EE 8 can be used to implement the microservice architecture

Building Microservices

Java Unit Testing with JUnit 5

Mastering Microservices with Java 9

Comprehensive guide to develop high quality Java applications

Microservices Patterns

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Java EE 8 Microservices

Testing Java Microservices

Test-Driven Java Development

Effective Unit Testing  
Cloud Native Microservices with Spring and Kubernetes  
The Art of Unit Testing  
Mastering Spring Boot 2.0  
JUnit in Action  
Software Development Using Scrum  
JUnit in Action  
Build domain-driven microservice-based applications with Spring, Spring Cloud, and Angular  
Hands-On Microservices – Monitoring and Testing  
Next Generation Java Testing  
Testing Java Microservices  
Tools for High-Quality Software Development  
Mastering Spring Cloud  
Using Arquillian, Hoverfly, AssertJ, JUnit, Selenium, and Mockito

*Testing Java  
Microservices*

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## **ANNA RODGERS**

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*Hands-On Microservices with Spring Boot and Spring Cloud* Packt Publishing Ltd  
Master the art of implementing scalable microservices in your production environment with ease About This Book  
Use domain-driven design to build microservices Use Spring Cloud to use Service Discovery and Registration Use Kafka, Avro and Spring Streams for implementing event based microservices

Who This Book Is For This book is for Java developers who are familiar with the microservices architecture and now wants to take a deeper dive into effectively implementing microservices at an enterprise level. A reasonable knowledge level and understanding of core microservice elements and applications is expected. What You Will Learn Use domain-driven design to design and implement microservices Secure microservices using Spring Security Learn to develop REST service development Deploy and test microservices

Troubleshoot and debug the issues faced during development Learning best practices and common principals about microservices In Detail Microservices are the next big thing in designing scalable, easy-to-maintain applications. It not only makes app development easier, but also offers great flexibility to utilize various resources optimally. If you want to build an enterprise-ready implementation of the microservices architecture, then this is the book for you! Starting off by understanding the core concepts and framework, you will then focus on the

high-level design of large software projects. You will gradually move on to setting up the development environment and configuring it before implementing continuous integration to deploy your microservice architecture. Using Spring security, you will secure microservices and test them effectively using REST Java clients and other tools like RxJava 2.0. We'll show you the best patterns, practices and common principals of microservice design and you'll learn to troubleshoot and debug the issues faced during development. We'll show you how to design and implement reactive microservices. Finally, we'll show you how to migrate a monolithic application to microservices based application. By the end of the book, you will know how to build smaller, lighter, and faster services that can be implemented easily in a production environment. Style and approach This book starts from the basics, including environment setup and provides easy-to-follow steps to implement the sample project using microservices.

### **Learn Microservices with Spring Boot**

3 IBM Redbooks

Summary Testing Java Microservices

teaches you to implement unit and integration tests for microservice systems running on the JVM. You'll work with a microservice environment built using Java EE, WildFly Swarm, and Docker. You'll learn how to increase your test coverage and productivity, and gain confidence that your system will work as you expect. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Microservice applications present special testing challenges. Even simple services need to handle unpredictable loads, and distributed message-based designs pose unique security and performance concerns. These challenges increase when you throw in asynchronous communication and containers. About the Book Testing Java Microservices teaches you to implement unit and integration tests for microservice systems running on the JVM. You'll work with a microservice environment built using Java EE, WildFly Swarm, and Docker. You'll advance from writing simple unit tests for individual services to more-advanced practices like chaos or integration tests. As you move towards a

continuous-delivery pipeline, you'll also master live system testing using technologies like the Arquillian, Wiremock, and Mockito frameworks, along with techniques like contract testing and over-the-wire service virtualization. Master these microservice-specific practices and tools and you'll greatly increase your test coverage and productivity, and gain confidence that your system will work as you expect. What's Inside Test automation Integration testing microservice systems Testing container-centric systems Service virtualization About the Reader Written for Java developers familiar with Java EE, EE4J, Spring, or Spring Boot. About the Authors Alex Soto Bueno and Jason Porter are Arquillian team members. Andy Gumbrecht is an Apache TomEE developer and PMC. They all have extensive enterprise-testing experience. Table of Contents An introduction to microservices Application under test Unit-testing microservices Component-testing microservices Integration-testing microservices Contract tests End-to-end testing Docker and testing Service virtualization Continuous delivery in microservices

