Download File PDF Kotlin Programming Language

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BC7 - JADON CHOI

Get to know the building blocks of Kotlin and best practices when using quality world-class applications About This Book Learn to build exciting and scalable Android and web applications (both the server-side and client-side parts) with your Kotlin skills Dive into the great ecosystem of Kotlin frameworks and libraries through projects that you'll build using this book This project-based guide contains clear instructions to help you extend your applications across a wide domain Who This Book Is For This practical guide is for programmers who are already familiar with Kotlin. If you are familiar with Kotlin and want to put your knowledge to work, then this is the book for you. Kotlin programming knowledge is a must. What You Will Learn See how Kotlin's power and versatility make it a great choice to create applications across various platforms, and how it delivers business and technology benefits Write a robust web applications using Kotlin with Spring Boot Write Android ap-plications with ease using Kotlin Write rich desktop applications in Kotlin Learn how Kotlin can generate Javascript and how this can be used on client side and server side development Understand how native applications can be written with Kotlin/Native Learn the practical aspects of programming in each of the applications In Detail Kotlin is a powerful language that has applications in a wide variety of fields. It is a concise, safe, interoperable, and tool-friendly language. The Android team has also announced first-class support for Kotlin, which is an added boost to the language. Kotlin's growth is fueled through carefully designed business and technology benefits. The collection of projects demonstrates the versatility of the language and enables you to build standalone applications on your own. You'll build comprehensive applications using the various features of Kotlin. Scale, performance, and high availability lie at the heart of the projects, and the lessons learned throughout this book. You'll learn how to build a social media aggregator app that

will help you efficiently track various feeds, develop a geospatial webservice with Kotlin and Spring Boot, build responsive web applications with Kotlin, build a REST API for a news feed reader, and build a server-side chat application with Kotlin. It also covers the various libraries and frameworks used in the projects. Through the course of building applications, you'll not only get to grips with the various features of Kotlin, but you'll also discover how to design and prototype professional-grade applications. Style and approach Each chapter is independent and focuses on a unique technology, where Kotlin is used to build an example application. Together the chapters cover a full spectrum.

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.

kotlin basicsKotlin is a new open source programming language like Java, JavaScript, etc . It is a highlevel strongly statically typed language that combines functional and technical part in asame place. Currently, Kotlin targets Java and JavaScript. It runs on JVM.Kotlin is influenced by other programming languages such as Java, Scala, Groovy, Gosu, etc . The syntax of Kotlin may not be exactly similar to JAVA, however, internally Kotlin isreliant on the existing Java Class library to produce wonderful results for the programmers .Kotlin provides interoperability, code safety, and clarity to the developers around theworld. StringBuilder sb = new StringBuilder();in Kotlin becomesval sb = StringBuilder()You can see that functions are defined with the fun keyword, and that semicolons are now optional when

newlines are present. The val keyword declares a read-only property or local variable. Similarly, the var keyword declares a mutable property or local variable.Nevertheless, Kotlin is strongly typed. The val and var keywords can be used only when the type can be inferred. Otherwise you need to declare the type. Type inference seems to be improving with each release of Kotlin.Have a look at the function declaration near the top of both panes. The return type in Java precedes the prototype, but in Kotlin it succeeds the prototype, demarcated with a colon as in Pascal

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 devel-

opers, 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

This book was written to help anyone who wants to learn Kotlin by examples. This book describes all the basic elements of Kotlin programming language. The following is a list of highlight topics in this book: * Development Environment * Kotlin Programming Language * Collections and Generics * Functions and Lambdas * Kotlin Object Oriented * Kotlin Libraries * String Operations * File Operations * Error Handling * Building Own Kotlin Libraries * Concurrency * Encoding * Hashing

Build Android apps using the popular and efficient Android Studio 3 suite of tools, an integrated development environment (IDE) with which Android developers can now use the Kotlin programming language. With this book, you'll learn the latest and most productive tools in the Android tools ecosystem, ensuring quick Android app development and minimal effort on your part. Along the way, you'll use Android Studio to develop apps tier by tier through practical examples. Th-

ese examples cover core Android topics such as Activities, Intents, BroadcastReceivers, Services and AsyncTask. Then, you'll learn how to publish your apps and sell them online and in the Google Play store. What You'll LearnUse Android Studio 3 to quickly and confidently build your first Android apps Build an Android user interface using activities and layouts, event handling, images, menus and the action bar Incorporate new elements including fragments Learn how data is persisted Use Kotlin to build apps Who This Book Is For Those who may be new to Android Studio 3 or Android Studio in general. You may or may not be new to Android development in general. Some prior experience with Java is also recommended.

