Kotlin Programming Cookbook Explore More Than 100 Recipes That Show How To Build Robust Le And Web Applications With Kotlin Spring Boot And Android

Android development is so vast that mastering this mobile operating system can seem daunting--particularly now that Kotlin has become the official Android development language. This book helps Android developers make the transition from Java to Kotlin and shows them how Kotlin provides a true advantage for gaining control over asynchronous computations. By focusing specifically on coroutines, a new asynchronous programming paradigm, this book describes how you can achieve structured concurrency with Kotlin. Authors Pierre-Oliver Laurence, Amanda Hinchman-Dominguez, and Mike Dunn provide implementations of the most common tasks in native Android development. The basics of the Kotlin language and the Android architecture Data transformations in Kotlin Android fundamentals in memory and threading Concurrency with coroutines Channels and flows Android profiling tools
Build optimized applications in Kotlin by learning how to make use of the standard library features the smart way Key Features Get the most out of the Kotlin library to develop high-quality portable applications Explore the powerful support for data processing and I/O operations Discover ways to enhance your Android application development Book Description Given the verbosity of Java, developers have turned to Kotlin for effective software development. The Kotlin standard library provides vital tools that make day-to-day Kotlin programming easier. This library features the core attributes of the language, such as algorithmic problems, design patterns, data processing, and working with files and data streams. The recipes in this book offer coding solutions that can be readily executed. The book covers various topics related to data processing, I/O operations, and collections transformation. We'll walk through effective design patterns in Kotlin and you'll understand how coroutines add new features to JavaScript. As you make your way through the chapters, you'll learn how to implement clean, reusable functions and scalable interfaces containing default implementations. In the concluding chapters, we'll provide recipes on functional programming concepts, such as lambdas, monads, functors, and Kotlin scoping functions. By the end of the book, you'll be able to address a range of problems that Kotlin developers face by implementing easy-to-follow solutions. What you will learn Work with ranges, progressions, and sequences in use cases Add new functionalities to current classes with Kotlin extensions Understand elements such as lambdas, closures, and monads Build a REST API consumer with Retrofit and a coroutine adapter Discover useful tips and solutions for making your Android projects Explore the benefits of standard library features Who this book is for This book is for software developers who are familiar with Kotlin's basics and want to discover more advanced features and concepts, especially those provided by the Kotlin standard library. It's also ideal for experienced software developers who are familiar with the functional programming paradigm and other programming languages who want to switch to Kotlin. It will also help Java developers switch to Kotlin and integrate it into existing Java Virtual Machine (JVM) projects.
Kotlin is a powerful and pragmatic language, but it's not enough to know about its features. We also need to know when they should be used and in what way. This book is a guide for Kotlin developers on how to become excellent Kotlin developers. It presents and explains in-depth the best practices for Kotlin development. Each item is presented as a clear rule of thumb, supported by detailed explanations and practical examples.
Kotlin Programming CookbookExplore more than 100 recipes that show how to build robust mobile and web applications with Kotlin, Spring Boot, and AndroidPackt Publishing Ltd
Master the concise and expressive power of a pragmatic multi-paradigm language for JVM,

Android and beyond DESCRIPTION The purpose of this book is to guide a reader through the capabilities of the Kotlin language and give examples of using it for development of various applications be it desktop, mobile or Web. Although our primary focus is on the JVM and Android, the knowledge we're sharing here to various extents applies to other Kotlin-supported platforms such as JavaScript, native and even multi-platform applications. The book starts with an introduction to language and its ecosystem that will give you an understanding of the key ideas behind Kotlin design, introduce you to the Kotlin tooling and present you the basic language syntax and constructs. In the next chapters we'll get to know the multi-paradigm nature of Kotlin which allows you to create powerful abstractions by combining various aspects of functional and object-oriented programming. We'll talk about using common Kotlin APIs such as the standard library, reflection, and coroutine-based concurrency as well as the means for creating your own flexible APIs based on domain-specific languages. In the concluding chapters, we'll give examples of using Kotlin for more specialized tasks such as testing, building Android applications, Web development and creating microservices. KEY FEATURES - Language fundamentals - Object-oriented and functional programming with Kotlin - Kotlin standard library - Building domain-specific languages - Using Kotlin for Web development - Kotlin for Android platform - Coroutine-based concurrency WHAT WILL YOU LEARN By the end of the book, you'll obtain a thorough knowledge of all basic aspects of Kotlin programming. You'll be able to create a flexible and reusable code by taking advantage of object-oriented and functional features, use Kotlin standard library, compose your own domain-specific languages, write asynchronous code using Kotlin coroutines library as well. You'll also have a basic understanding of using Kotlin for writing test code, web applications and Android development. This knowledge will also give you a solid foundation for deeper learning of related development platforms, tools and frameworks. WHO THIS BOOK IS FOR The book is primarily aimed at developers familiar with Java and JVM and willing to get a firm understanding of Kotlin while having little to no experience in that language. Discussion of various language features will be accompanied, if deemed necessary, by comparisons with their Java's analogs which should simplify Java-to-Kotlin transition. Most of the material, however, is rather Java-agnostic and should be beneficial even without prior Java knowledge. In general, experience in object-oriented or functional paradigm is a plus, but not required. Table of Contents 10. Annotations and Reflection 11. Domain-Specific Languages 12. Java Interoperability 13. Concurrency 14. Testing with Kotlin 15. Android Applications 16. Web Development with Ktor 17. Building Microservices

Teach yourself programming starting with the basics and progressing to a series of exciting projects using Kotlin, one of today's hottest programming languages. This book starts with the absolute basics and then introduces just enough syntax to get into some fascinating projects. These include text processing: a statistical analysis of Jane Austen's novels, solving anagrams, and working with palindromes; image processing: cropping and resizing images, and pixel transformation; and computer vision: finding digits, parsing images, and reading speed signs. The projects are developed in tiny steps and complete solutions are provided. Some of these projects include core data science concepts, giving you skills in one of the most important areas of modern programming. Along the way you'll cover functional programming, object-oriented programming (OOP), refactoring, and writing unit tests. After reading Learn to Program with Kotlin, you'll come away with practical insights and code to get you started right away with programming using Kotlin for your own projects. What You Will Learn Gain the basics of Kotlin using the IntelliJ Java IDE Implement OOP with Kotlin along with unit testing and code refactoring using a series of text-related projects Harness functional programming with Kotlin by building an image-processing library Write software to locate and read speed signs in photos Who Is This Book For Anyone who wants to learn how to program or code from scratch. Also great for experienced programmers who want to know more about Kotlin.