### **Building Microservices with .NET Core**

Simon and Schuster

Microservices is an architectural style in which large, complex software applications are composed of one or more smaller services. Each of these microservices focuses on completing one task that represents a small business capability. These microservices can be developed in any programming language. This IBM® Redbooks® publication covers Microservices best practices for Java. It focuses on creating cloud native applications using the latest version of IBM WebSphere® Application Server Liberty, IBM Bluemix® and other Open Source Frameworks in the Microservices ecosystem to highlight Microservices best practices for Java.

*Continuous Delivery in Java* Packt Publishing Ltd

Build and deploy scalable cloud native microservices using the Spring framework and Kubernetes. **KEY FEATURES** ● Complete coverage on how to design, build, run, and deploy modern cloud native microservices. ● Includes numerous sample code exercises on microservices, Spring and Kubernetes. ● Develop a

stronghold on Kubernetes, Spring, and the microservices architecture. ● Complete guide of application containerization on Kubernetes containers. ● Coverage on managing modern applications and infrastructure using observability tools. **DESCRIPTION** The main objective of this book is to give an overview of cloud native microservices, their architecture, design patterns, best practices, real use cases and practical coverage of modern applications. This book covers a strong understanding of the fundamentals of microservices, API first approach, Testing, observability, API Gateway, Service Mesh and Kubernetes alternatives of Spring Cloud. This book covers the implementation of various design patterns of developing cloud native microservices using Spring framework docker and Kubernetes libraries. It covers containerization concepts and hands-on lab exercises like how to build, run and manage microservices applications using Kubernetes. After reading this book, the readers will have a holistic understanding of building, running, and managing cloud native microservices applications on Kubernetes containers. **WHAT YOU WILL**

**LEARN** ● Learn fundamentals of microservice and design patterns. ● Learn microservices development using Spring Boot and Kubernetes. ● Learn to develop reactive, event-driven, and batch microservices. ● Perform end-to-end microservices testing using Cucumber. ● Implement API gateway, authentication & authorization, load balancing, caching, rate limiting. ● Learn observability and monitoring techniques of microservices. **WHO THIS BOOK IS FOR** This book is for the Spring Developers, Microservice Developers, Cloud Engineers, DevOps Consultants, Technical Architect and Solution Architects, who have some familiarity with application development, Docker and Kubernetes containers. **TABLE OF CONTENTS** 1. Overview of Cloud Native microservices 2. Microservice design patterns 3. API first approach 4. Build microservices using the Spring Framework 5. Batch microservices 6. Build reactive and event-driven microservices 7. The API gateway, security, and distributed caching with Redis 8. Microservices testing and API mocking 9. Microservices observability 10. Containers and Kubernetes overview and architecture 11. Run microservices on

Kubernetes 12. Service Mesh and Kubernetes alternatives of Spring Cloud  
**Pragmatic Unit Testing in Java 8 with JUnit** Simon and Schuster  
 Provides recommendations and case studies to help with the implementation of Scrum.

*Designing Fine-Grained Systems* Packt Publishing Ltd

"The definitive guide, not just for JUnit, but unit testing in general."---Tyson S. Maxwell, Raytheon --

Build modern, cloud-native, and distributed systems using Spring Boot

Simon and Schuster

Summary Enterprise Java Microservices is an example-rich tutorial that shows how to design and manage large-scale Java applications as a collection of microservices. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Large applications are easier to develop and maintain when you build them from small, simple components. Java developers now enjoy a wide range of tools that support microservices application development, including right-sized app servers, open

source frameworks, and well-defined patterns. Best of all, you can build microservices applications using your existing Java skills. About the Book Enterprise Java Microservices teaches you to design and build JVM-based microservices applications. You'll start by learning how microservices designs compare to traditional Java EE applications. Always practical, author Ken Finnigan introduces big-picture concepts along with the tools and techniques you'll need to implement them. You'll discover ecosystem components like Netflix Hystrix for fault tolerance and master the Just enough Application Server (JeAS) approach. To ensure smooth operations, you'll also examine monitoring, security, testing, and deploying to the cloud. What's inside The microservices mental model Cloud-native development Strategies for fault tolerance and monitoring Securing your finished applications About the Reader This book is for Java developers familiar with Java EE. About the Author Ken Finnigan leads the Thorntail project at Red Hat, which seeks to make developing microservices for the cloud with Java and Java EE as easy as possible. Table of