Kotlin is the new lovechild of the JVM developers' world.Google promoted Kotlin as a first class language on its Java-based Android platform back in May. Since then, the whole development world has been wondering: what is this language? Kotlin has been around for a few years and has been running on production systems, after the languages 1.0 release in February 2016, for a year or so. The language has received a lot of praise and loving words from the developer community. It is a breath of fresh air, a good upgrade to systems running older versions of Java, and still somehow an old dog in a familiar playing field.What is Kotlin? What does it bring that the JVM doesn't already have?Kotlin vs. JavaThere are a few approaches we can take when introducing Kotlin. We can discuss it through Java, the language Kotlin needs to be based on due to its JVM runtime, or we can do it through Scala, the language Kotlin is heavily influenced by. There is no doubt that Kotlin is better than Java. It is much safer and more concise. It provides you with a

bunch of additions to your standard Java language and enhances a few bits and pieces that Java developers have grown to dislike. Additions include things like null safety, extension functions, data classes, objects, first class functions as well as extensive and expressive lambdas. Kotlin also enhances Java's type inference and type system and takes massive leaps forward with collections.Kotlin vs. ScalaPerhaps, it's better to compare Kotlin against Scala. This comparison might scare some of you quite a bit because Scala has the reputation of being simultaneously intriguing and frightening. It heavily introduces functional programming paradigm to you while still mixing it into familiar object orientation (hence in an awfully lot of cases creating a mishmash of advanced techniques from both paradigms), brings in some new build tools, and gives your internal flow state a frustrating break every now and then due to long compile times.I come bearing both good news and bad news. Let's start with the bad news: Bad news is that Kotlin is similar to Scala, it follows the same path as Scala doesThe good news: luckily, it's only slightly similar to Scala in every aspect.Kotlin & Functional Programming ParadigmThe functional programming paradigm is big part of Kotlin as well. Luckily, it doesn't go into the higher-kinded types, monadic do--continuations, or advanced type theory concepts that make you seek out Bartosz Milewski and his brilliant book on Category Theory. Kotlin introduces easy--to-use collection manipulation functions and functional pipelines for you. You will get your maps, filters, and folds, which in most cases are enough to get to the functional programming path.Java devs that have been lucky enough to jump into Java 8 (hugs and kisses to you Android and/or enterprise developers) will be fa-

miliar with the these basics and will feel right at home when they jump into Kotlin. They will also find conciseness and safety of better type system, which will spark their first crush towards the language. It is just so pretty and seamless to pipe these functions together and build a clean pipeline. And when you come back to it after a few weeks, you'll still feel like you can somewhat understand it. Smiles all around.

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.

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.

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.

Explore popular language features, Java to Kotlin interoperability, advanced topics, and practical applications by building a variety of sample projects Key FeaturesUnderstand and leverage the syntax, tools, and patterns by writing code in KotlinExplore practical topics such as Java interop, concurrency with coroutines, and functional programmingDiscover how to use Kotlin for build targets like Android, iOS, JavaScript, and backend serviceBook 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 learnModel data using interfaces, classes, and data classesGrapple with practical interoperability chal-

lenges and solutions with JavaBuild parallel apps using concurrency solutions such as coroutinesExplore functional, reactive, and imperative programming to build flexible appsDiscover how to build your own domain-specific languageEmbrace functional programming using the standard library and ArrowDelve into the use of Kotlin for frontend JavaScript developmentBuild server-side services using Kotlin and KtorWho 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.

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.

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.