Build, secure, and deploy real-world serverless applications in AWS and peek into the serverless cloud offerings from Azure, Google Cloud, and IBM Cloud Key Features Build serverless applications with AWS Lambda, AWS CloudFormation and AWS CloudWatch Perform data analytics and natural language processing(NLP)on the AWS serverless platform Explore various design patterns and best practices involved in serverless computing Book Description Managing physical servers will be a thing of the past once you're able to harness the power of serverless computing. If you're already prepped with the basics of serverless computing, Serverless Programming Cookbook will help you take the next step ahead. This recipe-based guide provides solutions to problems you might face while building serverless applications. You'll begin by setting up Amazon Web Services (AWS), the primary cloud provider used for most recipes. The next set of recipes will cover various components to build a Serverless application including REST APIs, database, user management, authentication, web hosting, domain registration, DNS management, CDN, messaging, notifications and monitoring. The book also introduces you to the latest technology trends such as Data Streams, Machine Learning and NLP. You will also see patterns and practices for using various services in a real world application. Finally, to broaden your understanding of Serverless computing, you'll also cover getting started guides for other cloud providers such as Azure, Google Cloud Platform and IBM cloud. By the end of this book, you'll have acquired the skills you need to build serverless applications efficiently using various cloud offerings. What you will learn Serverless computing in AWS and explore services with other clouds Develop full-stack apps with API Gateway, Cognito, Lambda and DynamoDB Web hosting with S3, CloudFront, Route 53 and AWS Certificate Manager SQS and SNS for effective communication between microservices Monitoring and troubleshooting with CloudWatch logs and metrics Explore Kinesis Streams, Amazon ML models and Alexa Skills Kit Who this book is for For developers looking for practical solutions to common problems while building a serverless application, this book provides helpful recipes. To get started with this intermediate-level book, knowledge of basic programming is a must.

What will you learn from this book? Head First Kotlin is a complete introduction to coding in Kotlin. This hands-on book helps you learn the Kotlin language with a unique method that goes beyond syntax and how-to manuals and teaches you how to think like a great Kotlin developer. You'll learn everything from language fundamentals to collections, generics, lambdas, and higher-order functions. Along the way, you'll get to play with both object-oriented and functional programming. If you want to really understand Kotlin, this is the book for you. Why does this book look so different? Based on the latest research in cognitive science and learning theory, Head First Kotlin uses a visually rich format to engage your mind rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multisensory learning experience is designed for the way your brain really works.

It takes a week to travel the 8,000 miles overland from Java to Kotlin. If you're an experienced Java developer who has tried the Kotlin language, you were probably productive in about the same time. You'll have found that they do things differently in Kotlin, though. Nullability is important, collections are different, and classes are final by default. Kotlin is more functional, but what does that mean, and how should it change the way that you program? And what about all that Java code that you still have to support? Your tour guides Duncan and Nat first made the trip in 2015, and they've since helped many teams and individuals follow in their footsteps. Travel with them as they break the route down into legs like Optional to Nullable, Beans to Values, and Open to Sealed Classes. Each explains a key concept and then shows how to refactor production Java to idiomatic Kotlin, gradually and safely, while maintaining interoperability. The resulting code is simpler, more expressive, and easier to change. By the end of the journey, you'll be confident in refactoring Java to Kotlin, writing Kotlin from scratch,

and managing a mixed language codebase as it evolves over time.

Delve into the world of Kotlin and learn to build powerful Android and web applications Key Features Learn the fundamentals of Kotlin to write high-quality code Test and debug your applications with the different unit testing frameworks in Kotlin Explore Kotlin's interesting features such as null safety, reflection, and annotations Book Description Kotlin is a general-purpose programming language used for developing cross-platform applications. Complete with a comprehensive introduction and projects covering the full set of Kotlin programming features, this book will take you through the fundamentals of Kotlin and get you up to speed in no time. Learn Kotlin Programming covers the installation, tools, and how to write basic programs in Kotlin. You'll learn how to implement object-oriented programming in Kotlin and easily reuse your program or parts of it. The book explains DSL construction, serialization, null safety aspects, and type parameterization to help you build robust apps. You'll learn how to destructure expressions and write your own. You'll then get to grips with building scalable apps by exploring advanced topics such as testing, concurrency, microservices, coroutines, and Kotlin DSL builders. Furthermore, you'll be introduced to the kotlinx.serialization framework, which is used to persist objects in JSON, Protobuf, and other formats. By the end of this book, you'll be well versed with all the new features in Kotlin and will be able to build robust applications skillfully. What you will learn Explore the latest Kotlin features in order to write structured and readable object-oriented code Get to grips with using lambdas and higher-order functions Write unit tests and integrate Kotlin with Java code Create real-world apps in Kotlin in the microservices style Use Kotlin extensions with the Java collections library Uncover destructuring expressions and find out how to write your own Understand how Java-nullable code can be integrated with Kotlin features Who this book is for If you're a beginner or intermediate programmer who wants to learn Kotlin to build applications, this book is for you. You'll also find this book useful if you're a Java developer interested in switching to Kotlin. Summary Maintaining poor legacy code, interpreting cryptic comments, and writing the same boilerplate over and over can suck the joy out of your life as a Java developer. Fear not! There's hope! Kotlin is an elegant JVM language with modern features and easy integration with Java. The Joy of Kotlin teaches you practical techniques to improve abstraction and design, to write comprehensible code, and to build maintainable bug-free applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Your programming language should be expressive, safe, flexible, and intuitive, and Kotlin checks all the boxes! This elegant JVM language integrates seamlessly with Java, and makes it a breeze to switch between OO and functional styles of programming. It's also fully supported by Google as a first-class Android language. Master the powerful techniques in this unique book, and you'll be able to take on new challenges with increased confidence and skill. About the Book The Joy of Kotlin teaches you to write comprehensible, easy-to-maintain, safe programs with Kotlin. In this expert guide, seasoned engineer Pierre-Yves Saumont teaches you to approach common programming challenges with a fresh, FP-inspired perspective. As you work through the many examples, you'll dive deep into handling errors and data properly, managing state, and taking advantage of laziness. The author's down-to-earth examples and experience-driven insights will make you a better—and more joyful—developer! What's inside Programming with functions Dealing with optional data Safe handling of errors and exceptions Handling and sharing state mutation About the Reader Written for intermediate Java or Kotlin developers. About the Author Pierre-Yves Saumont is a senior software engineer at Alcatel-Submarine Networks. He's the author of Functional Programming in Java (Manning, 2017). Table of Contents Making programs safer Functional programming in Kotlin: An overview Programming with functions Recursion, corecursion, and memoization Data handling with lists Dealing with optional data Handling errors and exceptions Advanced list handling Working with laziness More data handling with

trees Solving problems with advanced trees Functional input/output Sharing mutable states with actors Solving common problems functionally