Contents PART 1 MICROSERVICES BASICS Enterprise Java microservices Developing a simple RESTful microservice Just enough Application Server for microservices Microservices testing Cloud native development PART 2 - IMPLEMENTING ENTERPRISE JAVA MICROSERVICES Consuming microservices Discovering microservices for consumption Strategies for fault tolerance and monitoring Securing a microservice Architecting a microservice hybrid Data streaming with Apache Kafka

**Proceedings of the Future Technologies Conference (FTC) 2020, Volume 3** Simon and Schuster

This book will teach the concepts of test driven development in Java so you can build clean, maintainable and robust code Key Features Explore the most popular TDD tools and frameworks and become more proficient in building applications Create applications with better code design, fewer bugs, and higher test coverage, enabling you to get them to market quickly Implement test-driven programming methods into your development workflows Book Description Test-driven development (TDD) is a

development approach that relies on a test-first procedure that emphasizes writing a test before writing the necessary code, and then refactoring the code to optimize it. The value of performing TDD with Java, one of the longest established programming languages, is to improve the productivity of programmers and the maintainability and performance of code, and develop a deeper understanding of the language and how to employ it effectively. Starting with the basics of TDD and understanding why its adoption is beneficial, this book will take you from the first steps of TDD with Java until you are confident enough to embrace the practice in your day-to-day routine. You'll be guided through setting up tools, frameworks, and the environment you need, and we will dive right into hands-on exercises with the goal of mastering one practice, tool, or framework at a time. You'll learn about the Red-Green-Refactor procedure, how to write unit tests, and how to use them as executable documentation. With this book, you'll also discover how to design simple and easily maintainable code, work with mocks, utilize behavior-driven development, refactor old legacy code,

and release a half-finished feature to production with feature toggles. You will finish this book with a deep understanding of the test-driven development methodology and the confidence to apply it to application programming with Java. What you will learn Explore the tools and frameworks required for effective TDD development Perform the Red-Green-Refactor process efficiently, the pillar around which all other TDD procedures are based Master effective unit testing in isolation from the rest of your code Design simple and easily maintainable code by implementing different techniques Use mocking frameworks and techniques to easily write and quickly execute tests Develop an application to implement behavior-driven development in conjunction with unit testing Enable and disable features using feature toggles Who this book is for If you're an experienced Java developer and want to implement more effective methods of programming systems and applications, then this book is for you.

*Ji yu*

*Arquillian,Hoverfly,AssertJ,JUnit,Selenium  
yu Mockito "O'Reilly Media, Inc."*

Explore the new way of building and maintaining test cases with Java test driven development (TDD) using JUnit 5. This book doesn't just talk about the new concepts, it shows you ways of applying them in TDD and Java 8 to continuously deliver code that excels in all metrics. Unit testing and test driven development have now become part of every developer's skill set. For Java developers, the most popular testing tool has been JUnit, and JUnit 5 is built using the latest features of Java. With Java Unit Testing with JUnit 5, you'll master these new features, including method parameters, extensions, assertions and assumptions, and dynamic tests. You'll also see how to write clean tests with less code. This book is a departure from using older practices and presents new ways of performing tests, building assertions, and injecting dependencies. What You Will Learn Write tests the JUnit 5 way Run your tests from within your IDE Integrate tests with your build and static analysis tools Migrate from JUnit 4 to JUnit 5 Who This Book Is For Java developers both with and without any prior unit testing experience. [Unit Test Frameworks](#) Packt Publishing Ltd Annotation Over the past 10 years,

distributed systems have become more fine-grained. From the large multi-million line long monolithic applications, we are now seeing the benefits of smaller self-contained services. Rather than heavy-weight, hard to change Service Oriented Architectures, we are now seeing systems consisting of collaborating microservices. Easier to change, deploy, and if required retire, organizations which are in the right position to take advantage of them are yielding significant benefits. This book takes an holistic view of the things you need to be cognizant of in order to pull this off. It covers just enough understanding of technology, architecture, operations and organization to show you how to move towards finer-grained systems.

