To
My parents, Ram Vinod Singh and Pratibha Devi
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I recently had the privilege of tech reviewing Kishori Sharan’s *Beginning Java 8 APIs, Extensions, and Libraries* book, which continues on from his *Beginning Java 8 Language Features* book by covering more advanced Java APIs. Within this volume, you learn about Swing, applets, network programming, JDBC, remote method invocation, the Java Native Interface, JavaFX, and Java’s scripting framework.

This book offers a wealth of detail. For example, in his chapter on JDBC, Kishori covers result sets along with row sets, which derive from result sets, and which you might expect to see covered in a book focused on enterprise Java. Kishori also provides decent coverage of Java’s Swing user interface API while not shying away from the modern JavaFX alternative.

As I recommended in my forward to this book’s predecessor, I believe that *Beginning Java 8 APIs, Extensions, and Libraries* definitely deserves a place on your bookshelf.

—Jeff Friesen
August/2014
Introduction

How This Book Came About

My first encounter with the Java programming language was during a one-week Java training session in 1997. I did not get a chance to use Java in a project until 1999. I read two Java books and took a Java 2 Programmer certification examination. I did very well on the test, scoring 95 percent. The three questions that I missed on the test made me realize that the books I read did not adequately cover all of the details on all of the necessary Java topics. I made up my mind to write a book on the Java programming language. So I formulated a plan to cover most of the topics that a Java developer needs understand to use the Java programming language effectively in a project, as well as to get a certification. I initially planned to cover all essential topics in Java in 700 to 800 pages.

As I progressed, I realized that a book covering most of the Java topics in detail could not be written in 700 to 800 hundred pages; one chapter that covered data types, operators, and statements spanned 90 pages. I was then faced with the question, “Should I shorten the content of the book or include all the details that I think a Java developer needs?” I opted for including all the details in the book, rather than shortening the content to keep the number of pages low. It has never been my intent to make lots of money from this book. I was never in a hurry to finish this book because that rush could have compromised the quality and the coverage of its contents. In short, I wrote this book to help the Java community understand and use the Java programming language effectively, without having to read many books on the same subject. I wrote this book with the plan that it would be a comprehensive one-stop reference for everyone who wants to learn and grasp the intricacies of the Java programming language.

One of my high school teachers used to tell us that if one wanted to understand a building, one must first understand the bricks, steel, and mortar that make up the building. The same logic applies to most of the things that we want to understand in our lives. It certainly applies to an understanding of the Java programming language. If you want to master the Java programming language, you must start by understanding its basic building blocks. I have used this approach throughout this book, endeavoring to build each topic by describing the basics first. In the book, you will rarely find a topic described without first learning its background. Wherever possible, I have tried to correlate the programming practices with activities in our daily life. Most books about the Java programming language either do not include any pictures at all or have only a few. I believe in the adage, “A picture is worth a thousand words.” To a reader, a picture makes a topic easier to understand and remember. I have included plenty of illustrations in this book to aid readers in understanding and visualizing concepts. Developers who have little or no programming experience can have difficulty putting things together to make a complete program. Keeping them in mind, the book contains over 216 complete Java programs that are ready to be compiled and run.

I spent countless hours doing research for this book. My main sources of research were the Java Language Specification, white papers and articles on Java topics, and Java Specification Requests (JSRs). I also spent quite a bit of time reading the Java source code to learn more about some of the Java topics. Sometimes it took a few months to research a topic before I could write the first sentence on it. It was always fun to play with Java programs, sometimes for hours, to add them to the book.
Structure of the Book

This is the third book in the three-book Beginning Java series. This book contains 10 chapters. The chapters cover the Java libraries and extensions such as Swing, JavaFX, Nashorn, Java Native Interface, network programming, etc. If you have intermediate level Java experience, you can pick up chapters in any order. The new features of Java 8 are included wherever they fit in the chapter. The Nashorn script engine, which was added in Java 8, is covered in depth.

Audience

This book is designed to be useful for anyone who wants to learn the Java programming language. If you are a beginner with little or no programming background in Java, you are advised to read the companion books, Beginning Java 8 Fundamentals and Beginning Java 8 Language Features, before reading this book.

If you are a Java developer with an intermediate or advanced level of experience, you can jump to a chapter or a section in a chapter directly.

If you are reading this book to get a certification in the Java programming language, you need to read almost all of the chapters, paying attention to all of the detailed descriptions and rules. Most of the certification programs test your fundamental knowledge of the language, not advanced knowledge. You need to read only those topics that are part of your certification test. Compiling and running over 216 complete Java programs will help you prepare for your certification.

If you are a student who is attending a class in the Java programming language, you should read the chapters of this book selectively. You need to read only those chapters that are covered in your class syllabus. I am sure that you, as a Java student, do not need to read the entire book page by page.

How to Use This Book

This book is the beginning, not the end, of gaining knowledge of the Java programming language. If you are reading this book, it means you are heading in the right direction to learn the Java programming language, which will enable you to excel in your academic and professional career. However, there is always a higher goal for you to achieve and you must constantly work hard to achieve it. The following quotations from some great thinkers may help you understand the importance of working hard and constantly looking for knowledge with both your eyes and mind open.

*The learning and knowledge that we have is, at the most, but little compared with that of which we are ignorant.*

—Plato

*True knowledge exists in knowing that you know nothing. And in knowing that you know nothing, that makes you the smartest of all.*

—Socrates

Readers are advised to use the API documentation for the Java programming language as much as possible while using this book. The Java API documentation is where you will find a complete list of everything available in the Java class library. You can download (or view) the Java API documentation from the official web site of Oracle Corporation at [www.oracle.com](http://www.oracle.com). While you read this book, you need to practice writing Java programs yourself. You can also practice by tweaking the programs provided in the book. It does not help much in your learning process if you just read this book and do not practice by writing your own programs. Remember that “practice makes perfect,” which is also true in learning how to program in Java.
Source Code and Errata

Source code and errata for this book may be downloaded from www.apress.com/source-code.

Questions and Comments

Please direct all your questions and comments for the author to ksharan@jdojo.com.