Testing Java Microservices

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Learn Microservices with Spring Boot - Moises Macero 2017-12-08 Build a microservices architecture with Spring Boot, by evolving an application from a small monolith to an event-driven architecture composed of several services. This book follows an incremental approach to teach microservice structure, test-driven development, Eureka, Ribbon, Zuul, and end-to-end tests with Cucumber. Author Moises Macero follows a very pragmatic approach to explain the benefits of using this type of software architecture, instead of keeping you distracted with theoretical concepts. He covers some of the state-of-the-art techniques in computer programming, from a practical point of view. You’ll focus on what's important, starting with the minimum viable product but keeping the flexibility to evolve it. What You'll Learn Build microservices with Spring Boot Use event-driven architecture and messaging with RabbitMQ Create RESTful services with Spring Master service discovery with Eureka and load balancing with Ribbon Route requests with Zuul as your API gateway Write end-to-end rests for an event-driven architecture using Cucumber Carry out continuous integration and deployment Who This Book Is For Those with at least some prior experience with Java programming. Some prior exposure to Spring Boot recommended but not required.

Building Microservices with .NET Core - Gaurav Kumar Aroraa 2017-06-14 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.

Test-driven Development - David Astels 2003

This guide for programmers teaches how to practice Test Driven Development (TDD), also called Test First Development. Contrary to the accepted approach to testing, when you practice TDD you write tests for code before you write the code being tested. This text provides examples in Java.

JUnit in Action - Catalin Tudose 2020-11-16

JUnit in Action, Third Edition has been completely rewritten for this release. The book is full of examples that demonstrate JUnit's modern features, including its new architecture; nested, tagged, and dynamic tests; and dependency injection. Summary JUnit is the gold standard for unit testing Java applications. Filled with powerful new features designed to automate software testing, JUnit 5 boosts your productivity and helps avoid debugging nightmares. Whether you're just starting with JUnit or you want to ramp up on the new features, JUnit in Action, Third Edition has you covered. Extensively revised with new code and new chapters, JUnit in Action, Third Edition is an up-to-date guide to smooth software testing. Dozens of hands-on examples illustrate JUnit 5's innovations for dependency injection, nested testing, parameterized tests, and more. Throughout, you'll learn how to use JUnit 5 to automate your testing, for a process that consumes less resources, and gives you more time for developing. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology The JUnit framework is the gold standard for unit testing Java applications—and knowing it is an essential skill for Java developers. The latest version, JUnit 5, is a total overhaul, now supporting modern Java features like Lambdas and Streams. About the book JUnit in Action, Third Edition has been completely rewritten for this release. The book is full of examples that demonstrate JUnit's modern features, including its new architecture; nested, tagged, and dynamic tests; and dependency injection. You'll benefit from author Catalin Tudose's unique "pyramid" testing strategy, which breaks the testing process into layers and sets you on the path to bug-free code creation. What's inside Migrating from JUnit 4 to 5 Effective test automation Test-driven development and behavior-driven development Using mocks for test isolation Connecting JUnit 5 with Maven or Gradle About the reader For intermediate Java developers. About the author Catalin Tudose has a Ph.D. in Computer Science, and over 15 years of experience as a Senior Java Developer and Technical Team Lead. Previous editions were authored by Petar Tahchiev, Felipe Leme, Gary Gregory, and Vincent Massol. Table of Contents PART 1 - JUNIT 1 JUnit jump-start 2 Exploring core JUnit 3 JUnit architecture 4 Migrating from JUnit 4 to JUnit 5 5 Software testing principles PART 2 - DIFFERENT TESTING STRATEGIES 6 Test quality 7 Coarse-grained testing with stubs 8 Testing with mock objects 9 In-container testing PART 3 - WORKING WITH JUNIT 5 AND OTHER TOOLS 10 Runing JUnit tests from Maven 3 11 Running JUnit tests from Gradle 6 12 JUnit 5 IDE support 13 Coninuous integration with JUnit 5 PART 4 - WORKING WITH MODERN FRAMEWORKS AND JUNIT 5 14 JUnit 5 extension model 15 Presentation-layer testing 16 Testing Spring applications 17 Testing Spring Boot applications 18 Testing a REST API