### **Microservices Best Practices for Java**

Testing Java Microservices Using Arquillian, Hoverfly, AssertJ, JUnit, Selenium, and Mockito

Summary Testing Java Microservices teaches you to implement unit and integration tests for microservice systems running on the JVM. You'll work with a microservice environment built using Java EE, WildFly Swarm, and Docker. You'll

learn how to increase your test coverage and productivity, and gain confidence that your system will work as you expect. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Microservice applications present special testing challenges. Even simple services need to handle unpredictable loads, and distributed message-based designs pose unique security and performance concerns. These challenges increase when you throw in asynchronous communication and containers. About the Book Testing Java Microservices teaches you to implement unit and integration tests for microservice systems running on the JVM. You'll work with a microservice environment built using Java EE, WildFly Swarm, and Docker. You'll advance from writing simple unit tests for individual services to more-advanced practices like chaos or integration tests. As you move towards a continuous-delivery pipeline, you'll also master live system testing using technologies like the Arquillian, Wiremock, and Mockito frameworks, along with techniques like contract testing and over-

the-wire service virtualization. Master these microservice-specific practices and tools and you'll greatly increase your test coverage and productivity, and gain confidence that your system will work as you expect. What's Inside Test automation Integration testing microservice systems Testing container-centric systems Service virtualization About the Reader Written for Java developers familiar with Java EE, EE4J, Spring, or Spring Boot. About the Authors Alex Soto Bueno and Jason Porter are Arquillian team members. Andy Gumbrecht is an Apache TomEE developer and PMC. They all have extensive enterprise-testing experience. Table of Contents An introduction to microservices Application under test Unit-testing microservices Component-testing microservices Integration-testing microservices Contract tests End-to-end testing Docker and testing Service virtualization Continuous delivery in microservices

[Testing Microservices with Mountebank](#)

Packt Publishing Ltd

Summary Effective Unit Testing is written to show how to write good tests—tests that are concise and to the point,

expressive, useful, and maintainable. Inspired by Roy Osherove's bestselling *The Art of Unit Testing*, this book focuses on tools and practices specific to the Java world. It introduces you to emerging techniques like behavior-driven development and specification by example, and shows you how to add robust practices into your toolkit. About Testing Test the components before you assemble them into a full application, and you'll get better software. For Java developers, there's now a decade of experience with well-crafted tests that anticipate problems, identify known and unknown dependencies in the code, and allow you to test components both in isolation and in the context of a full application. About this Book *Effective Unit Testing* teaches Java developers how to write unit tests that are concise, expressive, useful, and maintainable. Offering crisp explanations and easy-to-absorb examples, it introduces emerging techniques like behavior-driven development and specification by example. Programmers who are already unit testing will learn the current state of the art. Those who are new to the game

will learn practices that will serve them well for the rest of their career. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book. About the Author Lasse Koskela is a coach, trainer, consultant, and programmer. He hacks on open source projects, helps companies improve their productivity, and speaks frequently at conferences around the world. Lasse is the author of *Test Driven*, also published by Manning. What's Inside A thorough introduction to unit testing Choosing best-of-breed tools Writing tests using dynamic languages Efficient test automation Table of Contents PART 1 FOUNDATIONS The promise of good tests In search of good Test doubles PART 2 CATALOG Readability Maintainability Trustworthiness PART 3 DIVERSIONS Testable design Writing tests in other JVM languages Speeding up test execution

### **Building Standardized Systems Across an Engineering Organization**

Pearson Education

Learn and implement various techniques related to testing, monitoring and optimization for microservices

architecture. Key Features Learn different approaches for testing microservices to design and implement, robust and secure applications Become more efficient while working with microservices Explore Testing and Monitoring tools such as JMeter, Ready API, and AppDynamics Book Description Microservices are the latest "right" way of developing web applications. Microservices architecture has been gaining momentum over the past few years, but once you've started down the microservices path, you need to test and optimize the services. This book focuses on exploring various testing, monitoring, and optimization techniques for microservices. The book starts with the evolution of software architecture style, from monolithic to virtualized, to microservices architecture. Then you will explore methods to deploy microservices and various implementation patterns. With the help of a real-world example, you will understand how external APIs help product developers to focus on core competencies. After that, you will learn testing techniques, such as Unit Testing, Integration Testing, Functional Testing, and Load Testing. Next, you will explore



performance testing tools, such as JMeter, and Gatling. Then, we deep dive into monitoring techniques and learn performance benchmarking of the various architectural components. For this, you will explore monitoring tools such as Appdynamics, Dynatrace, AWS CloudWatch, and Nagios. Finally, you will learn to identify, address, and report various performance issues related to microservices. What you will learn