Learn how to apply Functional Programming with Kotlin to real-life projects with popular libraries like Arrow. Key Features Focus on the functional aspects of Kotlin and identify the advantages that functional programming brings to the table and the associated coding benefits. Implement common functional programming design patterns and techniques. Learn to combine OOP and Reactive Programming with Functional Programming and how RxKotlin and funkTionale can help you implementing Functional Programming in Kotlin Book Description Functional programming makes your application faster, improves performance, and increases your productivity. Kotlin supports many of the popular and advanced functional features of functional languages. This book will cover the A-Z of functional programming in Kotlin. This book bridges the language gap for Kotlin developers by showing you how to create and consume functional constructs in Kotlin. We also bridge the domain gap by showing how functional constructs can be applied in business scenarios. We'll take you through lambdas, pattern matching, immutability, and help you develop a deep understanding of the concepts and practices of functional programming. If you want learn to address problems using Recursion, Koltin has support for it as well. You'll also learn how to use the funKtionale library to perform currying and lazy programming and more. Finally, you'll learn functional design patterns and techniques that will make you a better programmer.By the end of the book, you will be more confident in your functional programming skills and will be able to apply them while programming in Kotlin. What you will learn Learn the Concepts of Functional Programming with Kotlin Discover the Coroutines in Kotlin Uncover Using funkTionale plugin Learn Monads, Functiors and Applicatives Combine Functional Programming with OOP and Reactive Programming Uncover Using Monads with funkTionale Discover Stream Processing Who this book is for Kotlin developers who have no functional programming experience, will benefit from this book.

Learn how to make Android development much faster using a variety of Kotlin features, from basics to advanced, to write better quality code. About This Book Leverage specific features of Kotlin to ease Android application development Write code based on both object oriented and functional programming to build robust applications Filled with various practical examples so you can easily apply your knowledge to real world scenarios Identify the improved way of dealing with common Java patterns Who This Book Is For This book is for developers who have a basic understanding of Java language and have 6-12 months of experience with Android development and developers who feel comfortable with OOP concepts. What You Will Learn Run a Kotlin application and understand the integration with Android Studio Incorporate Kotlin into new/existing Android Java based project Learn about Kotlin type system to deal with null safety and immutability Define various types of classes and deal with properties Define collections and transform them in functional way Define extensions, new behaviours to existing libraries and Android framework classes Use generic type variance modifiers to define subtyping relationship between generic types Build a sample application In Detail Nowadays, improved application development does not just mean building better performing applications. It has become crucial to find improved ways of writing code. Kotlin is a language that helps developers build amazing Android applications easily and effectively. This book discusses Kotlin features in context of Android development. It demonstrates how common examples that are typical for Android development, can be simplified using Kotlin. It also shows all the benefits, improvements and new possibilities provided by this language. The book is divided in three modules that show the power of Kotlin and teach you how to use it properly. Each module present features in different levels of advancement. The first module covers Kotlin basics. This module will lay a firm foundation for the rest of the chapters so you are able to read and understand most of the Kotlin code. The next module dives deeper into the building

blocks of Kotlin, such as functions, classes, and function types. You will learn how Kotlin brings many improvements to the table by improving common Java concepts and decreasing code verbosity. The last module presents features that are not present in Java. You will learn how certain tasks can be achieved in simpler ways thanks to Kotlin. Through the book, you will learn how to use Kotlin for Android development. You will get to know and understand most important Kotlin features, and how they can be used. You will be ready to start your own adventure with Android development with Kotlin.

Familiarize yourself with all of Kotlin's features with this in-depth guide About This Book Get a thorough introduction to Kotlin Learn to use Java code alongside Kotlin without any hiccups Get a complete overview of null safety, Generics, and many more interesting features Who This Book Is For The book is for existing Java developers who want to learn more about an alternative JVM language. If you want to see what Kotlin has to offer, this book is ideal for you. What You Will Learn Use new features to write structured and readable object-oriented code Find out how to use lambdas and higher order functions to write clean, reusable, and simple code Write unit tests and integrate Kotlin tests with Java code in a transitioning code base Write real-world production code in Kotlin in the style of microservices Leverage Kotlin's extensions to the Java collections library Use destructuring expressions and find out how to write your own Write code that avoids null pointer errors and see how Java-nullable code can integrate with features in a Kotlin codebase Discover how to write functions in Kotlin, see the new features available, and extend existing libraries Learn to write an algebraic data types and figure out when they should be used In Detail Kotlin has been making waves ever since it was open sourced by JetBrains in 2011; it has been praised by developers across the world and is already being adopted by companies. This book provides a detailed introduction to Kotlin that shows you all its features and will enable you to write Kotlin code to production. We start with the basics: get you familiar with running Kotlin code, setting up, tools, and instructions that you can use to write basic programs. Next, we cover object oriented code: functions, lambdas, and properties – all while using Kotlin's new features. Then, we move on to null safety aspects and type parameterization. We show you how to destructure expressions and even write your own. We also take you through important topics like testing, concurrency, microservices, and a whole lot more. By the end of this book you will be able to compose different services and build your own applications. Style and approach An easy to follow guide that covers the full set of features in Kotlin programming.

