

OCP Java SE 7

Programmer II

CERTIFICATION GUIDE

Prepare for the 1Z0-804 exam



Mala Gupta



***OCP Java SE 7 Programmer II
Certification Guide***

by Mala Gupta

Introduction

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Introduction

This introduction covers

- Introduction to the Oracle Certified Professional (OCP) Java SE 7 Programmer II certification (exam number 1Z0-804)
- Importance of OCP Java SE 7 Programmer II certification
- Detailed exam objectives, mapped to book chapters
- FAQ on exam preparation and on taking the exam
- Introduction to the testing engine used for the exam

This book is intended specifically for individuals who wish to earn the Oracle Certified Professional (OCP) Java SE 7 Programmer II certification (exam number 1Z0-804). It assumes that you have practical experience of working with Java. If you are completely new to Java or to object-oriented languages, I suggest that you start your journey with an entry-level book and then come back to this one.

Disclaimer

The information in this chapter is sourced from Oracle.com, public websites, and user forums. Input has been taken from real people who have earned Java certification, including the author. All efforts have been made to maintain the accuracy of the content, but the details of the exam—including its objectives, pricing, pass score, total number of questions, and maximum duration—are subject to change per Oracle’s policies. The author and publisher of the book shall not be held responsible for any loss or damage accrued due to any information contained in this book or due to any direct or indirect use of this information.

Introduction to OCP Java SE 7 Programmer II certification (1Z0-804)

The Oracle Certified Professional Java SE 7 Programmer II certification exam (1Z0-804) covers intermediate and advanced concepts of Java programming, such as the importance of threads, concurrency, localization, JDBC, String processing, and design patterns.

This exam is the second of the two steps in earning the title of OCP Java SE 7 Programmer. The first step is to earn the OCA Java SE 7 Programmer I certification (1Z0-803).



NOTE Though you can write the exams 1Z0-803 and 1Z0-804 in any order to earn the title of OCP Java SE 7 Programmer, it is highly recommended that you write exam 1Z0-803 before exam 1Z0-804. Exam 1Z0-803 covers basics of Java and exam 1Z0-804 covers advanced Java topics.

This exam certifies that an individual possesses strong practical skills in intermediate and advanced Java programming language concepts. Table 1 lists the details of this exam.

Table 1 Details for OCP Java SE 7 Programmer II exam (1Z0-804)

Exam number	1Z0-804
Java version	Based on Java version 7
Number of questions	90
Passing score	65%
Time duration	150 minutes
Pricing	US \$245
Type of questions	Multiple-choice

The importance of the OCP Java SE 7 Programmer II certification

Real, on-the-job projects need you to understand and work with multiple basic and advanced concepts. Apart from covering the finer details of basic Java-like class design, it covers advanced Java topics like threading, concurrency, localization, File I/O, string processing, exception handling, assertions, collections API, and design patterns. This

certification establishes your expertise with these topics, increasing your prospects for better projects, jobs, remuneration, responsibilities, and designations.

The OCP Java SE 7 Programmer II exam (1Z0-804) is an entry-level exam in your Java certification roadmap, as shown in figure 1. This exam is a prerequisite for most of the other Professional and Expert Oracle certifications in Java. The dashed lines and arrows in the figure depict the prerequisites for certifications.

