uCertify

Course Outline

Java® All-in-One For Dummies®

04 Aug 2025

1. Exercises, Quizzes, Flashcards & Glossary

   Number of Questions
2. Expert Instructor-Led Training
3. ADA Compliant & JAWS Compatible Platform
4. State of the Art Educator Tools
5. Award Winning Learning Platform (LMS)
6. Chapter & Lessons

   Syllabus

   Chapter 1: Introduction

   Chapter 2: Welcome to Java

   Chapter 3: Installing and Using Java Tools

   Chapter 4: Working with TextPad

   Chapter 5: Java Programming Basics

   Chapter 6: Working with Variables and Data Types

   Chapter 7: Working with Numbers and Expressions

   Chapter 8: Making Choices

   Chapter 9: Going Around in Circles (or, Using Loops)

   Chapter 10: Pulling a Switcheroo

   Chapter 11: Adding Some Methods to Your Madness

   Chapter 12: Handling Exceptions

   Chapter 13: Understanding Object-Oriented Programming

   Chapter 14: Making Your Own Classes

   Chapter 15: Working with Statics

   Chapter 16: Using Subclasses and Inheritance

   Chapter 17: Using Abstract Classes and Interfaces

   Chapter 18: Using the Object and Class Classes

   Chapter 19: Using Inner Classes and Anonymous Classes

   Chapter 20: Working with Packages and the Java Module System

1. 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.

2.  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.

3.  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.

4.  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

5.  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: Introduction

- About This Course
- False Assumptions
- Icons Used in This course
- Beyond the Course
- Where to Go from Here

Chapter 2: Welcome to Java

- What Is Java, and Why Is It So Great?
- Important Features of the Java Language
- Java Version Insanity
- What’s in a Name?

Chapter 3: Installing and Using Java Tools

- Downloading and Installing the Java Development Kit
- Confirming Your Java Version
- Using Java’s Command-Line Tools
- Using Java Documentation

Chapter 4: Working with TextPad

- Downloading and Installing TextPad
- Editing Source Files
- Compiling a Program
- Running a Java Program

Chapter 5: Java Programming Basics

- Looking at the Venerable Hello, World! Program
- Dealing with Keywords
- Working with Statements
- Working with Blocks
- Creating Identifiers
- Crafting Comments
- Introducing Object-Oriented Programming
- Importing Java API Classes

Chapter 6: Working with Variables and Data Types

- Declaring Variables
- Initializing Variables
- Using Final Variables (Constants)
- Working with Primitive Data Types
- Working with Strings
- Converting and Casting Numeric Data
- Thinking Inside the Box
- Understanding Scope

- Shadowing Variables
- Printing Data with System.out
- Getting Input with the Scanner Class
- Getting Input with the JOptionPane Class
- Using enum to Create Your Own Data Types

Chapter 7: Working with Numbers and Expressions

- Working with Arithmetic Operators
- Dividing Integers
- Combining Operators
- Using the Unary Plus and Minus Operators
- Using Increment and Decrement Operators
- Using the Assignment Operator
- Using Compound Assignment Operators
- Using the Math Class
- Formatting Numbers
- Recognizing Weird Things about Java Math

Chapter 8: Making Choices

- Using Simple Boolean Expressions
- Using if Statements
- Using Mr. Spock’s Favorite Operators (Logical Ones, of Course)
- Using the Conditional Operator
- Comparing Strings

Chapter 9: Going Around in Circles (or, Using Loops)

- Using Your Basic while Loop
- Breaking Out of a Loop
- Looping Forever
- Using the continue Statement
- Running do-while Loops
- Validating Input from the User
- Using the Famous for Loop
- Nesting Your Loops

Chapter 10: Pulling a Switcheroo

- Battling else-if Monstrosities
- Using the switch Statement

- Creating Character Cases
- Matching Two or More Values in a Single Case Group
- Intentionally Leaving Out a Break Statement
- Switching with Strings
- Assigning a Value with a Switch Statement