Write More Robust and Maintainable Android Apps with Kotlin "Peter Sommerhoff takes a practical approach to teaching Kotlin by providing a larger set of code listings that demonstrate language features and by guiding readers through the development of two Android apps step by step. . . . Peter finds a good balance between what is essential and what can be left to readers, so this book is an efficient yet comprehensible source for starting programming with Kotlin." –Bernhard Rumpe, Professor of Software Engineering, RWTH Aachen University The Kotlin language brings state-of-the-art programming techniques and constructs to Android development. Kotlin for Android App Development will help you rapidly understand Kotlin's principles and techniques, apply Kotlin in production app development, integrate Kotlin with existing Java code, and plan a migration to Kotlin, if you choose. If you have at least basic programming experience (with any language), Peter Sommerhoff's well-crafted overview and examples will help you get quickly up-to-speed with the Kotlin language, its constructs, and its advanced functional and object-oriented capabilities. Once you've mastered these foundations, Sommerhoff walks you through two complete app development projects, introducing best practices and emerging patterns for writing code that's robust, concise, readable, and highly performant. Understand Kotlin's goals, principles, advantages, design, and constructs Take full advantage of functional programming in the Kotlin environment Write more concise and reusable code using Kotlin's object-oriented features Interoperate with

existing Java code, and plan a migration to Kotlin Use coroutines to efficiently handle concurrency Capture data via third-party APIs, map it to internal data representations, and present it to users Master best practices for architecting Kotlin Android apps Improve productivity and readability by creating simple domain-specific languages in Kotlin

Learn how to implement Reactive Programming paradigms with Kotlin, and apply them to web programming with Spring Framework 5.0 and in Android Application Development. About This Book Learn how to solve blocking user experience with Reactive Programming and get deep insights into RxKotlin Integrate Reactive Kotlin with Spring and build fantastic Android Apps with RxKotlin and RxAndroid Build reactive architectures that reduce complexity throughout the development process and make your apps(web and Android) scalable Who This Book Is For This book is for Kotlin developers who would like to build fault-tolerant, scalable, and distributed systems. A basic knowledge of Kotlin is required, but no prior knowledge of reactive programming. What You Will Learn Learn about reactive programming paradigms and how reactive programming can improve your existing projects Gain in-depth knowledge in RxKotlin 2.0 and the ReactiveX Framework Use RxKotlin with Android Create your own custom operators in RxKotlin Use Spring Framework 5.0 with Kotlin Use the reactor-kotlin extension Build Rest APIs with Spring,Hibernate, and RxKotlin Use testSubscriber to test RxKotlin applications Use backpressure management and Flowables In Detail In today's app-driven era, when programs are asynchronous, and responsiveness is so vital, reactive programming can help you write code that's more reliable, easier to scale, and better-performing. Reactive programming is revolutionary. With this practical book, Kotlin developers will first learn how to view problems in the reactive way, and then build programs that leverage the best features of this exciting new programming paradigm. You will begin with the general concepts of Reactive programming and then gradually move on to working with asynchronous data streams. You will dive into advanced techniques such as manipulating time in data-flow, customizing operators and provider and how to Use the concurrency model to control asynchronicity of code and process event handlers effectively. You will then be introduced to functional reactive programming and will learn to apply FRP in practical use cases in Kotlin. This book will also take you one step forward by introducing you to spring 5 and spring boot 2 using Kotlin. By the end of the book, you will be able to build real-world applications with reactive user interfaces as well as you'll learn to implement reactive programming paradigms in Android. Style and Approach Loaded with numerous code examples and real-life projects, this book helps you delve into Reactive Programming with Kotlin, and apply it to real-world Spring-web and Android projects, thus making all your apps reactive.

Programmers don't just use Kotlin, they love it. Even Google has adopted it as a first-class language for Android development. With Kotlin, you can intermix imperative, functional, and object-oriented styles of programming and benefit from the approach that's most suitable for the problem at hand. Learn to use the many features of this highly concise, fluent, elegant, and expressive statically typed language with easy-to-understand examples. Learn to write easy-to-maintain, high-performing JVM and Android applications, create DSLs, program asynchrony, and much more. Kotlin is a highly concise, elegant, fluent, and expressive statically typed multi-paradigm language. It is one of the few languages that compiles down to both Java bytecode and JavaScript. You can use it to build server-side, front-end, and Android applications. With Kotlin, you need less code to accomplish your tasks, while keeping the code type-safe and less prone to error. If you want to learn the essentials of Kotlin, from the fundamentals to more advanced concepts, you've picked the right book. Fire up your favorite IDE and practice hundreds of examples and exercises to sharpen your Kotlin skills. Learn to build standalone small programs to run as scripts, create type safe code, and then carry that knowledge forward to create fully object-oriented and functional style code that's easier to extend. Learn how to program with elegance but without compromising efficiency or performance, and how to use

metaprogramming to build highly expressive code and create internal DSLs that exploit the fluency of the language. Explore coroutines, program asynchrony, run automated tests, and intermix Kotlin with Java in your enterprise applications. This book will help you master one of the few languages that you can use for the entire full stack - from the server to mobile devices - to create performant, concise, and easy to maintain applications. What You Need: To try out the examples in the book you'll need a computer with Kotlin SDK, JDK, and a text editor or a Kotlin IDE installed in it.

Learn everything you need to know about object-oriented programming with the latest features of Kotlin 1.3 Key Features A practical guide to understand objects and classes in Kotlin Learn to write asynchronous, non-blocking codes with Kotlin coroutines Explore Encapsulation, Inheritance, Polymorphism, and Abstraction in Kotlin Book Description Kotlin is an object-oriented programming language. The book is based on the latest version of Kotlin. The book provides you with a thorough understanding of programming concepts, object-oriented programming techniques, and design patterns. It includes numerous examples, explanation of concepts and keynotes. Where possible, examples and programming exercises are included. The main purpose of the book is to provide a comprehensive coverage of Kotlin features such as classes, data classes, and inheritance. It also provides a good understanding of design pattern and how Kotlin syntax works with object-oriented techniques. You will also gain familiarity with syntax in this book by writing labeled for loop and when as an expression. An introduction to the advanced concepts such as sealed classes and package level functions and coroutines is provided and we will also learn how these concepts can make the software development easy. Supported libraries for serialization, regular expression and testing are also covered in this book. By the end of the book, you would have learnt building robust and maintainable software with object oriented design patterns in Kotlin. What you will learn Get an overview of the Kotlin programming language Discover Object-oriented programming techniques in Kotlin Understand Object-oriented design patterns Uncover multithreading by Kotlin way Understand about arrays and collections Understand the importance of object-oriented design patterns Understand about exception handling and testing in OOP with Kotlin Who this book is for This book is for programmers and developers who wish to learn Object-oriented programming principles and apply them to build robust and scalable applications. Basic knowledge in Kotlin programming is assumed