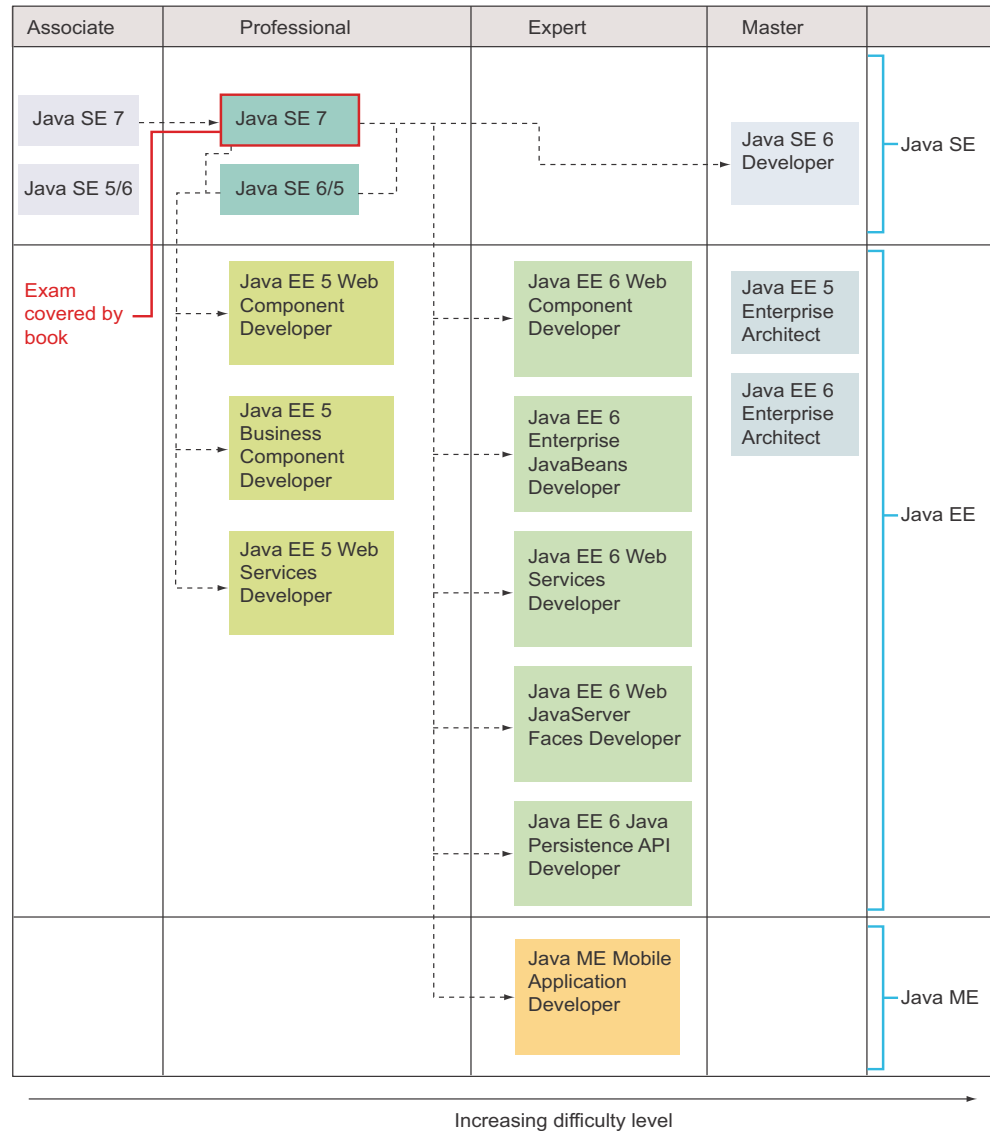


Figure 1 The OCP Java SE 7 Programmer II certification (1Z0-804) is an entry-level certification in the Java certification roadmap. It's a prerequisite for writing most of the other Professional and Expert certifications in Java.

As shown in figure 1, the Java certification tracks are offered under the categories Associate, Professional, Expert, and Master.

Comparing the OCA Java SE 7 Programmer I (1Z0-803) and OCP Java SE 7 Programmer II (1Z0-804) exams

The confusion about these two exams is due to the similarity in their names, but these are separate exams. Starting with Java 7, Oracle has raised the bar to earn the title of Oracle Certified Professional Java SE 7 Programmer, which now requires successfully completing the following two exams:

- OCA Java SE 7 Programmer I (exam number: 1Z0-803)
- OCP Java SE 7 Programmer II (exam number: 1Z0-804)

The OCA Java SE 7 Programmer certification is designed for individuals who possess basic skills in the Java programming language. Exam 1Z0-803 covers comparatively basic Java language features, such as data types, operators, decision constructs, arrays, methods, inheritance, and exception handling.