19 Testing database applications PART 5 - DEVELOPING APPLICATIONS WITH JUNIT 5 20 Test-driven development with JUnit 5 21 Behavior-driven development in JUnit 5 22 Implementing a test pyramid strategy with JUnit 5

Java wei fu wu ce shi - 布埃诺 2019

本书从实战出发,介绍微服务架构所带来的测试方面的挑战,以及如何利用新的技术来应对这些挑战.通过阅读,读者可以学会如何编写微服务架构下的单元测试,组件测试,集成测试以及契约测试.在此过程中还会用到Arquillian,ShrinkWrap,Pact,Selenium,Docker,Hoverfly等多个帮助测试的工具和框架.

Enterprise Java Microservices - Kenneth Finnigan 2018-09-27

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

Mastering Spring Boot 2.0 - Dinesh Rajput 2018-05-31

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.

Java EE 8 Microservices - Kamalmeet Singh 2018-12-28

Build microservices-based enterprise applications with the latest version of Java EE Key FeaturesCreate microservices in Spring and deploy them with Docker and Mesos Examine a number of real-world use cases and hands-on code examplesDevelop distributed applications based on microservices architectureBook Description Cloud-based applications have been increasingly in demand, and this has caused a shift from monolithic to microservice applications. With the help of Java EE 8 Microservices, you‘ll get to grips with the components of Java EE 8 and understand how they are used to implement microservices. This book explains how a monolithic application is transformed into a microservice application, then helps you connect it in a traditional way and use advanced approaches for asynchronous communication. Once you have learned the basics, you’ll explore advanced topics to make your microservices robust, scalable, and secure. Microservices form distributed applications, and by the end of this book you’ll have discovered how to develop, pack, ship, and support distributed applications using Java EE. What you will learnBuild microservices from the ground up with Java EE 8Implement and deploy microservices with Spring BootDevelop reactive pipelines for asynchronous communicationUse caching mechanisms and JSON Web Token (JWT) to create scalable and secure microservicesEmpower microservices with the Micro Profile effort and implement health checks, fault tolerance, and monitoring mechanismsUse containers to build and deploy microservicesCreate contract-first documentation with Swagger and API BlueprintWho this book is for Java EE 8 Microservices is for Java EE developers keen to build microservice-based enterprise applications.

Mastering Microservices with Java - Sourabh Sharma 2019-02-26

Master the art of implementing scalable and reactive microservices in your production environment with Java 11 Key FeaturesUse domain-driven designs to build microservicesExplore various microservices design patterns such as service discovery, registration, and API GatewayUse Kafka, Avro, and Spring Streams to implement event-based microservicesBook Description Microservices are key to designing scalable, easy-to-maintain applications. This latest edition of Mastering Microservices with Java, works on Java 11. It covers a wide range of exciting new developments in the world of microservices, including microservices patterns, interprocess communication with gRPC, and service orchestration. This book will help you understand how to implement microservice-based systems from scratch. You'll start off by understanding the core concepts and framework, before focusing on the high-level design of large software projects. You'll then use Spring Security to secure microservices and test them effectively using REST Java clients and other tools. You will also gain experience of using the Netflix OSS suite, comprising the API Gateway, service discovery and registration, and Circuit Breaker. Additionally, you'll be introduced to the best patterns, practices, and common principles of microservice design that will help you to understand how to troubleshoot and debug the issues faced during development. By the end of this book, you'll have learned how to build smaller, lighter, and faster services that can be implemented easily in a production environment. What you will learnUse domain-driven designs to develop and implement microservicesUnderstand how to implement microservices using Spring BootExplore service orchestration and distributed transactions using the SagasDiscover interprocess communication using REpresentational State Transfer (REST) and eventsGain knowledge of how to implement and design reactive microservicesDeploy and test various microservicesWho this book is for This book is designed for Java developers who are familiar with microservices architecture and now want to effectively implement microservices at an enterprise level. Basic knowledge and understanding of core microservice elements and applications is necessary.