Build smart, efficient, and fast enterprise-grade web implementation of the microservices architecture that can be easily scaled. Key Features Write easy-to-maintain lean and clean code with Kotlin for developing better microservices Scale your Microserivces in your own cloud with Docker and Docker Swarm Explore Spring 5 functional reactive web programming with Spring WebFlux Book Description With Google's inclusion of first-class support for Kotlin in their Android ecosystem, Kotlin's future as a mainstream language is assured. Microservices help design scalable, easy-to-maintain web applications; Kotlin allows us to take advantage of modern idioms to simplify our development and create high-quality services. With 100% interoperability with the JVM, Kotlin makes working with existing Java code easier. Well-known Java systems such as Spring, Jackson, and Reactor have included Kotlin modules to exploit its language features. This book guides the reader in designing and implementing services, and producing production-ready, testable, lean code that's shorter and simpler than a traditional Java implementation. Reap the benefits of using the reactive paradigm and take advantage of non-blocking techniques to take your services to the next level in terms of industry standards. You will consume NoSQL databases reactively to allow you to create high-throughput microservices. Create cloud-native microservices that can run on a wide range of cloud providers, and monitor them. You will create Docker containers for your microservices and scale them. Finally, you will deploy your microservices in OpenShift Online. What you will learn Understand microservice architectures and principles Build microservices in Kotlin using

Spring Boot 2.0 and Spring Framework 5.0 Create reactive microservices that perform non-blocking operations with Spring WebFlux Use Spring Data to get data reactively from MongoDB Test effectively with JUnit and Kotlin Create cloud-native microservices with Spring Cloud Build and publish Docker images of your microservices Scaling microservices with Docker Swarm Monitor microservices with JMX Deploy microservices in OpenShift Online Who this book is for If you are a Kotlin developer with a basic knowledge of microservice architectures and now want to effectively implement these services on enterprise-level web applications, then this book is for you

Kotlin is a statically typed programming language designed to interoperate with Java and fully supported by Google on the Android operating system. Based on Big Nerd Ranch's popular Kotlin Essentials course, this guide shows you how to work effectively with the Kotlin programming language through hands-on examples and clear explanations of key Kotlin concepts and foundational APIs. Written for Kotlin 1.2, this book will also introduce you to JetBrains' IntelliJ IDEA development environment. Whether you are an experienced Android developer looking for modern features beyond what Java offers or a new developer ready to learn your first programming language, the authors will guide you from first principles to advanced usage of Kotlin. By the end of this book, you will be empowered to create reliable, concise applications in Kotlin.

Summary Kotlin in Action guides experienced Java developers from the language basics of Kotlin all the way through building applications to run on the JVM and Android devices. Foreword by Andrey Breslav, Lead Designer of Kotlin. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Developers want to get work done - and the less hassle, the better. Coding with Kotlin means less hassle. The Kotlin programming language offers an expressive syntax, a strong intuitive type system, and great tooling support along with seamless interoperability with existing Java code, libraries, and frameworks. Kotlin can be compiled to Java bytecode, so you can use it everywhere Java is used, including Android. And with an effi cient compiler and a small standard library, Kotlin imposes virtually no runtime overhead. About the Book Kotlin in Action teaches you to use the Kotlin language for production-quality applications. Written for experienced Java developers, this example-rich book goes further than most language books, covering interesting topics like building DSLs with natural language syntax. The authors are core Kotlin developers, so you can trust that even the gnarly details are dead accurate. What's Inside Functional programming on the JVM Writing clean and idiomatic code Combining Kotlin and Java Domain-specific languages About the Reader This book is for experienced Java developers. About the Author Dmitry Jemerov and Svetlana Isakova are core Kotlin developers at JetBrains. Table of Contents PART 1 - INTRODUCING KOTLIN Kotlin: what and why Kotlin basics Defining and calling functions Classes, objects, and interfaces Programming with lambdas The Kotlin type system PART 2 - EMBRACING KOTLIN Operator overloading and other conventions Higher-order functions: lambdas as parameters and return values Generics Annotations and reflection DSL construction

Explore popular language features, Java to Kotlin interoperability, advanced topics, and practical applications by building a variety of sample projects Key Features Understand and leverage the syntax, tools, and patterns by writing code in Kotlin Explore practical topics such as Java interop, concurrency with coroutines, and functional programming Discover how to use Kotlin for build targets like Android, iOS, JavaScript, and backend service Book Description Using Kotlin without taking advantage of its power and interoperability is like owning a sports car and never taking it out of the garage. While documentation and introductory resources can help you learn the basics of Kotlin, the fact that it's a new language means that there are limited learning resources and code bases available in comparison to Java and other established languages. This Kotlin book will show you how to leverage software designs and

concepts that have made Java the most dominant enterprise programming language. You'll understand how Kotlin is a modern approach to object-oriented programming (OOP). This book will take you through the vast array of features that Kotlin provides over other languages. These features include seamless interoperability with Java, efficient syntax, built-in functional programming constructs, and support for creating your own DSL. Finally, you will gain an understanding of implementing practical design patterns and best practices to help you master the Kotlin language. By the end of the book, you'll have obtained an advanced understanding of Kotlin in order to be able to build production-grade applications. What you will learn Model data using interfaces, classes, and data classes Grapple with practical interoperability challenges and solutions with Java Build parallel apps using concurrency solutions such as coroutines Explore functional, reactive, and imperative programming to build flexible apps Discover how to build your own domain-specific language Embrace functional programming using the standard library and Arrow Delve into the use of Kotlin for frontend JavaScript development Build server-side services using Kotlin and Ktor Who this book is for If you're a Kotlin developer looking to further their skills or a professional Java developer looking for better or professional resources in order to make a switch to Kotlin, this book is for you. Familiarity with Kotlin programming will assist with understanding key concepts covered in the book. Learn to program with Kotlin, one of the fastest-growing programming languages available today Programming Kotlin Applications: Building Mobile and Server-Side Applications with Kotlin drops readers into the fast lane for learning to develop with the Kotlin programming language. Authored by accomplished cloud consultant and technology professional Brett McLaughlin, Programming Kotlin Applications provides readers with the pragmatic and practical advice they need to build their very first Kotlin applications. Designed to give readers a thorough understanding of Kotlin that goes beyond mere mobile programming, this book will help you: Learn how to develop your first Kotlin project Understand how Kotlin securely protects and stores information Advocate for using Kotlin in your own professional and personal environments Understand Kotlin's goals and how to use it as its best Know when to avoid using Kotlin Programming Kotlin Applications is written in a highly approachable and accessible way without the fluff and unrealistic samples that characterize some of its competitor guides. Perfect for developers familiar with another object-oriented programming language like Java or Ruby, or for people who want to advance their skillset in the Kotlin environment, this book is an indispensable addition to any programmer's library.