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 start-

ed 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!
* A book containing examples and explanations of examples* For beginners, there is a special section for professionals* It brings you more and more understandingAt the I / O 2017 conference, Google announced its support for the Kotlin programming language for Android application development and will be included

in the new version of Android Studio 3.0, and no additional installation settings are required.Java and Kotlin are among the most popular programming languages used by Google to develop Android applications. Since 2011, Kotlin has emerged as a new language for Java Virtual Machine, developed by a team of St. Petersburg programmers called Jet Brains.The team launched the first stable version of Kotlin last year Kotlin 1.0, and since then they released the new update kotlin 1.1 in early March, and soon began to talk about the world, and also loved by the software community! The team receives and relies on language suggestions during development, as well as Open Source on Github, and of course as a programmer this is great for you To compare now between them and Java, of course we must first make clear that Kotlin is not here to replace Java at all, any code written in Java will work with Kotlin and vice versa!Kotlin requires fewer lines of codeLess by about 20%. As we know the age of the language of Java 22 years, created by Oracle to be compatible with the above, which means that each new version to support features exist in the versions that preceded it, so with each update becomes more difficult to include new features, It is written every time.In contrast, Kotlin was built from scratch, meaning the absence of the structure of the layers stacked on top of each other.Less collapses occur with KotlinJTM's JTM has fewer problems compared to the so-called "one billion dollar mistake" - any problem with NullPointerExeption - that can be avoided here. This problem exists in all programming languages, but different ways to deal with it. For example, in Java you have to manually check if the link is null or not, and if you make a mistake, surprise the program has collapsed! In

Kotlin, all object objects are set to Null as well as automatic verification of the NullPointer exception, to ensure that the code works properly without it.Kotlin saves you a lot of time!Fewer codes guarantee fewer software errors, and therefore less time spent on coding. Typically, any software development team calculates the total cost of the project according to the number of encoding hours.Interop interoperabilityYou might wonder how this will affect the code you wrote? Do not worry, as I mentioned earlier, Kotlin is not here to replace Java, but they are perfectly compatible. Which means that you can write part of the code using Java and the rest using a Kotlin and will work together without problems.In addition, there is a tool in Android Studio that translates java into Kotlin, and it works very well, giving you a glimpse of what the Kotlin Java method looks like.

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 LearnBuild 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 contain-ers, 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.

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.

It's easy to learn, so you can start making powerful apps right away. KEY FEATURES ● Numerous code samples covering all aspects of the Kotlin language. ● Coverage on native applications, web apps, microservices, and app testing. ● Step-by-step instructions are provided in a clear and concise manner. DESCRIPTION The book 'Kotlin In-Depth, Second Edition' updates all the essential parts of Kotlin and incorporates modern principles, methodologies, and approaches for achieving efficient solutions. The book will guide you to successfully utilize Kotlin in developing JVM apps for desktop, mobile, web platforms and transfer-

ring existing Java codebases to Kotlin. The book begins with an introduction to the language and its environment, which will help you to grasp the fundamental concepts underlying Kotlin's design. The readers will learn the Kotlin tooling and the language's core syntax and structures. The book teaches Kotlin's multi--paradigm nature, which enables the creation of powerful abstractions by mixing parts of functional and object-oriented programming. This book discusses how to use standard Kotlin APIs like the standard library, reflection, and coroutine-based concurrency, as well as how to create your flexible APIs using domain-specific languages. The book demonstrates how to use Kotlin for more specific tasks such as testing, developing Android applications, developing Web applications, and developing microservices. After reading this book, you'll be prepared to dive deeper into the Kotlin ecosystem's more specialized areas, including Android applications, server-side development, native programming, and code sharing across different platforms. WHAT YOU WILL LEARN ● Acquire a deep understanding of all fundamental features of Kotlin programming. ● Utilize object-oriented and functional capabilities to create a flexible and reusable codebase. ● Leverage the Kotlin standard library to create custom domain-specific languages. ● Implement the Kotlin coroutines package to write asynchronous programming. ● A solid foundation of relevant development platforms, tools, and frameworks. WHO THIS BOOK IS FOR The book is primarily geared towards Java and JVM developers who want to learn Kotlin and explore modern and efficient development techniques. Knowing the basics of programming is helpful but not necessary. TABLE OF CONTENTS 1. Kotlin - Powerful and Prag-

matic 2. Language Fundamentals 3. Defining Functions 4. Working with Classes and Objects 5. Leveraging Advanced Functions and Functional Programming 6. Using Special-Case Classes 7. Exploring Collections and I/O 8. Understanding Class Hierarchies 9. Generics 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

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.