Complete exam objectives, mapped to book chapters, and readiness checklist

Table 2 shows the complete list of exam objectives for the OCP Java SE 7 Programmer II exam, which was taken from Oracle's website. All the objectives are mapped to the book's chapters and the section numbers that cover them.

Table 2 Exam objectives and subobjectives mapped to chapter and section numbers

	Exam objective as per Oracle's website	Covered in chapter/ section
1	Java class design	Chapter 1
1.1	Use access modifiers: private, protected, and public	Section 1.1
1.2	Override methods	Section 1.3
1.3	Overload constructors and methods	Section 1.2
1.4	Use the instanceof operator and casting	Section 1.5
1.5	Use virtual method invocation	Section 1.3
1.6	Override the hashCode, equals, and toString methods from the Object class to improve the functionality of your class	Section 1.4
1.7	Use package and import statements	Section 1.6
2	Advanced class design	Chapter 2
2.1	Identify when and how to apply abstract classes	Section 2.1
2.2	Construct abstract Java classes and subclasses	Section 2.1
2.3	Use the static and final keywords	Section 2.2

Table 2 Exam objectives and subobjectives mapped to chapter and section numbers

	Exam objective as per Oracle's website	Covered in chapter/ section
2.4	Create top-level and nested classes	Section 2.4
2.5	Use enumerated types	Section 2.3
3	Object-oriented design principles	Chapter 3
3.1	Write code that declares, implements, and/or extends interfaces	Section 3.1
3.2	Choose between interface inheritance and class inheritance	Section 3.2
3.3	Apply cohesion, low-coupling, IS-A, and HAS-A principles	Sections 3.3, 3.4
3.4	Apply object composition principles (including HAS-A relationships)	Section 3.5
3.5	Design a class using the Singleton design pattern	Section 3.7
3.6	Write code to implement the Data Access Object (DAO) pattern	Section 3.9
3.7	Design and create objects using a Factory pattern	Section 3.8
4	Generics and collections	Chapter 4
4.1	Create a generic class	Section 4.2
4.2	Use the diamond for type inference	Section 4.3
4.3	Analyze the interoperability of collections that use raw types and generic types	Section 4.4
4.4	Use wrapper classes, autoboxing, and unboxing	Sections 4.11, 4.12
4.5	Create and use <code>List</code> , <code>Set</code> , and <code>Deque</code> implementations	Section 4.7
4.6	Create and use <code>Map</code> implementations	Section 4.8
4.7	Use <code>java.util.Comparator</code> and <code>java.lang.Comparable</code>	Section 4.9
4.8	Sort and search arrays and lists	Section 4.10
5	String processing	Chapter 5
5.1	Search, parse, and build strings (including <code>Scanner</code> , <code>StringTokenizer</code> , <code>StringBuilder</code> , <code>String</code> , and <code>Formatter</code>)	Section 5.1
5.2	Search, parse, and replace strings by using regular expressions, using expression patterns for matching limited to: <code>.</code> (dot), <code>*</code> (star), <code>+</code> (plus), <code>?</code> , <code>\d</code> , <code>\D</code> , <code>\s</code> , <code>\S</code> , <code>\w</code> , <code>\W</code> , <code>\b</code> , <code>\B</code> , <code>[]</code> , <code>()</code>	Sections 5.1, 5.2
5.3	Format strings using the formatting parameters: <code>%b</code> , <code>%c</code> , <code>%d</code> , <code>%f</code> , and <code>%s</code> in format strings	Section 5.3
6	Exceptions and assertions	Chapter 6
6.1	Use <code>throw</code> and <code>throws</code> statements	Section 6.1
6.2	Use the <code>try</code> statement with multi-catch and <code>finally</code> clauses	Section 6.4

Table 2 Exam objectives and subobjectives mapped to chapter and section numbers (continued)