Understand the architecture of microservices and how to build services

Establish how external APIs help to accelerate the development process

Understand testing techniques, such as unit testing, integration testing, end-to-end testing, and UI/functional testing

Explore various tools related to the performance testing, monitoring, and optimization of microservices

Design strategies for performance testing

Identify performance issues and fine-tune performance

Who this book is for

This book is for developers who are involved with microservices architecture to develop robust and secure applications. Basic knowledge of microservices is essential in order to get the most out of this book.

*Production-Ready Microservices* Simon and Schuster

Invoke TDD principles for end-to-end application development with Java

About This Book

Explore the most popular TDD tools and frameworks and become more proficient in building applications

Create applications with better code design, fewer bugs, and higher test coverage, enabling you to get them to market quickly

Implement test-driven programming methods into your development workflows

Who This Book Is For

If you're an experienced Java developer and want to implement more effective methods of programming systems and applications, then this book is for you.

What You Will Learn

Explore the tools and frameworks required for effective TDD development

Perform the Red-Green-Refactor process efficiently, the pillar around which all other TDD procedures are based

Master effective unit testing in isolation from the rest of your code

Design simple and easily maintainable codes by implementing different techniques

Use mocking frameworks and techniques to easily write and quickly execute tests

Develop an application to implement behaviour-driven

development in conjunction with unit testing

Enable and disable features using Feature Toggles

In Detail

Test-driven development (TDD) is a development approach that relies on a test-first procedure that emphasises writing a test before writing the necessary code, and then refactoring the code to optimize it.

The value of performing TDD with Java, one of the most established programming languages, is to improve the productivity of programmers, the maintainability and performance of code, and develop a deeper understanding of the language and how to employ it effectively.

Starting with the basics of TDD and reasons why its adoption is beneficial, this book will take you from the first steps of TDD with Java until you are confident enough to embrace the practice in your day-to-day routine.

You'll be guided through setting up tools, frameworks, and the environment you need, and will dive right in to hands-on exercises with the goal of mastering one practice, tool, or framework at a time.

You'll learn about the Red-Green-Refactor procedure, how to write unit tests, and how to use them as executable documentation.

With this book you'll also

discover how to design simple and easily maintainable code, work with mocks, utilise behaviour-driven development, refactor old legacy code, and release a half-finished feature to production with feature toggles. You will finish this book with a deep understanding of the test-driven development methodology and the confidence to apply it to application programming with Java. Style and approach An easy-to-follow, hands-on guide to building applications through effective coding practices. This book covers practical examples by introducing different problems, each one designed as a learning exercise to help you understand each aspect of TDD.

*Enterprise Java Microservices* Prentice Hall Architect your .NET applications by breaking them into really small pieces—microservices—using this practical, example-based guide About This Book Start your microservices journey and understand a broader perspective of microservices development Build, deploy, and test microservices using ASP.Net MVC, Web API, and Microsoft Azure Cloud Get started with reactive microservices and understand the fundamentals behind it

Who This Book Is For This book is for .NET Core developers who want to learn and understand microservices architecture and implement it in their .NET Core applications. It's ideal for developers who are completely new to microservices or have just a theoretical understanding of this architectural approach and want to gain a practical perspective in order to better manage application complexity. What You Will Learn Compare microservices with monolithic applications and SOA Identify the appropriate service boundaries by mapping them to the relevant bounded contexts Define the service interface and implement the APIs using ASP.NET Web API Integrate the services via synchronous and asynchronous mechanisms Implement microservices security using Azure Active Directory, OpenID Connect, and OAuth 2.0 Understand the operations and scaling of microservices in .NET Core Understand the testing pyramid and implement consumer-driven contract using pact net core Understand what the key features of reactive microservices are and implement them using reactive extension In Detail Microservices is an architectural style that