Chapter 11: Adding Some Methods to Your Madness

- The Joy of Methods
- The Basics of Making Methods
- Methods That Return Values
- Methods That Take Parameters

Chapter 12: Handling Exceptions

- Understanding Exceptions
- Catching Exceptions
- Handling Exceptions with a Preemptive Strike
- Catching All Exceptions at Once
- Displaying the Exception Message
- Using a finally Block

- Handling Checked Exceptions
- Throwing Your Own Exceptions
- Using the try-with-resources Statement

Chapter 13: Understanding Object-Oriented Programming

- What Is Object-Oriented Programming?
- Understanding Objects
- Understanding the Life Cycle of an Object
- Working with Related Classes
- Designing a Program with Objects
- Diagramming Classes with UML

Chapter 14: Making Your Own Classes

- Declaring a Class
- Working with Members
- Using Getters and Setters
- Overloading Methods
- Creating Constructors
- Finding More Uses for the this Keyword

- Using Initializers
- Using Records

Chapter 15: Working with Statics

- Understanding Static Fields and Methods
- Working with Static Fields
- Using Static Methods
- Counting Instances
- Preventing Instances
- Using Static Initializers

Chapter 16: Using Subclasses and Inheritance

- Introducing Inheritance
- Creating Subclasses
- Overriding Methods
- Protecting Your Members
- Using the this and super Keywords in Your Subclasses
- Understanding Inheritance and Constructors
- Using the final Keyword

- Casting Up and Down
- Determining an Object’s Type
- Poly What?
- Creating Custom Exceptions

Chapter 17: Using Abstract Classes and Interfaces

- Using Abstract Classes
- Using Interfaces
- More Things You Can Do with Interfaces
- Using Additional Interface Method Types
- Two Interfaces That Enable Java Language Features
- Sealing Your Classes

Chapter 18: Using the Object and Class Classes

- The Mother of All Classes: Object
- The toString Method
- The equals Method
- The clone Method
- The Class Class

- Using the instanceof Operator

Chapter 19: Using Inner Classes and Anonymous Classes

- Declaring Inner Classes
- Using Static Inner Classes
- Using Anonymous Inner Classes

Chapter 20: Working with Packages and the Java Module System

- Working with Packages
- Putting Your Classes in a JAR File
- Using Javadoc to Document Your Classes
- Using the Java Module System

Chapter 21: Working with Strings

- Reviewing Strings
- Using the String Class
- Determining Whether a String Is Empty
- Using the StringBuilder and StringBuffer Classes
- Using the CharSequence Interface
- Using Text Blocks

Chapter 22: Using Regular Expressions

- Creating a Program for Experimenting with Regular Expressions
- Performing Basic Character Matching
- Using Regular Expressions in Java Programs

Chapter 23: Working with Dates and Times

- Pondering How Time Is Represented
- Picking the Right Date and Time Class for Your Application
- Using the now Method to Create a Date-Time Object
- Using the parse Method to Create a Date-Time Object
- Using the of Method to Create a Date-Time Object
- Looking Closer at the LocalDate Class
- Extracting Information about a Date
- Comparing Dates
- Calculating with Dates
- Formatting Dates
- Looking at a Fun Birthday Calculator

Chapter 24: Using the BigDecimal Class

- Seeing Why Java Can’t Add
- BigDecimal to the Rescue!
- Creating BigDecimal Objects
- Doing BigDecimal Arithmetic
- Rounding BigDecimal Values
- Comparing BigDecimal Values
- Converting BigDecimals to Strings
- Revisiting Sales Tax

Chapter 25: Introducing Data Structures

- Imagining Models of Computation
- Defining Data Structures
- Quantifying Performance
- Analyzing Arrays
- Looking at Linked Lists
- Doubling Down with Doubly Linked Lists
- Surmising Stacks, Queues, and Deques
- Musing about Maps