	Exam objective as per Oracle's website	Covered in chapter/ section
6.3	Develop code that uses <code>try-with-resources</code> statements	Section 6.5
6.4	Create custom exceptions	Section 6.2
6.5	Test invariants by using assertions	Section 6.6
7	Java I/O fundamentals	Chapter 7
7.1	Read and write data from the console	Section 7.5
7.2	Use streams to read from and write to files by using classes in the <code>java.io</code> package including <code>BufferedReader</code> , <code>BufferedWriter</code> , <code>File</code> , <code>FileReader</code> , <code>FileWriter</code> , <code>DataInputStream</code> , <code>DataOutputStream</code> , <code>ObjectOutputStream</code> , <code>ObjectInputStream</code> , and <code>PrintWriter</code>	Sections 7.2, 7.3, 7.4
8	Java file I/O (NIO.2)	Chapter 8
8.1	Operate on file and directory paths with the <code>Path</code> class	Section 8.1
8.2	Check, delete, copy, or move a file or directory with the <code>Files</code> class	Section 8.2
8.3	Read and change file and directory attributes, focusing on the <code>BasicFileAttributes</code> , <code>DosFileAttributes</code> , and <code>PosixFileAttributes</code> interfaces	Section 8.3
8.4	Recursively access a directory tree using the <code>DirectoryStream</code> and <code>FileVisitor</code> interfaces	Section 8.4
8.5	Find a file with the <code>PathMatcher</code> interface	Section 8.5
8.6	Watch a directory for changes with the <code>WatchService</code> interface	Section 8.6
9	Building database applications with JDBC	Chapter 9
9.1	Describe the interfaces that make up the core of the JDBC API (including <code>Driver</code> , <code>Connection</code> , <code>Statement</code> , and <code>ResultSet</code>) and their relationships to provider implementations	Section 9.2
9.2	Identify the components required to connect to a database using the <code>DriverManager</code> class (including the JDBC URL)	Section 9.3
9.3	Submit queries and read results from the database (including creating statements, returning result sets, iterating through the results, and properly closing result sets, statements, and connections)	Section 9.4
9.4	Use JDBC transactions (including disabling auto-commit mode, committing and rolling back transactions, and setting and rolling back to savepoints)	Section 9.5
9.5	Construct and use <code>RowSet</code> objects using the <code>RowSetProvider</code> class and the <code>RowSetFactory</code> interface	Section 9.6

Table 2 Exam objectives and subobjectives mapped to chapter and section numbers

	Exam objective as per Oracle's website	Covered in chapter/ section
9.6	Create and use <code>PreparedStatement</code> and <code>CallableStatement</code> objects	Section 9.7
10	Threads	Chapter 10
10.1	Create and use the <code>Thread</code> class and the <code>Runnable</code> interface	Section 10.1
10.2	Manage and control thread lifecycle	Section 10.2
10.3	Synchronize thread access to shared data	Section 10.3
10.4	Identify code that may not execute correctly in a multi-threaded environment	Section 10.4
11	Concurrency	Chapter 11
11.1	Use collections from the <code>java.util.concurrent</code> package with a focus on the advantages over and differences from the traditional <code>java.util</code> collections	Section 11.1
11.2	Use <code>Lock</code> , <code>ReadWriteLock</code> , and <code>ReentrantLock</code> classes in the <code>java.util.concurrent.locks</code> package to support lock-free, thread-safe programming on single variables	Section 11.2
11.3	Use <code>Executor</code> , <code>ExecutorService</code> , <code>Executors</code> , <code>Callable</code> , and <code>Future</code> to execute tasks using thread pools	Section 11.3
11.4	Use the parallel fork/join framework	Section 11.4
12	Localization	Chapter 12
12.1	Read and set the locale by using the <code>Locale</code> object	Section 12.2
12.2	Build a resource bundle for each locale	Section 12.2
12.3	Call a resource bundle from an application	Section 12.2
12.4	Format dates, numbers, and currency values for localization with the <code>NumberFormat</code> and <code>DateFormat</code> classes (including number format patterns)	Section 12.3
12.5	Describe the advantages of localizing an application	Section 12.1
12.6	Define a locale using language and country codes	Section 12.1

FAQ

You might be anxious when you start your exam preparation or even think about getting certified. This section can help calm your nerves by answering frequently asked questions on exam preparation and on writing the exam.