promotes the development of complex applications as a suite of small services based on business capabilities. This book will help you identify the appropriate service boundaries within the business. We'll start by looking at what microservices are, and what the main characteristics are. Moving forward, you will be introduced to real-life application scenarios, and after assessing the current issues, we will begin the journey of transforming this application by splitting it into a suite of microservices. You will identify the service boundaries, split the application into multiple microservices, and define the service contracts. You will find out how to configure, deploy, and monitor microservices, and configure scaling to allow the application to quickly adapt to increased demand in the future. With an introduction to the reactive microservices, you strategically gain further value to keep your code base simple, focusing on what is more important rather than the messy asynchronous calls. Style and approach This guide serves as a stepping stone that helps .NET Core developers in their microservices architecture. This book

provides just enough theory to understand the concepts and apply the examples.

Learn how the various components of Java EE 8 can be used to implement the microservice architecture Simon and Schuster

Learn to develop, test, and deploy your Spring Boot distributed application and explore various best practices. Key Features Build and deploy your microservices architecture in the cloud Build event-driven resilient systems using Hystrix and Turbine Explore API management tools such as KONG and API documentation tools such as Swagger Book Description Spring is one of the best frameworks on the market for developing web, enterprise, and cloud ready software. Spring Boot simplifies the building of complex software dramatically by reducing the amount of boilerplate code, and by providing production-ready features and a simple deployment model. This book will address the challenges related to power that come with Spring Boot's great configurability and flexibility. You will understand how Spring Boot configuration works under the hood, how to overwrite default configurations, and

how to use advanced techniques to prepare Spring Boot applications to work in production. This book will also introduce readers to a relatively new topic in the Spring ecosystem – cloud native patterns, reactive programming, and applications. Get up to speed with microservices with Spring Boot and Spring Cloud. Each chapter aims to solve a specific problem or teach you a useful skillset. By the end of this book, you will be proficient in building and deploying your Spring Boot application. What you will learn Build logically structured and highly maintainable Spring Boot applications Configure RESTful microservices using Spring Boot Make the application production and operation-friendly with Spring Actuator Build modern, high-performance distributed applications using cloud patterns Manage and deploy your Spring Boot application to the cloud (AWS) Monitor distributed applications using log aggregation and ELK Who this book is for The book is targeted at experienced Spring and Java developers who have a basic knowledge of working with Spring Boot. The reader should be familiar with Spring Boot basics, and aware of its

benefits over traditional Spring Framework-based applications. Building Microservices Packt Publishing Ltd In a microservices architecture, the whole is indeed greater than the sum of its parts. But in practice, individual microservices can inadvertently impact others and alter the end user experience. Effective microservices architectures require standardization on an organizational level with the help of a platform engineering team. This practical book provides a series of progressive steps that platform engineers can apply technically and organizationally to achieve highly resilient Java applications. Author Jonathan Schneider covers many effective SRE practices from companies leading the way in microservices adoption. You'll examine several patterns discovered through much trial and error in recent years, complete with Java code examples. Chapters are organized according to specific patterns, including: Application metrics: Monitoring for availability with Micrometer Debugging with observability: Logging and distributed tracing; failure injection testing Charting and alerting: Building effective charts; KPIs for Java microservices Safe multicloud

delivery: Spinnaker, deployment strategies, and automated canary analysis  
 Source code observability: Dependency management, API utilization, and end-to-end asset inventory  
 Traffic management: Concurrency of systems; platform, gateway, and client-side load balancing  
Java Unit Testing with JUnit 5 Packt Publishing Ltd  
 Apply microservices patterns to build resilient and scalable distributed systems  
 Key Features Understand the challenges of building large-scale microservice landscapes  
 Build cloud-native production-ready microservices with this comprehensive guide  
 Discover how to get the best out of Spring Cloud, Kubernetes, and Istio when used together  
 Book Description  
 Microservices architecture allows developers to build and maintain applications with ease, and enterprises are rapidly adopting it to build software using Spring Boot as their default framework.  
 With this book, you'll learn how to efficiently build and deploy microservices using Spring Boot. This microservices book will take you through tried and tested approaches to building distributed systems and implementing microservices