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.

For both beginning and experienced programmers! From the author of the multi--award-winning Thinking in C++ and Thinking in Java together with a member of the Kotlin language team comes a book that breaks the concepts into small, easy-to-digest "atoms," along with exercises supported by hints and solutions directly inside IntelliJ IDEA! No programming background necessary. Summaries for experienced programmers. Easy steps via very small chapters ("atoms"). Free accompanying exercises/solutions within IntelliJ Idea. Gives you a strong Kotlin foundation. Kotlin is cleaner, more consistent and far more powerful than Java. Increase programming productivity with Kotlin's clear, concise syntax. Produce safer, more reliable programs. Kotlin easily interacts with Java. Effortlessly migrate by adding pieces of Kotlin to an existing Java project. Support for Windows, Mac and Linux. Free version of IntelliJ IDEA includes extensive Kotlin support. Book resources, live seminars, workshops and consulting available at AtomicKotlin.com.

Kotlin is an exciting programming language that's concise, has immutable variables, and almost always gets rid of null pointer exceptions. If you're a Java developer looking to get started with Kotlin, then this course is for you. Join instructor Matt Greencroft as he demonstrates how to build high-quality Spring Boot applications with Kotlin, specifically the version of Kotlin that runs on the Java Virtual Machine (JVM). As Matt covers a range of key concepts-from classes to loops-he explains how each Kotlin feature compares to the equivalent one in Java.

Kotlin is an exciting new language that runs on Windows, macOS and Linux operating systems. It has also been adopted by Google as their preferred language for Android development. This textbook assumes very little knowledge of programming so whether you have dabbled with a little JavaScript, played with a bit of Python, written Java or have virtually no programming experience at all you will find that it is for you. The first part of the book introduces Kotlin program structures as well as conditional flow of control features such as if and when expressions as well as iteration loops such as for, while and do-while. Subsequent chapters explain how functions are implemented in Kotlin and introduce concepts from functional programming such as higher order functions and curried functions. The second part focusses on object oriented programming techniques, these include classes, inheritance, abstraction and interfaces. The third part presents container data types such as Arrays, and collections including Lists, Sets and Maps and the fourth part considers concurrency and parallelism using Kotlin coroutines. The book concludes with an introduction to Android mobile application development using Kotlin. Clear steps are provided explaining how to set up your environment and get started writing your own Kotlin programs. An important aspect of the book is teaching by example and there are many examples presented throughout the chapters. These examples are supported by a public GitHub repository that provides complete working code as well as sample solutions to the chapter exercises. This helps illustrate how to write well structured, clear, idiomatic Kotlin to build real applications.

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.

Learn everything you need to know about object-oriented programming with the latest features of Kotlin 1.3 Key FeaturesA practical guide to understand objects and classes in KotlinLearn to write asynchronous, non-blocking codes with Kotlin coroutinesExplore Encapsulation, Inheritance, Polymorphism, and Abstraction in KotlinBook 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 exercis-

es 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 learnGet an overview of the Kotlin programming languageDiscover Object-oriented programming techniques in Kotlin Understand Object-oriented design patternsUncover multithreading by Kotlin wayUnderstand about arrays and collectionsUnderstand the importance of object-oriented design patternsUnderstand about exception handling and testing in OOP with KotlinWho 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

Explore the Java Virtual Machine with modern programming languages About This Book This guide provides in-depth coverage of the Java Virtual Machine and its features Filled with practical examples, this book will help you understand the core concepts of Java, Scala, Clojure, Kotlin, and Groovy Work with various programming paradigms and gain knowl-