FAQ on exam preparation

This sections answers frequently asked questions on how to prepare for the exam, including the best approach, study material, preparation duration, and how to test self-readiness.

WILL THE EXAM DETAILS EVER CHANGE FOR THE OCP JAVA SE 7 PROGRAMMER II EXAM?

Oracle can change the exam details for a certification even after the certification is made live. The changes can be made to any of its details, like exam objectives, pricing, exam duration, exam questions, and others. In the past, Oracle has made similar changes to certification exams. Such changes may not be major, but it is always advisable to check Oracle's website for the latest exam information when you start your exam preparation.

WHAT IS THE BEST WAY TO PREPARE FOR THIS EXAM?

Generally, candidates use a combination of resources, such as books, online study materials, articles on the exam, free and paid mock exams, and training to prepare for the exam. Different combinations work best for different people, and there is no one perfect formula for preparation. Select the method—training or self-study—that works best for you. Combine it with a lot of code practice and mock exams.

HOW DO I KNOW WHEN I AM READY FOR THE EXAM?

You can be sure about your exam readiness by *consistently* getting a good score on the mock exams. Generally, a score of 80% and above on approximately 7 mock exams (the more the better) attempted consecutively will assure you of a similar score on the real exam.

HOW MANY MOCK TESTS SHOULD I ATTEMPT BEFORE THE REAL EXAM?

Ideally, you should attempt at least five complete mock exams before you attempt the real exam. The more the better!

I HAVE TWO–FOURS YEARS' EXPERIENCE WORKING WITH JAVA. DO I STILL NEED TO PREPARE FOR THIS CERTIFICATION?

There is a difference between the practical knowledge of having worked with Java and the knowledge required to pass this certification exam. The authors of the Java certification exams employ multiple tricks to test your knowledge. Hence, you need a structured preparation and approach to succeed on the certification exam.

WHAT IS THE IDEAL TIME REQUIRED TO PREPARE FOR THE EXAM?

The preparation time frame mainly depends on your experience with Java and the amount of time that you can spend to prepare yourself. On average, you will require approximately 200 hours of study over two or three months to prepare for this exam. Again, the number of study hours required depends on individual learning curves and backgrounds.

It's important to be consistent with your exam preparation. You cannot study for a month and then restart after, say, a gap of a month or more.

DO I NEED TO COMPLETE ANY TRAINING FROM ORACLE?

Though Oracle requires candidates to complete specific Oracle training programs for a few of its certification courses, it isn't mandatory to complete any training from Oracle for this certification.

DOES THIS EXAM INCLUDE ANY UNSCORED QUESTIONS?

A few of the questions that you write on any Oracle exam may be marked unscored. Oracle's policy states that while writing an exam, you won't be informed whether a question will be scored. You may be surprised to learn that as many as 10 out of the 90 questions on the OCP Java SE 7 Programmer II exam may be unscored. Even if you answer a few questions incorrectly, you stand a chance of scoring 100%.

Oracle regularly updates its question bank for all its certification exams. These unscored questions may be used for research and to evaluate new questions that can be added to an exam.

CAN I START MY EXAM PREPARATION WITH THE MOCK EXAMS?

If you are quite comfortable with the advanced Java language features, then yes, you can start your exam preparation with the mock exams. This will also help you to understand the types of questions to expect on the real certification exam. But if you have little or no experience working with advanced Java concepts, I don't advise you to start with the mock exams. The exam authors often use a lot of tricks to evaluate a candidate on the real certification exam. Starting your exam preparation with mock exams will only leave you confused about the Java concepts.