- Checking Out Hash Maps
- Tackling Trees
- Checking Out Binary Trees

Chapter 26: Using Arrays

- Understanding Arrays
- Creating Arrays
- Initializing an Array
- Using for Loops with Arrays
- Solving Homework Problems with Arrays
- Using the Enhanced for Loop
- Using Arrays with Methods
- Using Varargs
- Using Two-Dimensional Arrays
- Working with a Fun but Complicated Example: A Chessboard
- Using the Arrays Class

Chapter 27: Using the ArrayList Class

- Understanding the ArrayList Class

- Creating an ArrayList Object
- Adding Elements
- Accessing Elements
- Printing an ArrayList
- Using an Iterator
- Updating Elements
- Deleting Elements

Chapter 28: Using the LinkedList Class

- Understanding the LinkedList Class
- Creating a LinkedList
- Adding Items to a LinkedList
- Retrieving Items from a LinkedList
- Updating LinkedList Items
- Removing LinkedList Items

Chapter 29: Creating Generic Collection Classes

- Why Generics?
- Creating a Generic Class

- A Generic Stack Class
- Using Wildcard-Type Parameters
- A Generic Queue Class

Chapter 30: Using Maps and Trees

- Mastering Maps
- Using the HashMap Class
- Removing Entries from a Hash Map
- Using the TreeMap Class

Chapter 31: Introducing Algorithms

- What Is an Algorithm?
- Classifying Algorithms
- Some Fun Algorithm Challenges

Chapter 32: Using Recursion

- Calculating the Classic Factorial Example
- Displaying Directories
- Playing the Towers of Hanoi

Chapter 33: Sorting

- Looking at the Bubble Sort Algorithm
- Introducing the Quicksort Algorithm

Chapter 34: Searching

- Creating a Data Structure Worth Searching
- Looking at Linear Searching
- Using a Binary Search

Chapter 35: Programming Threads

- Understanding Threads
- Creating a Thread
- Implementing the Runnable Interface
- Creating Threads That Work Together
- Using an Executor
- Synchronizing Methods
- Creating a Lock
- Coping with Threadus Interruptus

Chapter 36: Using Functional Programming and Lambda Expressions

- Introducing Functional Programming
- Introducing Functional Interfaces
- Using Lambda Expressions
- Passing Parameters via Lambda Expressions
- Using Block Lambda Expressions
- Using the java.util.function Package

Chapter 37: Consuming Web Services with HttpClient

- Introducing Web Services
- Understanding HTTP
- Getting Started with Java’s HTTP Client Library
- Putting It All Together
- The HTTP Tester Program

Chapter 38: Hello, JavaFX!

- Perusing the Possibilities of JavaFX
- Getting Ready to Run JavaFX
- Looking at a Simple JavaFX Program
- Importing JavaFX Packages

- Extending the Application Class
- Launching the Application
- Overriding the start Method
- Creating a Button
- Handling an Action Event
- Creating a Layout Pane
- Making a Scene
- Setting the Stage
- Examining the Click Counter Program

Chapter 39: Handling Events

- Examining Events
- Handling Events
- Implementing the EventHandler Interface
- Handling Events with Inner Classes
- Handling Events with Anonymous Inner Classes
- Using Lambda Expressions to Handle Events

Chapter 40: Setting the Stage and Scene Layout

- Examining the Stage Class
- Examining the Scene Class
- Switching Scenes
- Creating an Alert Box
- Exit, Stage Right

Chapter 41: Using Layout Panes to Arrange Your Scenes

- Working with Layout Panes
- Using the HBox Layout
- Spacing Things Out
- Adding Space with Margins
- Adding Space by Growing Nodes
- Using the VBox Layout
- Aligning Nodes in a Layout Pane
- Using the Flow Layout
- Using the Border Layout
- Using the GridPane Layout

Chapter 42: Getting Input from the User

- Using Text Fields
- Validating Numeric Data
- Using Check Boxes
- Using Radio Buttons

Chapter 43: Choosing from a List

- Using Choice Boxes
- Working with Observable Lists
- Listening for Selection Changes
- Using Combo Boxes
- Using List Views
- Using Tree Views