edge about imperative, object-oriented and functional programming Who This Book Is For This book is meant for programmers who are interested in the Java Virtual Machine (JVM) and want to learn more about the most popular programming languages that can be used for JVM development. Basic practical knowledge of a modern programming language that supports object-oriented programming (JavaScript, Python, C#, VB.NET, and C++) is assumed. What You Will Learn Gain practical information about the Java Virtual Machine Understand the popular JVM languages and the Java Class Library Get to know about various programming paradigms such as imperative, object-oriented, and functional Work with common JVM tools such as Eclipse IDE, Gradle, and Maven Explore frameworks such as SparkJava, Vert.x, Akka and JavaFX Boost your knowledge about dialects of other well-known programming languages that run on the JVM, including JavaScript, Python, and Ruby In Detail Anyone who knows software development knows about the Java Virtual Machine. The Java Virtual Machine is responsible for interpreting Java byte code and translating it into actions. In the beginning, Java was the only programming language used for the JVM. But increasing complexity of the language and the remarkable performance of the JVM created an opening for a new generation of programming languages. If you want to build a strong foundation with the Java Virtual Machine and get started with popular modern programming languages, then this book is for you. The book will begin with a general introduction of the JVM and its features, which are common to the JVM languages, helping you get abreast with its concepts. It will then dive into explaining languages such as Java, Scala, Clojure, Kotlin, and Groovy and will show how to work with each language, their features, use cases, and pros and cons. By writing example projects in those languages and focusing on each language's strong points, it will help you find the programming language that is most appropriate for your particular needs. By the end of the book, you will have written multiple programs that run on the Java Virtual Machine and know about the differences between the various languages. Style and approach This practical, example-filled guide will help you get started with the JVM and some of its most popular languages.

Mastering Kotlin helps the readers quickly understand the core concepts and then move on to practical projects using Kotlin programming language. Back in the day, Java was the de facto choice for creating Android apps. However, once Google announced Kotlin as the new language of choice for building Android applications, developers haven't looked back. Kotlin is a general-purpose, statically typed, open source programming language that runs on Java Virtual Machines. It can be called a Java replacement; however, the Kotlin syntax isn't blindly identical to that of Java. Sure, Kotlin can work with Java, and owing to its intuitiveness, it can also enhance overall productivity and efficiency, but it is not a Java clone. Kotlin differs from Java in the fact that it has assertive interfaces that help determine variables and expressions classes even if they're not defined. Kotlin is a beautiful alternative for modifying and identifying faults because it has a familiar and straightforward syntax and programming structure. It comes with a sophisticated compiler that can track automatic casts, allowing verification durations to be more efficient. Kotlin has simple signals that may be interpreted without any need for set

parameters. Kotlin is easy to set up: all you need is a Kotlin component for Android Studio. Kotlin developers are in high demand. As a Kotlin developer, you'll be able to pursue a variety of career routes, spanning fields such as mobile app dev, game dev, game design, and even software development. Many well-known brands use Kotlin in their software and projects. Naturally, it is a good idea to learn Kotlin, and this is where Mastering Kotlin can be the right manual for you! With Mastering Kotlin, learning Kotlin becomes an easy task, and learners can use their skills to create innovative Kotlin apps. About the Series The Mastering Computer Science covers a wide range of topics, spanning programming languages as well as modern-day technologies and frameworks. The series has a special focus on beginner-level content, and is presented in an easy to understand manner, comprising: Crystal-clear text, spanning various topics sorted by relevance, Special focus on practical exercises, with numerous code samples and programs, A guided approach to programming, with step by step tutorials for the absolute beginners, Keen emphasis on real-world utility of skills, thereby cutting the redundant and seldom-used concepts and focusing instead of industry-prevalent coding paradigm, A wide range of references and resources, to help both beginner and intermediate-level developers gain the most out of the books. Mastering Computer Science series of books start from the core concepts, and then quickly move on to industry-standard coding practices, to help learners gain efficient and crucial skills in as little time as possible. The books assume no prior knowledge of coding, so even the absolute newbie coders can benefit from this series. Mastering Computer Science series is edited by Sufyan bin Uzayr, a writer and educator with over a decade of experience in the computing field.

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

Build smart looking Kotlin apps with UI and functionality for the Android platform Key FeaturesStart your Android programming career, or just have fun publishing apps on Google Play marketplaceThe first-principle introduction to Kotlin through Android, to start building easy-to-use appsLearn by example and build four real-world apps and dozens of mini-appsBook 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 multi-lingual 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 learnLearn how Kotlin and Android work togetherBuild a graphical drawing app using Object-Oriented Programming (OOP) principlesBuild beautiful, practical layouts using ScrollView, RecyclerView, NavigationView, ViewPager and CardViewWrite Kotlin code to manage an apps' data using different strategies including JSON and the built-in Android SQLite databaseAdd user interaction, data captures, sound, and animation to your appsImplement dialog boxes to capture input from the userBuild a simple database app that sorts and stores the user's dataWho 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.
LEARN THE FUNDAMENTALS OF KOTLIN PROGRAMMING TO BUILD APPS Kotlin is a cross-platform, statically typed, general-purpose programming language with type inference. Kotlin is designed to interoperate fully with Java, and the JVM version of Kotlin's standard library depends on the Java Class Library, but type