SHOULD I REALLY BOTHER GETTING CERTIFIED?

Yes, you should, for the simple reason that employers bother about the certification of employees. Organizations prefer a certified Java developer over a noncertified Java developer with similar IT skills and experience. The certification can also get you a higher paycheck than uncertified peers with comparable skills.

FAQ on taking the exam

This section contains a list of frequently asked questions related to exam registration, the exam coupon, do's and don't's while taking the exam, and exam retakes.

WHERE AND HOW DO I WRITE THIS EXAM?

You can write this exam at an Oracle Testing Center or Pearson VUE Authorized Testing Center. To sit for the exam, you must register and purchase an exam voucher. The following options are available:

- Register for the exam and pay Pearson VUE directly.
- Purchase an exam voucher from Oracle and register at Pearson VUE to take the exam.
- Register at an Oracle Testing Center.

Look for the nearest testing centers in your area, register yourself, and schedule an exam date and time. Most of the popular computer training institutes also have a

testing center on their premises. You can locate a Pearson VUE testing site at www.pearsonvue.com/oracle/, which contains detailed information on locating testing centers and scheduling or rescheduling an exam. At the time of registration, you'll need to provide the following details along with your name, address, and contact numbers:

- Exam title and number (OCP Java SE 7 Programmer II, 1Z0-804)
- Any discount code that should be applied during registration
- Oracle Testing ID/Candidate ID, if you have written any other Oracle/Sun certification exam(s)
- Your OPN Company ID (If your employer is in the Oracle Partner Network, you can find out the company ID and use any available discounts on the exam fee.)

HOW LONG IS THE EXAM COUPON VALID FOR?

Each exam coupon is printed with an expiration date. Beware of any discounted coupons that come with an assurance that they can be used past the expiration date.

CAN I REFER TO NOTES OR BOOKS WHILE WRITING THIS EXAM?

You can't refer to any books or notes while writing this exam. You are not allowed to carry any blank paper for rough work or even your mobile phone inside the testing cubicle.

WHAT IS THE PURPOSE OF MARKING A QUESTION WHILE WRITING THE EXAM?

By marking a question, you can manage your time efficiently. Don't spend a lot of time on a single question. You can mark a difficult question to defer answering it while writing your exam. You have an option to review answers to the marked questions at the end of the exam. Also, navigating from one question to another using Back and Next buttons is usually time-consuming. If you are unsure of an answer, mark it and review it at the end.

CAN I WRITE DOWN THE EXAM QUESTIONS AND BRING THEM BACK WITH ME?

No. The exam centers no longer provide sheets of paper for the rough work that you may need to do while taking the exam. The testing center will provide you with either erasable or nonerasable boards. If you're provided with a nonerasable board, you may request another one if you need it.

Oracle is quite particular about certification candidates distributing or circulating the memorized questions in any form. If Oracle finds out that this is happening, it may cancel a candidate's certificate, bar that candidate forever from writing any Oracle certification, inform the employer, or take legal action.

WHAT HAPPENS IF I COMPLETE THE EXAM BEFORE OR AFTER THE TOTAL TIME?

If you complete the exam before the total exam time has elapsed, review your answers and click the Submit or finish button.

If you have not clicked the Submit button and you use up all the exam time, the exam engine will no longer allow you to modify any of the exam answers and will present the screen with the Submit button.

WILL I RECEIVE MY SCORE IMMEDIATELY AFTER THE EXAM?

No, you won't. When you click the Submit exam button, the screen will inform you that your exam results will be available in an hour. Usually Oracle sends you an email when the results can be accessed online. Even if you don't receive an email from Oracle, you could log in and check your result. The result includes your score on each exam objective. The certificate itself will arrive via mail within six to eight weeks.

WHAT HAPPENS IF I FAIL? CAN I RETAKE THE EXAM?

It's not the end of the world. Don't worry if you fail. You can retake the exam after 14 days (and the world will not know it's a retake).