Build Beautiful Apps With Jetpack ComposeJetpack Compose is hyping up everyone in the Android UI toolkit world. This completely new and modern solution to building declarative user interfaces provides more opportunity than ever to create beautiful, reactive and animated apps.However, because of its early-in-development status, Jetpack Compose is missing one of the most important pieces of successful software: detailed documentation. That's why we've prepared a whole book's worth of documentation for you!Jetpack Compose By Tutorials is here to help, by showing you exactly how Compose works, what its fundamental components are and how you can use them to build complex real-world apps!Who this book is forThis book is for all Android developers who have experience with the legacy UI Toolkit through XML and View components, but who are looking for a fresh, reusable, clean and easy-to-use solution to reduce their boilerplate code while building stunning user interfaces.Topics covered in Jetpack Compose by TutorialsFundamentals: Core Jetpack Compose elements and functionsCombining components: Mixing different layouts and building beautiful interfacesState Management: State wrappers, LiveData observables and UI recompositionUI Styling: Modifiers for size, shape, colors, background, padding and alignmentUser Interaction: Different click, touch and scroll listeners and their handlersAnimations: State changes, value animations and complex transitionsOne thing you can count on: After reading this book, you'll be prepared to tackle any design specification and build it in your Android apps using Jetpack Compose. You'll

make your apps really stand out by adding different modifiers and Material Design components, as well as animations.

Take advantage of Kotlin's concurrency primitives to write efficient multithreaded applications Key Features Learn Kotlin's unique approach to multithreading Work through practical examples that will help you write concurrent non-blocking code Improve the overall execution speed in multiprocessor and multicore systems Book Description The primary requirements of modern-day applications are scalability, speed, and making the most use of hardware. Kotlin meets these requirements with its immense support for concurrency. Many concurrent primitives of Kotlin, such as channels and suspending functions, are designed to be non-blocking and efficient. This allows for new approaches to concurrency and creates unique challenges for the design and implementation of concurrent code. Learning Concurrency in Kotlin addresses those challenges with real-life examples and exercises that take advantage of Kotlin's primitives. Beginning with an introduction to Kotlin's coroutines, you will learn how to write concurrent code and understand the fundamental concepts needed to be able to write multithreaded software in Kotlin. You'll explore how to communicate between and synchronize your threads and coroutines to write asynchronous applications that are collaborative. You'll also learn how to handle errors and exceptions, as well as how to leverage multi-core processing. In addition to this, you'll delve into how coroutines work internally, allowing you to see the bigger picture. Throughout the book you'll build an Android application – an RSS reader – designed and implemented according to the different topics covered in the book What you will learn Understand Kotlin's approach to concurrency Implement sequential and asynchronous suspending functions Create suspending data sources that are resumed on demand Explore the best practices for error handling Use channels to communicate between coroutines Uncover how coroutines work under the hood Who this book is for If you're a Kotlin or Android developer interested in learning how to program concurrently to enhance the performance of your applications, this is the book for you. Functional Programming in Kotlin is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. Based on the bestselling Functional Programming in Scala, this book guides intermediate Java and Kotlin programmers from basic techniques to advanced topics in a logical, concise, and clear progression. In this authoritative guide, you'll take on the challenge of learning functional programming from first principles, and start writing Kotlin code that's easier to read, easier to reuse, better for concurrency, and less prone to bugs and errors. Functional Programming in Kotlin is a serious tutorial for programmers looking to learn FP and apply it to the everyday business of coding. Based on the bestselling Functional Programming in Scala, this book guides intermediate Java and Kotlin programmers from basic techniques to advanced topics in a logical, concise, and clear progression. In it, you'll find concrete examples and exercises that open up the world of functional programming. The book will deliver practical mastery of FP using Kotlin and a valuable perspective on program design that you can apply to other languages. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Enhance your Kotlin programming skills by building 3 real-world applications Key Features Build three full-fledged, engaging applications from scratch and learn to

deploy them Enhance your app development and programming activities with Kotlin's powerful and intuitive tools and utilities. Experience the gentle learning curve, expressiveness, and intuitiveness of Kotlin, as you develop your own applications Book Description Kotlin greatly reduces the verbosity of source code. With Google having announced their support for Kotlin as a first-class language for writing Android apps, now's the time learn how to create apps from scratch with Kotlin Kotlin Programming By Example takes you through the building blocks of Kotlin, such as functions and classes. You'll explore various features of Kotlin by building three applications of varying complexity. For a quick start to Android development, we look at building a classic game, Tetris, and elaborate on object-oriented programming in Kotlin. Our next application will be a messenger app, a level up in terms of complexity. Before moving onto the third app, we take a look at data persistent methods, helping us learn about the storage and retrieval of useful applications. Our final app is a place reviewer: a web application that will make use of the Google Maps API and Place Picker. By the end of this book, you will have gained experience of of creating and deploying Android applications using Kotlin. What you will learn Learn the building blocks of the Kotlin programming language Develop powerful RESTful microservices for Android applications Create reactive Android applications efficiently Implement an MVC architecture pattern and dependency management using Kotlin Centralize, transform, and stash data with Logstash Secure applications using Spring Security Deploy Kotlin microservices to AWS and Android applications to the Play Store Who this book is for This book is for those who are new to Kotlin or are familiar with the basics, having dabbled with Java until now. Basic programming knowledge is mandatory. Discover Android programming and web development by understanding the concepts of Kotlin Programming Key Features Practical solutions to your common programming problems with Kotlin 1.1 Leverage the functional power of Kotlin to ease your Android application development Learn to use Java code in conjunction with Kotlin Book Description The Android team has announced first-class support for Kotlin 1.1. This acts as an added boost to the language and more and more developers are now looking at Kotlin for their application development. This recipe-based book will be your guide to learning the Kotlin programming language. The recipes in this book build from simple language concepts to more complex applications of the language. After the fundamentals of the language, you will learn how to apply the object-oriented programming features of Kotlin 1.1. Programming with Lambdas will show you how to use the functional power of Kotlin. This book has recipes that will get you started with Android programming with Kotlin 1.1, providing quick solutions to common problems encountered during Android app development. You will also be taken through recipes that will teach you microservice and concurrent programming with Kotlin. Going forward, you will learn to test and secure your applications with Kotlin. Finally, this book supplies recipes that will help you migrate your Java code to Kotlin and will help ensure that it's interoperable with Java. What you will learn Understand the basics and object-oriented concepts of Kotlin Programming Explore the full potential of collection frameworks in Kotlin Work with SQLite databases in Android, make network calls, and fetch data over a network Use Kotlin's Anko library for efficient and quick Android development Uncover some of the best features of Kotlin: Lambdas and Delegates Set up web service development environments, write servlets, and build RESTful services