POJOs in Action - Chris Richardson 2006-02-02

The standard platform for enterprise application development has been

EJB but the difficulties of working with it caused it to become unpopular. They also gave rise to lightweight technologies such as Hibernate, Spring, JDO, iBATIS and others, all of which allow the developer to work directly with the simpler POJOs. Now EJB version 3 solves the problems that gave EJB 2 a black eye-it too works with POJOs. POJOs in Action describes the new, easier ways to develop enterprise Java applications. It describes how to make key design decisions when developing business logic using POJOs, including how to organize and encapsulate the business logic, access the database, manage transactions, and handle database concurrency. This book is a new-generation Java applications guide: it enables readers to successfully build lightweight applications that are easier to develop, test, and maintain.

Building Microservices - Sam Newman 2015-02-02

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.

Quarkus Cookbook - Alex Soto Bueno 2020-07-14

Optimized for Kubernetes, Quarkus is designed to help you create Java applications that are cloud first, container native, and serverless capable. With this cookbook, authors Alex Soto Bueno and Jason Porter from Red Hat provide detailed solutions for installing, interacting with, and using Quarkus in the development and production of microservices. The recipes in this book show midlevel to senior developers familiar with Java enterprise application development how to get started with Quarkus quickly. You'll become familiar with how Quarkus works within the wider Java ecosystem and discover ways to adapt this framework to your particular needs. You'll learn how to: Shorten the development cycle by enabling live reloading in dev mode Connect to and communicate with Kafka Develop with the reactive programming model Easily add fault tolerance to your services Build your application as a Kubernetes-ready container Ease development with OpenAPI and test a native Quarkus application

Testing Java Microservices - Alex Soto Bueno 2018-01-28

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

Mastering Software Testing with JUnit 5 - Boni Garcia 2017-10-27

A comprehensive, hands-on guide on unit testing framework for Java programming language About This Book In-depth coverage of Jupiter, the new programming and extension model provided by JUnit 5 Integration of JUnit 5 with other frameworks such as Mockito, Spring, Selenium, Cucumber, and Docker Best practices for writing meaningful Jupiter test cases Who This Book Is For This book is for Java software engineers and testers. If you are a Java developer who is keen on improving the quality of your code and building world class applications then this book is for you. Prior experience of the concepts of automated testing will be helpful. What You Will Learn The importance of software testing and its impact on software quality The options available for testing Java applications The architecture, features and extension model of JUnit 5 Writing test cases using the Jupiter programming model How to use the latest and advanced features of JUnit 5 Integrating JUnit 5 with existing third-party frameworks Best practices for writing meaningful JUnit 5 test cases Managing software testing activities in a living software project In Detail When building an application it is of utmost importance to have clean code, a productive environment and efficient systems in place. Having automated unit testing in place helps developers to achieve these goals. The JUnit testing framework is a popular choice among Java developers and has recently released a major version update with JUnit 5. This book shows you how to make use of the power of JUnit 5 to write better software. The book begins with an introduction to software quality and software testing. After that, you will see an in-depth analysis of all the features of Jupiter, the new programming and extension model provided by JUnit 5. You will learn how to integrate JUnit 5 with other frameworks such as Mockito, Spring, Selenium, Cucumber, and Docker. After the technical features of JUnit 5, the final part of this book will train you for the daily work of a software tester. You will learn best practices for writing meaningful tests. Finally, you will learn how software testing fits into the overall software development process, and sits alongside continuous integration, defect tracking, and test reporting. Style and approach The book offers definitive and comprehensive coverage of all the Unit testing concepts with JUnit and its features using several real world examples so that readers can put their learning to practice almost immediately. This book is structured in three parts: Software testing foundations (software quality and Java testing) JUnit 5 in depth (programming and extension model of JUnit 5) Software testing in practice (how to write and manage JUnit 5 tests)