However, you cannot retake a passed exam to improve your score. Also, you cannot retake a beta exam.

The testing engine used in the exam

The UI of the testing engine used for the certification exam is quite simple. (You could even call it primitive, compared to today's web, desktop, and smartphone applications.)

Before you can start the exam, you will be required to accept the terms and conditions of the Oracle Certification Candidate Agreement. Your computer screen will display all these conditions and give you an option to accept the conditions. You can proceed with writing the exam only if you accept these conditions.

Here are the features of the testing engine used by Oracle:

- *The engine UI is divided into three sections.* The UI of the testing engine is divided into the following three segments:
 - *Static upper section*—Displays question number, time remaining, and a checkbox to mark a question for review.
 - *Scrollable middle section*—Displays the question text and the answer options.
 - *Static bottom section*—Displays buttons to display the previous question, display the next question, end the exam, and review marked questions.
- *Each question is displayed on a separate screen.* The exam engine displays one question on the screen at a time. It does not display multiple questions on a single screen, like a scrollable web page. All effort is made to display the complete question and answer options without scrolling, or with little scrolling.
- *Code exhibit button.* Many questions include code. Such questions, together with their answers, may require significant scrolling to be viewed. As this can be quite inconvenient, such questions include a Code Exhibit button that displays the code in a separate window.
- *Mark questions to be reviewed.* The question screen displays a check box with the text "Mark for review" at the top-left corner. A question can be marked using this option. The marked questions can be reviewed at the end of the exam.
- *Buttons to display previous and next questions.* The test includes buttons to display previous and next questions within the bottom section of the testing engine.

- *Buttons to end the exam and review marked questions.* The engine displays buttons to end the exam and to review the marked questions in the bottom section of the testing engine.
- *Remaining time.* The engine displays the time remaining for the exam at the top right of the screen.
- *Question number.* Each question displays its serial number.
- *Correct number of answer options.* Each question displays the correct number of options that should be selected from multiple options.

On behalf of all at Manning Publications, I wish you good luck and hope that you score very well on your exam.

OCF Java SE 7

Programmer II Certification Guide

Mala Gupta



The OCP Java 7 certification tells potential employers that you've mastered the language skills you need to design and build professional-quality Java software. Passing the OCP isn't just about knowing your Java, though. You have to also know what to expect on the exam and how to beat the built-in tricks and traps.

OCF Java SE 7 Programmer II Certification Guide is a comprehensive, focused study guide that prepares you to pass the OCP exam the first time you take it. It systematically guides you through each exam objective, reinforcing the Java skills you need through examples, exercises, and cleverly constructed visual aids. In every chapter you'll find questions just like the ones you'll face on the real exam. Tips, diagrams, and review notes give structure to the learning process to improve your retention.

What's Inside

- 100% coverage of the OCP Java SE 7 Programmer II exam (1Z0-804)
- Flowcharts, UML diagrams, and other visual aids
- Hands-on coding exercises
- Focuses on passing the exam, not the Java language itself

Designed for readers with intermediate-level Java skills.

Mala Gupta is a trainer of programmers who plan to pass Java certification exams. She holds the OCP Java SE 7 Programmer, SCWCD, and SCJP certifications and is the author of *OCA Java SE 7 Programmer I Certification Guide* (Manning 2013).

To download their free eBook in PDF, ePub, and Kindle formats, owners of this book should visit
manning.com/ocf-java-se-7-programmer-ii-certification-guide

“A good read for all who want to deepen their Java knowledge, even if not preparing for the exam.”

—Simon Joseph Aquilina
KPMG Crimsonwing

“Makes the certification objectives clear and easy to understand.”

—Mikael Strand, Capgemini

“An excellent resource for the OCP certification exam.”

—Ashutosh Sharma
Discover Financial Services, LLC

“With a conversational style of writing, detailed code examples, and self-test questions, this book will successfully lead you to your OCP certification.”

—Mikalai Zaikin, IBA IT Park