with Kotlin Learn how to write unit tests, integration tests, and instrumentation/acceptance tests. Who this book is for This book will appeal to Kotlin developers keen to find solutions for their common programming problems. Java programming knowledge would be an added advantage.

Build Android apps and learn the essentials of the popular Kotlin programming language and APIs. This book will teach you the key Kotlin skills and techniques important for creating your very own Android apps. Apart from introducing Kotlin programming, Learn Kotlin for Android Development stresses clean code principles and introduces object-oriented and functional programming as a starting point for developing Android apps. After reading and using this book, you'll have a foundation to take away and apply to your own Kotlin-based Android app development. You'll be able to write useful and efficient Kotlin-based apps for Android, using most of the features Kotlin as a language has to offer. What You Will Learn Build your first Kotlin app that runs on Android Work with Kotlin classes and objects for Android Use constructs, loops, decisions, and scopes Carry out operations on data Master data containers, arrays, and collections Handle exceptions and access external libraries Who This Book Is For Very little programming experience is required: no prior knowledge of Kotlin needed.

Get started with Kotlin programming for building real world applications Key Features Start programming with Kotlin Explore Kotlin language syntax, standard libraries and Java Interoperability Builds an example application with what you learn Book Description Kotlin is a general purpose, object-oriented language that primarily targets the JVM and Android. Intended as a better alternative to Java, its main goals are high interoperability with Java and increased developer productivity. Kotlin is still a new language and this book will help you to learn the core Kotlin features and get you ready for developing applications with Kotlin. This book covers Kotlin features in detail and explains them with practical code examples.You will learn how to set up the environment and take your frst steps with Kotlin and its syntax. We will cover the basics of the language, including functions, variables, and basic data types. With the basics covered, the next chapters show how functions are first-class citizens in Kotlin and deal with the object-oriented side of Kotlin. You will move on to more advanced features of Kotlin. You will explore Kotlin's Standard Library and learn how to work with the Collections API. The book finishes by putting Kotlin in to practice, showing how to build a desktop app. By the end of this book, you will be confident enough to use Kotlin for your next project. What you will learn Programming in Kotlin language syntax, basic types, control ?ow, classes, and OOP Writing functions and functional programming in Kotlin Defning and importing from packages in Kotlin Running Kotlin on JVMs and Android runtimes Working with the Kotlin Standard Library and advanced features of Kotlin programming Setting up a Kotlin development environment with JetBrains tools Building real-world applications with Kotlin Who this book is for This book is intended for anybody who wants to learn the most important Kotlin features. No experience of Kotlin is expected.

Make the most of Kotlin by leveraging design patterns and best practices to build scalable and high performing apps Key Features Understand traditional GOF design patterns to apply generic solutions Shift from OOP to FP; covering reactive and concurrent patterns in a step-by-step manner Choose the best microservices architecture and MVC for your development environment Book Description Design

patterns enable you as a developer to speed up the development process by providing you with proven development paradigms. Reusing design patterns helps prevent complex issues that can cause major problems, improves your code base, promotes code reuse, and makes an architecture more robust. The mission of this book is to ease the adoption of design patterns in Kotlin and provide good practices for programmers. The book begins by showing you the practical aspects of smarter coding in Kotlin, explaining the basic Kotlin syntax and the impact of design patterns. From there, the book provides an in-depth explanation of the classical design patterns of creational, structural, and behavioral families, before heading into functional programming. It then takes you through reactive and concurrent patterns, teaching you about using streams, threads, and coroutines to write better code along the way By the end of the book, you will be able to efficiently address common problems faced while developing applications and be comfortable working on scalable and maintainable projects of any size. What you will learn Get to grips with Kotlin principles, including its strengths and weaknesses Understand classical design patterns in Kotlin Explore functional programming using built-in features of Kotlin Solve real-world problems using reactive and concurrent design patterns Use threads and coroutines to simplify concurrent code flow Understand antipatterns to write clean Kotlin code, avoiding common pitfalls Learn about the design considerations necessary while choosing between architectures Who this book is for This book is for developers who would like to master design patterns with Kotlin to build efficient and scalable applications. Basic Java or Kotlin programming knowledge is assumed

Android Programming: The Big Nerd Ranch Guide is an introductory Android book for programmers with Java experience. Based on Big Nerd Ranch's popular Android Bootcamp course, this guide will lead you through the wilderness using hands-on example apps combined with clear explanations of key concepts and APIs. This book focuses on practical techniques for developing apps compatible with Android 4.1 (Jelly Bean) and up, including coverage of Lollipop and material design. Write and run code every step of the way, creating apps that integrate with other Android apps, download and display pictures from the web, play sounds, and more. Each chapter and app has been designed and tested to provide the knowledge and experience you need to get started in Android development. Big Nerd Ranch specializes in developing and designing innovative applications for clients around the world. Our experts teach others through our books, bootcamps, and onsite training. Whether it's Android, iOS, Ruby and Ruby on Rails, Cocoa, Mac OS X, JavaScript, HTML5 or UX/UI, we've got you covered. The Android team is constantly improving and updating Android Studio and other tools. As a result, some of the instructions we provide in the book are no longer correct. You can find an addendum addressing breaking changes at: https://github.com/bignerdranch/AndroidCourseResources/raw/master/2ndEdition/Errata/2eAddendum.pdf .