Continuous Enterprise Development in Java - Andrew Lee Rubinger 2014-03-12

Learn a use-case approach for developing Java enterprise applications in a continuously test-driven fashion. With this hands-on guide, authors and JBoss project leaders Andrew Lee Rubinger and Aslak Knutsen show you how to build high-level components, from persistent storage to the user interface, using the Arquillian testing platform and several other JBoss projects and tools. Through the course of the book, you’ll build a production-ready software conference tracker called GeekSeek, using source code from GitHub. Rubinger and Knutsen demonstrate why testing is the very foundation of development—essential for ensuring that code is consumable, complete, and correct. Bootstrap an elementary Java EE project from start to finish before diving into the full-example application, GeekSeek Use both relational and NoSQL storage models to build and test GeekSeek’s data persistence layers Tackle testable business logic development and asynchronous messaging with an SMTP service Expose enterprise services as a RESTful interface, using Java EE’s JAX-RS framework Implement OAuth authentication with JBoss’s PicketLink identity management service Validate the UI by automating interaction in the browser and reading the rendered page Perform full-scale integration testing on the final deployable archive

Java Testing with Spock - Konstantinos Kapelonis 2016-03-06

Summary Java Testing with Spock teaches you how to use Spock for a wide range of testing use cases in Java. Readers new to Groovy will appreciate the succinct language tutorial that'll give you just enough Groovy to use Spock effectively. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Spock combines the features of tools like JUnit, Mockito, and JBehave into a single powerful Java testing library. With Spock, you use Groovy to write more readable and concise tests. Spock enables seamless integration testing, and with the intuitive Geb library, you can even handle functional testing of web applications. About the Book Java Testing with Spock teaches you how to use Spock for a wide range of testing use cases in Java. You'll start with a quick overview of Spock and work through writing unit tests using the Groovy language. You'll discover best practices for test design as you learn to write mocks, implement integration tests, use Spock's built-in BDD testing tools, and do functional web testing using Geb. Readers new to Groovy will appreciate the succinct language tutorial in chapter 2 that gives you just enough Groovy to use Spock effectively. What's Inside Testing with Spock from the ground up Write mocks without an external library BDD tests your business analyst can read Just enough Groovy to use Spock About the Reader Written for Java developers. Knowledge of Groovy and JUnit is helpful but not required. About the Author Konstantinos Kapelonis is a software engineer who works with Java daily. Table of Contents PART 1 FOUNDATIONS AND BRIEF TOUR OF SPOCK Introducing the Spock testing framework Groovy knowledge for Spock testing A tour of Spock functionality PART 2 STRUCTURING SPOCK TESTS Writing unit tests with Spock Parameterized tests Mocking and stubbing PART 3 SPOCK IN THE ENTERPRISE Integration and functional testing with Spock Spock features for enterprise testing

Test-Driven Java Development - Viktor Farcic 2015-08-27

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.

Microservices Best Practices for Java - Michael Hofmann 2017-03-13 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.

Working Effectively with Unit Tests - Jay Fields 2014-12-09 This book details Jay Fields' strong opinions on the best way to test, while acknowledging alternative styles and various contexts in which tests are written. Whether you prefer Jay Fields' style or not, this book will help you write better Unit Tests. From the Preface: Over a dozen years ago I read Refactoring for the first time; it immediately became my bible. While Refactoring isn't about testing, it explicitly states: If you want to refactor, the essential precondition is having solid tests. At that time, if Refactoring deemed it necessary, I unquestionably complied. That was the beginning of my quest to create productive unit tests. Throughout the 12+ years that followed reading Refactoring I made many mistakes, learned countless lessons, and developed a set of guidelines that I believe make unit testing a productive use of programmer time. This book provides a single place to examine those mistakes, pass on the lessons learned, and provide direction for those that want to test in a way that I've found to be the most productive. The book does touch on some theory and definition, but the main purpose is to show you how to take tests that are causing you pain and turn them into tests that you're happy to work with.

Effective Unit Testing - Lasse Koskela 2013-02-03 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

JUnit in Action - Petar Tahchiev 2011 "The definitive guide, not just for JUnit, but unit testing in general."--- Tyson S. Maxwell, Raytheon --

Interface-oriented Design - Kenneth Pugh 2006
Provides information on designing effective interfaces.