inference allows its syntax to be more concise. Kotlin mainly targets the JVM, but also compiles to JavaScript (e.g., for frontend web applications using React) or native code (via LLVM); e.g., for native iOS apps sharing business logic with Android apps. Language development costs are borne by JetBrains, while the Kotlin Foundation protects the Kotlin trademark. GETTING STARTED Basic Syntax Defining packages Package specification should be at the top of the source file: package my.demo import java.util.* // ... It is not required to match directories and packages source files can be placed arbitrarily in the file system. Defining functions Function having two int parameters with int return type fun sum(a: Int, b: Int): Int { return a + b } Function with an expression body and inferred return type: fun sum(a: Int, b: Int) = a + b Function returning no meaningful value fun printSum(a: Int, b: Int): Unit { println("sum of $a and $b is ${a + b}") } return type can be omitted Ready to start building android Apps? Read "Kotlin Programming for Beginners" now to get started.

Google has officially announced Kotlin as a supported language to write Android Apps.These are amazing news for Android developers, which now have the ability to use a modern and powerful language to make their job easier and funnier.But this comes with other responsibilities. If you want to be a good candidate for new Android opportunities, Kotlin is becoming a new need most companies will ask for. So it's your time to start learning about it!And "Kotlin for Android Developers" is the best tool. Recommended by both Google and JetBrains, this book will guide through the process of learning all the new features that Java was missing, in an easy and fun way.You'll be creating an Android app from ground using Kotlin as the main language. The idea is to learn the language by example, instead of following a typical structure. I'll be stopping to explain the most interesting concepts and ideas about Kotlin, comparing it with Java 7. This way, you can see what the differences are and which parts of the language will help you speed up your work.This book is not meant to be a language reference, but a tool for Android developers to learn Kotlin and be able to continue with their own projects by themselves. I'll be solving many of the typical problems we have to face in our daily lives by making use of the language expressiveness and some other really interesting tools and libraries.The book is very practical, so it is recommended to follow the examples and the code in front of a computer and try everything it's suggested. You could, however, take a first read to get a broad idea and then dive into practice.

Delve into the world of Kotlin and learn to build powerful Android and web applications Key FeaturesLearn the fundamentals of Kotlin to write high-quality codeTest and debug your applications with the different unit testing frameworks in KotlinExplore Kotlin's interesting features such as null safety, reflection, and annotationsBook 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 learnExplore the latest Kotlin features in order to write structured and readable object-oriented codeGet to grips with using lambdas and higher-order functionsWrite unit tests and integrate Kotlin with Java codeCreate real--world apps in Kotlin in the microservices styleUse Kotlin extensions with the Java collections libraryUncover destructuring expressions and find out how to write your ownUnderstand how Java-nullable code can be integrated with Kotlin featuresWho 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.

Learn how to build high-quality Spring Boot applications with the Kotlin programming language.

Future-proof your applications with best practices and design patterns in Kotlin Key FeaturesUnderstand traditional and modern design patterns to improve the design of your applicationCombine the benefits of object-oriented, functional, reactive, and concurrent programming-Choose the best microservices architecture and frameworks for your web applicationBook Description This book shows you how easy it can be to implement traditional design patterns in the modern multi-paradigm Kotlin programming language, and takes you through the new patterns and paradigms that have emerged. This second edition is updated to cover the changes introduced from Kotlin 1.2 up to 1.5 and focuses more on the idiomatic usage of coroutines, which have become a stable language feature. You'll begin by learning about the practical aspects of smarter coding in Kotlin, as well as understanding basic Kotlin syntax and the impact of design patterns on your code. The book also provides an in--depth explanation of the classical design patterns, such as Creational, Structural, and Behavioral families, before moving on to functional programming. You'll go through reactive and concurrent patterns, and finally, get to grips with coroutines and structured concurrency to write performant, extensible, and maintainable code. By the end of this Kotlin book, you'll have explored the latest trends in architecture and design patterns for microservices. You'll also understand the tradeoffs when choosing between different architectures and make informed decisions. What you will learnImplement all the classical design patterns using the Kotlin programming languageApply reactive and concurrent design patterns to make your application more scalableDiscover best practices in Kotlin and explore its new featuresUnderstand the key principles of functional programming and learn how they apply to KotlinFind out how to write idiomatic Kotlin code and learn which patterns to avoidHarness the power of Kotlin to design concurrent and reliable systems with easeCreate an effective microservice with Kotlin and the Ktor framework-