Build smart looking Kotlin apps with UI and functionality for the Android platform Key Features Start your Android programming career, or just have fun publishing apps on Google Play marketplace The first-principle introduction to Kotlin through Android, to start building easy-to-use apps Learn by example and build four real-world apps and dozens of mini-apps Book Description Android is the most popular mobile operating system in the world and Kotlin has been declared by Google as a first-class programming language to build Android apps. With the imminent arrival of the most anticipated Android update, Android 10 (Q), this book gets you

started building apps compatible with the latest version of Android. It adopts a project-style approach, where we focus on teaching the fundamentals of Android app development and the essentials of Kotlin by building three real-world apps and more than a dozen mini-apps. The book begins by giving you a strong grasp of how Kotlin and Android work together before gradually moving onto exploring the various Android APIs for building stunning apps for Android with ease. You will learn to make your apps more presentable using different layouts. You will dive deep into Kotlin programming concepts such as variables, functions, data structures, Object-Oriented code, and how to connect your Kotlin code to the UI. You will learn to add multilingual text so that your app is accessible to millions of more potential users. You will learn how animation, graphics, and sound effects work and are implemented in your Android app. By the end of the book, you will have sound knowledge about significant Kotlin programming concepts and start building your own fully featured Android apps. What you will learn Learn how Kotlin and Android work together Build a graphical drawing app using Object-Oriented Programming (OOP) principles Build beautiful, practical layouts using ScrollView, RecyclerView, NavigationView, ViewPager and CardView Write Kotlin code to manage an apps' data using different strategies including JSON and the built-in Android SQLite database Add user interaction, data captures, sound, and animation to your apps Implement dialog boxes to capture input from the user Build a simple database app that sorts and stores the user's data Who this book is for This book is for people who are new to Kotlin, Android and want to develop Android apps.It also acts as a refresher for those who have some experience in programming with Android and Kotlin.

Creating your own domain-specific languages (DSLs) is both challenging and exhilarating. DSLs give users a way to interact with your applications more effectively, and Kotlin is a fantastic language to serve as a host for internal DSLs, because it greatly reduces the pain and effort of design and development. But implementing DSLs on top of Kotlin requires understanding the key strengths of the language and knowing how to apply them appropriately. Learn to avoid the pitfalls and leverage the language while creating your own elegant, fluent, concise, and robust DSLs using Kotlin. Internal DSLs remove the burdens of implementing a full blown language compiler. The host language quickly becomes your ally to creating DSLs, but the syntax you can choose for your DSLs is limited to what the host language allows. You can work around the limitations by tactfully bending the rules and exploiting the language capabilities. Learn the power of Kotlin and ways to design with it, in the context of crafting internal DSLs Start by learning ways to exploit the flexibilities of Kotlin to make your DSLs fluent, expressive, and concise. Then pick up techniques to extend the language with domain specific properties and functions. Quickly move ahead to tie your DSL snippets into the runtime environment and context of execution of your applications. Design to prevent any non-sensical syntax in your DSL that may otherwise be valid in the host language. Finally, learn techniques to gracefully handle errors. Practice using the multiple examples that are included in each chapter. Fire up your editor and follow along each example to become proficient in designing and implementing your own internal DSLs using Kotlin. What You Need: Kotlin version 1.3 or later and your favorite Kotlin IDE or code editor.

Use Kotlin to build Android apps, web applications, and more—while you learn the nuances of this popular language. With this unique cookbook, developers will learn how to apply thisJava-based language to their own projects. Both experienced programmers and those new to Kotlin will benefit from the practical recipes in this book. Author Ken Kousen (Modern Java Recipes) shows you how to solve problems with Kotlin by concentrating on your own use cases rather than on basic syntax. You provide the contextand this book supplies the answers. Already big in Android development, Kotlin can be used anywhere Java is applied, as well as for iOS development, native applications, JavaScriptgeneration, and more. Jump in and build meaningful projects with Kotlin today. Apply functional programming concepts, including

lambdas, sequences, and concurrency See how to use delegates, late initialization, and scope functions Explore Java interoperability and access Java libraries using Kotlin Add your own extension functions Use helpful libraries such as JUnit 5 Get practical advice for working with specific frameworks, like Android and Spring

Discover How to Build Highly-Resilient, Scalable, and Beautiful Android Apps With the Kotlin Programming Language! Are you looking for the perfect language as a beginner to kickstart your journey into software development? Are you a Java programmer, or any other programmer looking for an efficient way to get started designing awesome Android apps? If your answer is yes, then keep reading... Kotlin is a powerful, general-purpose programming language suitable for cross-platform development. In this comprehensive beginner's guide to Kotlin programming, you'll master the core foundations of Kotlin as well as build your own basic Android app from scratch! Here's what you're going to learn in Kotlin Programming for Beginners Everything you need to know about Kotlin and how it works together with Android How to set up your environment for effective Kotlin application development The core fundamentals of the Kotlin programming language to help you write high-quality code Step-by-step instructions to build your first Kotlin application that runs on Android How to develop aesthetically beautiful and robust layouts using RecyclerView, NavigationView, etc Foolproof ways to test your applications using the available testing frameworks within Kotlin and keep your app free from bugs ...and tons, tons more! Whether you're a brand new software developer looking to pick up your very first language, or you're an experienced Android developer looking to stretch your app to the limits beyond what vanilla Java can offer you, this book is a complete resource guide for everyone looking to master Kotlin and develop awesome apps for Android. Ready to add another programming language to your toolbelt? Scroll to the top of this page and click the "Buy Now with 1-Click" button to get started today!

"Designed for developers who already have a basic understanding of Kotlin, this video course examines some of the additional major features that make the language highly extensible and unique compared to other JVM languages. You'll learn about more advanced uses for functions, class scenarios, and delegation, along with best practices for working with generics, metaprogramming, and asynchronous programming. Once you've added the skills in this video to your programming tool belt, you'll be fully proficient in Kotlin as well as a more well-rounded Java developer."--Resource description page.

A balance between implementing complex applications and optimizing performance is a present-day need. This book helps you achieve this balance while developing and deploying applications with Kotlin. You will learn how to use profiling tools to detect performance issues and discover bytecode that is generated to overcome performance bottlenecks.

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