Hands-On Microservices - Monitoring and Testing - Dinesh Rajput 2018-10-30
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.

Next Generation Java Testing - Cédric Beust 2007-10-15
Enterprise Java developers must achieve broader, deeper test coverage, going beyond unit testing to implement functional and integration testing with systematic acceptance. Next Generation Java™ Testing introduces breakthrough Java testing techniques and TestNG, a powerful open source Java testing platform. Cédric Beust, TestNG's creator, and leading Java developer Hani Suleiman, present powerful, flexible testing patterns that will work with virtually any testing tool, framework, or language. They show how to leverage key Java platform improvements designed to facilitate effective testing, such as dependency injection and mock objects. They also thoroughly introduce TestNG, demonstrating how it overcomes the limitations of older frameworks and enables new techniques, making it far easier to test today's complex software systems. Pragmatic and results-focused, Next Generation Java™ Testing will help Java developers build more robust code for today's mission-critical environments. This book Illuminates the tradeoffs associated with testing, so you can make better decisions about what and how to test Introduces TestNG, explains its goals and features, and shows how to apply them in real-world environments Shows how to integrate TestNG with your existing code, development frameworks, and software libraries Demonstrates how to test crucial code features, such as encapsulation, state sharing, scopes, and thread safety Shows how to test application elements, including JavaEE APIs, databases, Web pages, and XML files Presents advanced techniques: testing partial failures, factories, dependent testing, remote invocation, cluster-based test farms, and more Walks through installing and using TestNG plug-ins for Eclipse, and IDEA Contains extensive code examples Whether you use TestNG, JUnit, or another testing framework, the testing design patterns presented in this book will show you how to improve your tests by giving you concrete advice on how to make your code and your design more testable.

Java Testing and Design - Frank Cohen 2004
Shows how to understand what application you want to write, what strategies are likely to get you there, and then how to measure your level of success. This book teaches you a method to build production-worthy, scalable, and well performing Web-enabled applications.

Microservices in Action - Morgan Bruce 2018-10-03
Summary Microservices in Action is a practical book about building and deploying microservice-based applications. Written for developers and architects with a solid grasp of service-oriented development, it tackles the challenge of putting microservices into production. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Invest your time in designing great applications, improving infrastructure, and making the most out of your dev teams. Microservices are easier to write, scale, and maintain than traditional enterprise applications because they're built as a system of independent components. Master a few important new patterns and processes, and you'll be ready to develop, deploy, and run production-quality microservices. About the Book Microservices in Action teaches you how to write and maintain microservice-based applications. Created with day-to-day development in mind, this informative guide immerses you in real-world use cases from design to deployment. You'll discover how microservices enable an efficient continuous delivery pipeline, and explore examples using Kubernetes, Docker, and Google Container Engine. What's inside An overview of microservice architecture Building a delivery pipeline Best practices for designing multi-service transactions and queries Deploying with containers Monitoring your microservices About the Reader Written for intermediate developers familiar with enterprise architecture and cloud platforms like AWS and GCP. About the Author Morgan Bruce and Paulo A. Pereira are experienced engineering leaders. They work daily with microservices in a production environment, using the techniques detailed in this book. Table of Contents PART 1 - The lay of the land Designing and running microservices Microservices at SimpleBank PART 2 - Design Architecture of a microservice application Designing new features Transactions and queries in microservices Designing reliable services Building a reusable microservice framework PART 3 - Deployment Deploying microservices Deployment with containers and schedulers Building a delivery pipeline for microservices PART 4 - Observability and ownership Building a monitoring system Using logs and traces to understand behavior Building microservice teams