architecture in your organization. Starting with a set of simple cooperating microservices developed using Spring Boot, you'll learn how you can add functionalities such as persistence, make your microservices reactive, and describe their APIs using Swagger/OpenAPI. As you advance, you'll understand how to add different services from Spring Cloud to your microservice system. The book also demonstrates how to deploy your microservices using Kubernetes and manage them with Istio for improved security and traffic management. Finally, you'll explore centralized log management using the EFK stack and monitor microservices using Prometheus and Grafana. By the end of this book, you'll be able to build microservices that are scalable and robust using Spring Boot and Spring Cloud. What you will learn  
 Build reactive microservices using Spring Boot  
 Develop resilient and scalable microservices using Spring Cloud  
 Use OAuth 2.0/OIDC and Spring Security to protect public APIs  
 Implement Docker to bridge the gap between development, testing, and production  
 Deploy and manage microservices using Kubernetes

Apply Istio for improved security, observability, and traffic management  
 Who this book is for This book is for Java and Spring developers and architects who want to learn how to break up their existing monoliths into microservices and deploy them either on-premises or in the cloud using Kubernetes as a container orchestrator and Istio as a service Mesh.  
 No familiarity with microservices architecture is required to get started with this book.

### **Mastering Microservices with Java 9**

Simon and Schuster

Summary  
 Testing Microservices with Mountebank is your guide to the ins and outs of testing microservices with service virtualization. The book offers unique insights into microservices application design and state-of-the-art testing practices that will deepen your microservices skills and improve your applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.  
 About the Technology  
 Even if you lab test each service in isolation, it's challenging—and potentially dangerous—to test a live microservices

system that's changing and growing. Fortunately, you can use Mountebank to "imitate" the components of a distributed microservices application to give you a good approximation of the runtime conditions as you test individual services. About the Book Testing Microservices with Mountebank introduces the powerful practice of service virtualization. In it, author Brandon Byars, Mountebank's creator, offers unique insights into microservices application design and state-of-the-art testing practices. You'll expand your understanding of microservices as you work with Mountebank's imposters, responses, behaviors, and programmability. By mastering the powerful testing techniques in this unique book, your microservices skills will deepen and your applications will improve. For real. What's inside The core concepts of service virtualization Testing using canned responses Programming Mountebank Performance testing About the Reader Written for developers familiar with SOA or microservices systems. About the Author Brandon Byars is the author and chief maintainer of Mountebank and a

principal consultant at ThoughtWorks. Table of Contents PART 1 - FIRST STEPS Testing microservices Taking mountebank for a test drive PART 2 - USING MOUNTEBANK Testing using canned responses Using predicates to send different responses Adding record/replay behavior Programming mountebank Adding behaviors Protocols PART 3 - CLOSING THE LOOP Mountebank and continuous delivery Performance testing with mountebank

**Comprehensive guide to develop high quality Java applications** "O'Reilly Media, Inc."

The Pragmatic Programmers classic is back! Freshly updated for modern software development, Pragmatic Unit Testing in Java 8 With JUnit teaches you how to write and run easily maintained unit tests in JUnit with confidence. You'll learn mnemonics to help you know what tests to write, how to remember all the boundary conditions, and what the qualities of a good test are. You'll see how unit tests can pay off by allowing you to keep your system code clean, and you'll learn how to handle the stuff that seems too tough to test. Pragmatic Unit Testing

in Java 8 With JUnit steps you through all the important unit testing topics. If you've never written a unit test, you'll see screen shots from Eclipse, IntelliJ IDEA, and NetBeans that will help you get past the hard part--getting set up and started. Once past the basics, you'll learn why you want to write unit tests and how to effectively use JUnit. But the meaty part of the book is its collected unit testing wisdom from people who've been there, done that on production systems for at least 15 years: veteran author and developer Jeff Langr, building on the wisdom of Pragmatic Programmers Andy Hunt and Dave Thomas. You'll learn: How to craft your unit tests to minimize your effort in maintaining them. How to use unit tests to help keep your system clean. How to test the tough stuff. Memorable mnemonics to help you remember what's important when writing unit tests. How to help your team reap and sustain the benefits of unit testing. You won't just learn about unit testing in theory--you'll work through numerous code examples. When it comes to programming, hands-on is the only way to learn!

Related with Testing Java Microservices:

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