Who this book is for This book is for developers who want to apply design patterns they've learned from other languages in Kotlin and build reliable, scalable, and maintainable applications. You'll need a good grasp on at least one programming language before you get started with this book. Java or design patterns will be particularly useful, but you'll still be able to follow along if you code in other languages.

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 Kotlin language and give examples of how to use it for the development of various applications, be it desktop, mobile or Web. Although our primary focus is on 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 the language and its ecosystem, which will give you an understanding of the key ideas behind the Kotlin design, introduce you to the Kotlin tooling and present you the basic language syntax and constructs. In the next chapters, we get to know the multi-paradigm nature of Kotlin which allows us 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 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 the 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 IS THIS BOOK FOR The book is primarily aimed at developers who are familiar with Java and JVM and are 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 the Java-to-Kotlin transition. Most of the material, however, is rather Java-agnostic and should be beneficial even without prior knowledge of Java. In general, experience in object-oriented or functional paradigm is a plus, but not required. Table of Contents 1. Kotlin: Powerful and Pragmatic 2. Language Fundamentals 3. Defining Functions 4. Working with Classes and Objects 5. Leveraging Advanced Functions and Functional Programming 6. Using Special-Case Classes 7. Understanding Class Hierarchies 8. Exploring Collections and I/O 9. Generics 10. Anno-

tations 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

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

Master the concise and expressive power of a pragmatic, multi-paradigm language for JVM, Android and beyondKey Featuresa- Language fundamentalsa- Object-oriented and functional programming with Kotlina- Kotlin standard librarya- Building domain-specific lan-

guagesa- Using Kotlin for Web development- Kotlin for Android platforma- Coroutine-based concurrencyDescription- The purpose of this book is to guide a reader through the capabilities of Kotlin language and give examples of how to use it for the development of various applications, be it desktop, mobile or Web. Although our primary focus is on 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 the language and its ecosystem, which will give you an understanding of the key ideas behind the Kotlin design, introduce you to the Kotlin tooling and present you the basic language syntax and constructs. In the next chapters, we get to know the multi--paradigm nature of Kotlin which allows us 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 give examples of using Kotlin for more specialized tasks, such as testing, building Android applications, Web development and creating microservices.What will you learnBy the end of the book you'll obtain a thorough knowledge of all the 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 forThe book is primarily aimed at developers who are familiar with Java and JVM and are 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 the Java-to-Kotlin transition. Most of the material, however, is rather Java-agnostic and should be beneficial even without prior knowledge of Java. In general, experience in object-oriented or functional paradigm is a plus, but not required.Table of Contents1. Kotlin: Powerful and Pragmatic2. Language Fundamentals3. Defining Functions4. Working with Classes and Objects5. Leveraging Advanced Functions and Functional Programming6. Using Special-Case Classes7. Understanding Class Hierarchies8. Exploring Collections and I/O9. Generics10. Annotations and Reflection11. Domain-Specific Languages12. Java Interoperability13. Concurrency14. Testing with Kotlin15. Android Applications16. Web Development with Ktor17. Building MicroserviceAbout the AuthorAleksei Sedunov has been working as a Java developer since 2008. Since joining JetBrains in 2012, he's been actively participating in the Kotlin language development, focusing on IDE tooling for the IntelliJ platform. Currently, he's working in a DataGrip team, a JetBrains Database IDE, while carrying on with Kotlin as a main development tool.His LinkedIn Profile: https://www.linkedin.com/in/alexey-sedunov-8554a530/

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.

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 best-selling 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.