Microservices Patterns - Chris Richardson 2018-10-27
"A comprehensive overview of the challenges teams face when moving to microservices, with industry-tested solutions to these problems." - Tim Moore, Lightbend 44 reusable patterns to develop and deploy reliable production-quality microservices-based applications, with worked examples in Java Key Features 44 design patterns for building and deploying microservices applications Drawing on decades of unique experience from author and microservice architecture pioneer Chris Richardson A pragmatic approach to the benefits and the drawbacks of microservices architecture Solve service decomposition, transaction management, and inter-service communication Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About The Book Microservices Patterns teaches you 44 reusable patterns to reliably develop and deploy production-quality microservices-based applications. This invaluable set of design patterns builds on decades of distributed system experience, adding new patterns for composing services into systems that scale and perform under real-world conditions. More than just a patterns catalog, this practical guide with worked examples offers industry-tested advice to help you design, implement, test, and deploy your microservices-based application. What You Will Learn How (and why!) to use microservices architecture Service decomposition strategies Transaction management and querying patterns Effective testing strategies Deployment patterns This Book Is Written For Written for enterprise developers familiar with standard enterprise application architecture. Examples are in Java. About The Author Chris Richardson is a Java Champion, a JavaOne rock star, author of Manning’s POJOs in Action, and creator of the original CloudFoundry.com. Table of Contents Escaping monolithic hell

Decomposition strategies Interprocess communication in a microservice architecture Managing transactions with sagas Designing business logic in a microservice architecture Developing business logic with event sourcing Implementing queries in a microservice architecture External API patterns Testing microservices: part 1 Testing microservices: part 2 Developing production-ready services Deploying microservices Refactoring to microservices

Pragmatic Unit Testing in Java 8 with JUnit - Jeff Langr 2015-03-09
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!

Spring Microservices - Rajesh RV 2016-06-28
Build scalable microservices with Spring, Docker, and Mesos About This Book Learn how to efficiently build and implement microservices in Spring, and how to use Docker and Mesos to push the boundaries of what you thought possible Examine a number of real-world use cases and hands-on code examples. Distribute your microservices in a completely new way Who This Book Is For If you are a Spring developers and want to build cloud-ready, internet-scale applications to meet modern business demands, then this book is for you Developers will understand how to build simple Restful services and organically grow them to truly enterprise grade microservices ecosystems. What You Will Learn Get to know the microservices development lifecycle process See how to implement microservices governance Familiarize yourself with the microservices architecture and its benefits Use Spring Boot to develop microservices Find out how to avoid common pitfalls when developing microservices Be introduced to end-to-end microservices written in Spring Framework and Spring Boot In Detail The Spring Framework is an application framework and inversion of the control container for the Java platform. The framework's core features can be used by any Java application, but there are extensions to build web applications on top of the Java EE platform. This book will help you implement the microservice architecture in Spring Framework, Spring Boot, and Spring Cloud. Written to the latest specifications of Spring, you'll be able to build modern, Internet-scale Java applications in no time. We would start off with the guidelines to implement responsive microservices at scale. We will then deep dive into Spring Boot, Spring Cloud, Docker, Mesos, and Marathon. Next you will understand how Spring Boot is used to deploy autonomous services, server-less by removing the need to have a heavy-weight application server. Later you will learn how to go further by deploying your microservices to Docker and manage it with Mesos. By the end of the book, you'll will gain more clarity on how to implement microservices using Spring Framework and use them in Internet-scale deployments through real-world examples. Style and approach The book follows a step by step approach on how to develop microservices using Spring Framework, Spring Boot, and a set of Spring Cloud components that will help you scale your applications.

SRE with Java Microservices - Jonathan Schneider 2020-08-27
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 - Shekhar Gulati 2017-11-10
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.

Beginning Bazel - P.J. McNerney 2019-12-17
Discover Bazel, a new build and software test set of tools for today's programmers and developers. This book shows you how to speed up your builds and tests, and how to use Bazel in the context of your favorite programming language. You'll see that the languages and SDKs supported include Java, Android, iOS, and Go. What You Will LearnUse Bazel as a build toolTest software with Bazel Work with Java, C++, Android, iOS, Go, and other programming languagesRun Bazel on Linux, macOS, and WindowsScale and extend Bazel to other languages and platforms Who This Book Is For Experienced programmers looking for alternative build/test tools.

Mastering Microservices with Java 9 - Sourabh Sharma 2017-12-07
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 Registeration 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.

