uCertify

Course Outline

Core Java: Volume II - Advanced Features

12 May 2024

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3. Exercises, Quizzes, Flashcards & Glossary

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4. Expert Instructor-Led Training
5. ADA Compliant & JAWS Compatible Platform
6. State of the Art Educator Tools
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   Chapter 1: Streams

   Chapter 2: Input and Output

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Here's what you get

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1. Course Objective

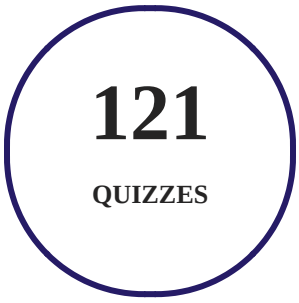
Learn Java programming with the Core Java Volume II course and lab. Lab simulates real-world, hardware, software, and command-line interface environments and can be mapped to any text-book, course, or training. The Java online course and lab cover Java technology required to work in real projects and provides skills in Java stream library, XML, date and time API, scripting, compiling, and more. The course has the best Java tutorials to help you master all the Java programming skills.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

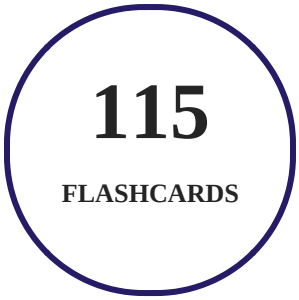
3. Quizzes

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.



4. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.



5. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.

6. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

7. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

8. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

9. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
    1. Best Postsecondary Learning Solution

- **2015**
    1. Best Education Solution

2. Best Virtual Learning Solution
3. Best Student Assessment Solution
4. Best Postsecondary Learning Solution
5. Best Career and Workforce Readiness Solution
6. Best Instructional Solution in Other Curriculum Areas
7. Best Corporate Learning/Workforce Development Solution

- **2016**
    1. Best Virtual Learning Solution
    2. Best Education Cloud-based Solution
    3. Best College and Career Readiness Solution
    4. Best Corporate / Workforce Learning Solution
    5. Best Postsecondary Learning Content Solution
    6. Best Postsecondary LMS or Learning Platform
    7. Best Learning Relationship Management Solution

- **2017**
    1. Best Overall Education Solution
    2. Best Student Assessment Solution
    3. Best Corporate/Workforce Learning Solution
    4. Best Higher Education LMS or Learning Platform

- **2018**
    1. Best Higher Education LMS or Learning Platform
    2. Best Instructional Solution in Other Curriculum Areas
    3. Best Learning Relationship Management Solution

- **2019**
    1. Best Virtual Learning Solution
    2. Best Content Authoring Development or Curation Solution
    3. Best Higher Education Learning Management Solution (LMS)

- **2020**

1. Best College and Career Readiness Solution
2. Best Cross-Curricular Solution
3. Best Virtual Learning Solution

10. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Streams

- From Iterating to Stream Operations
- Stream Creation
- The filter, map, and flatMap Methods
- Extracting Substreams and Combining Streams
- Simple Reductions
- The Optional Type
- Collecting Results

- Collecting into Maps
- Grouping and Partitioning
- Downstream Collectors
- Reduction Operations
- Primitive Type Streams
- Parallel Streams

Chapter 2: Input and Output

- Input/Output Streams
- Reading and Writing Binary Data
- Object Input/Output Streams and Serialization
- Working with Files
- Memory-Mapped Files
- File Locking
- Regular Expressions

Chapter 3: XML

- Introducing XML
- The Structure of an XML Document

- Parsing an XML Document
- Validating XML Documents
- Locating Information with XPath
- Using Namespaces
- Streaming Parsers
- Generating XML Documents
- XSL Transformations

Chapter 4: Networking

- Connecting to a Server
- Implementing Servers
- Getting Web Data
- The HTTP Client
- Sending E-Mail

Chapter 5: Database Programming

- The Design of JDBC
- The Structured Query Language

- JDBC Configuration
- Working with JDBC Statements
- Query Execution
- Scrollable and Updatable Result Sets
- Row Sets
- Metadata
- Transactions
- Connection Management in Web and Enterprise Applications

Chapter 6: The Date and Time API

- The Time Line
- Local Dates
- Date Adjusters
- Local Time
- Zoned Time
- Formatting and Parsing
- Interoperating with Legacy Code

Chapter 7: Internationalization

- Locales
- Number Formats
- Date and Time
- Collation and Normalization
- Message Formatting
- Text Input and Output
- Resource Bundles
- A Complete Example

Chapter 8: Scripting, Compiling, and Annotation Processing

- Scripting for the Java Platform
- The Compiler API
- Using Annotations
- Annotation Syntax
- Standard Annotations
- Source-Level Annotation Processing
- Bytecode Engineering

Chapter 9: The Java Platform Module System

- The Module Concept
- Naming Modules
- The Modular “Hello, World!” Program
- Requiring Modules
- Exporting Packages
- Modular JARs
- Modules and Reflective Access
- Automatic Modules
- The Unnamed Module
- Command-Line Flags for Migration
- Transitive and Static Requirements
- Qualified Exporting and Opening
- Service Loading
- Tools for Working with Modules

Chapter 10: Security

- Class Loaders
- Security Managers and Permissions

- User Authentication
- Digital Signatures
- Encryption

Chapter 11: Advanced Swing and Graphics

- Tables
- Trees
- Advanced AWT
- Raster Images
- Printing

Chapter 12: Native Methods

- Calling a C Function from a Java Program
- Numeric Parameters and Return Values
- String Parameters
- Accessing Fields
- Encoding Signatures
- Calling Java Methods

- Accessing Array Elements
- Handling Errors
- Using the Invocation API
- A Complete Example: Accessing the Windows Registry

Videos and How To

uCertify course includes videos to help understand concepts. It also includes How Tos that help learners in accomplishing certain tasks.

19	02:07
VIDEOS	HOURS

11. Practice Test

Here's what you get

105	2	102
PRE-ASSESSMENTS QUESTIONS	FULL LENGTH TESTS	POST-ASSESSMENTS QUESTIONS

Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

12. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality
- No hardware costs

Lab Tasks

Streams

- Creating Streams using Collections
- Using the count() Method
- Using the flatmap() Method
- Using the limit() Method
- Using the sorted() Method
- Using the findAny() Method
- Using the collect() Method
- Converting Stream to Map
- Using the Collectors partitioningBy() Method
- Using the counting() Method
- Using the collectingAndThen() Method
- Using the reduce() Method
- Using the IntStream range() Method
- Using the Longstream Method

Input and Output

- Convert InputStream to String with BufferedReader
- Reading and Writing Binary Files
- Using the ObjectStream Class
- Working with Files
- Using Java Memory-Mapped Files
- Using Java Regular Expressions

Networking

- Obtaining the Internet Address
- Using URI.getScheme()

Database Programming

- Working with JDBC Statements
- Executing a SQL Query

The Date and Time API

- Get the Current Timestamp

Internationalization

- Using the Locale Class
- Using the NumberFormat Class
- Using the MessageFormat class

Scripting, Compiling, and Annotation Processing

- Listing all the Available Script Engines
- Creating, Applying, and Accessing Annotations

Security

- Verification of Bytecode in Java
- Using the Logger Class
- Generating Password
- Implementing AES Encryption

Advanced Swing and Graphics

- Creating a Table
- Viewing a Database Table

Native Methods

- Using the Numeric Parameters and Return Values
- Using String Parameters

- Calling Java Methods
- Accessing Array Elements
- Handling Java Exception

Here's what you get

41	41	01
LIVE LABS	VIDEO TUTORIALS	MINUTES

13. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

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