Testing Java Microservices - Jason Porter 2018-08-03
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 - Brandon Byars 2018-12-01
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

Test-Driven Java Development, Second Edition - Viktor Farcic 2018-03-23
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.

Cloud Native Microservices with Spring and Kubernetes - Rajiv Srivastava 2021-07-03
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

Mastering Spring Cloud - Piotr Mińkowski 2018-04-26

Learn how to build, test, secure, deploy, and efficiently consume services across distributed systems. Key Features - Explore the wealth of options provided by Spring Cloud for wiring service dependencies in microservice systems. - Create microservices utilizing Spring Cloud's Netflix OSS - Architect your cloud-native data using Spring Cloud. Book Description Developing, deploying, and operating cloud applications should be as easy as local applications. This should be the governing principle behind any cloud platform, library, or tool. Spring Cloud–an open-source library–makes it easy to develop JVM applications for the cloud. In this book, you will be introduced to Spring Cloud and will master its features from the application developer's point of view. This book begins by introducing you to microservices for Spring and the available feature set in Spring Cloud. You will learn to configure the Spring Cloud server and run the Eureka server to enable service registration and discovery. Then you will learn about techniques related to load balancing and circuit breaking and utilize all features of the Feign client. The book now delves into advanced topics where you will learn to implement distributed tracing solutions for Spring Cloud and build message-driven microservice architectures. Before running an application on Docker container s, you will master testing and securing techniques with Spring Cloud. What you will learn - Abstract Spring Cloud's feature set - Create microservices utilizing Spring Cloud's Netflix OSS - Create synchronous API microservices based on a message-driven architecture. - Explore advanced topics such as distributed tracing, security, and contract testing. - Manage and deploy applications on the production environment Who this book is for This book appeals to developers keen to take advantage of Spring cloud, an open source library which helps developers quickly build distributed systems. Knowledge of Java and Spring Framework will be helpful, but no prior exposure to Spring Cloud is required.

Hands-On Microservices – Monitoring and Testing - Dinesh Rajput 2018-10-30

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.

The Art of Unit Testing - Roy Osherove 2013-11-24

Summary The Art of Unit Testing, Second Edition guides you step by step from writing your first simple tests to developing robust test sets that are maintainable, readable, and trustworthy. You'll master the foundational ideas and quickly move to high-value subjects like mocks, stubs, and isolation, including frameworks such as Moq, FakeItEasy, and Typemock Isolator. You'll explore test patterns and organization, working with legacy code, and even "untestable" code. Along the way, you'll learn about integration testing and techniques and tools for testing databases and other technologies. About this Book You know you should be unit testing, so why aren't you doing it? If you're new to unit testing, if you find unit testing tedious, or if you're just not getting enough payoff for the effort you put into it, keep reading. The Art of Unit Testing, Second Edition guides you step by step from writing your first simple unit tests to building complete test sets that are maintainable, readable, and trustworthy. You'll move quickly to more complicated subjects like mocks and stubs, while learning to use isolation (mocking) frameworks like Moq, FakeItEasy, and Typemock Isolator. You'll explore test patterns and organization, refactor code applications, and learn how to test "untestable" code. Along the way, you'll learn about integration testing and techniques for testing with databases. The examples in the book use C#, but will benefit anyone using a statically typed language such as Java or C++. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. What's Inside Create readable, maintainable, trustworthy tests Fakes, stubs, mock objects, and isolation (mocking) frameworks Simple dependency injection techniques Refactoring legacy code About the Author Roy Osherove has been coding for over 15 years, and he consults and trains teams worldwide on the gentle art of unit testing and test-driven development. His blog is at ArtOfUnitTesting.com. Table of Contents PART 1 GETTING STARTED The basics of unit testing A first unit test PART 2 CORE TECHNIQUES Using stubs to break dependencies Interaction testing using mock objects Isolation (mocking) frameworks Digging deeper into isolation frameworks PART 3 THE TEST CODE Test hierarchies and organization The pillars of good unit tests PART 4 DESIGN AND PROCESS Integrating unit testing into the organization Working with legacy code Design and testability