

uCertify

Course Outline

Beginning Programming with Java



19 May 2024

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Here's what you get

1. Course Objective

The Beginning Programming with Java course helps you explore the fundamental concepts of programming using Java, one of the most versatile and widely-used programming languages in the industry. From basic syntax and data types to object-oriented programming principles, you will build a solid understanding of Java programming that will serve as a strong foundation for your future endeavors. The course covers the key areas such as: Introduction to Java, Basic Syntax and Data Types, Object-Oriented Programming, Exception Handling, File Handling, Graphical User Interface (GUI) Development and Introduction to Data Structures.

2. Exercises

There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.

26
EXERCISES

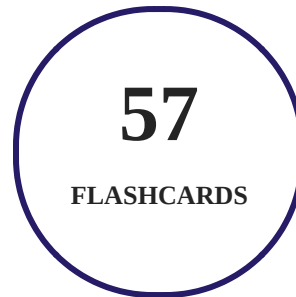
3. Quiz

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.

117
QUIZ

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: Introduction

- About This Course
- General Assumptions
- Icons Used in This Course

Chapter 2: The Big Picture

- What's It All About?
- From Your Mind to the Computer's Processor

- Your Java Programming Toolset

Chapter 3: Setting Up Your Computer

- Let's Get Started
- If You Need More Details ...
- What's Next?

Chapter 4: Running Programs

- Running a Canned Java Program
- Some Programs Don't Come in Cans
- What's All That Stuff in the IntelliJ IDEA Window?

Chapter 5: Exploring the Parts of a Program

- Checking Out Java Code for the First Time
- The Elements in a Java Program
- Understanding a Simple Java Program

Chapter 6: Composing a Program

- Computers Are Stupid

- Building an Echo Chamber
- Make IntelliJ Do All the Work
- Expecting the Unexpected

Chapter 7: Using the Building Blocks: Variables, Values, and Types

- Various Variables and Ways in Which They Vary
- What Do All Those Zeros and Ones Mean?
- Reading Decimal Numbers from the Keyboard
- Variations on a Theme
- Experimenting with JShell

Chapter 8: Numbers and Types

- Using Whole Numbers
- Creating New Values by Applying Operators
- Size Matters

Chapter 9: Numbers? Who Needs Numbers?

- A Brief Character Study
- The Moment of Truth (and Falsehood)

- The Remaining Primitive Types

Chapter 10: Forks in the Road

- Decisions, Decisions!
- Making Decisions (Java if Statements)
- Variations on the Theme

Chapter 11: Which Way Did He Go?

- Forming Bigger and Better Conditions
- Building a Nest
- Enumerating the Possibilities
- When One Line Isn't Enough

Chapter 12: Around and Around It Goes

- Repeating Instructions Again and Again and Again and Again
- Where Does Each Statement Belong?
- Priming the Pump

Chapter 13: Circling Back to Java Loops

- Repeating Statements a Certain Number of Times (Java for Statements)
- Repeating Until You Get What You Need (Java do Statements)

Chapter 14: Programming with Objects and Classes

- The Class Is Always Cleaner
- From Classes Come Objects
- Another Way to Think about Classes
- What's Next?

Chapter 15: Using Methods and Fields from a Java Class

- Long Live the String!
- Using an Object's Methods
- How to Achieve Static Equilibrium
- The View from On High

Chapter 16: Creating New Java Methods

- Defining a Method within a Class
- Let the Objects Do the Work
- Passing the Buck

- Getting a Value from a Method
- What Next?

Chapter 17: Piles of Files: Dealing with Information Overload

- Running a Disk-Oriented Program
- Writing a Disk-Oriented Program
- Writing, Rewriting, and Re-Rewriting

Chapter 18: How to Flick a Virtual Switch

- Meet the switch Statement
- A Switch in Time
- Your Grandparents' switch Statement
- Using a Conditional Operator

Chapter 19: Creating Loops within Loops

- Paying Your Old Code a Little Visit
- Nested Development
- Using Nested for Loops

Chapter 20: Out of Many, One

- Some Loops in Action
- Reader, Meet Arrays; Arrays, Meet the Reader
- Working with Arrays
- Looping in Style
- When Good Arrays Go Bad
- What to Do When Arrays Go Awry

Chapter 21: Oooey-GUI Was a Worm

- Put Some Swing in Your Step
- Drag-and-Drop for GUI Greatness

Chapter 22: Ten Useful Classes in the Java API

- ArrayList
- File
- Integer
- JFrame
- JOptionPane
- Math

- NumberFormat
- Scanner
- String
- System

Chapter 23: Ten Bits of Advice for New Software Developers

- How Long Does It Take to Learn Java?
- Which of Barry's Books Should I Read?
- Are Books Other than Barry's Good for Learning Java and Android Development?
- Which Computer Programming Language(s) Should I Learn?
- What Skills Other than Computer Coding Should I Learn?
- How Should I Continue My Learning as a Software Developer?
- How Else Should I Continue My Learning as a Developer?
- How Can I Get a Job Developing Software?
- I Still Don't Know What to Do with My Life
- If I Have Other Questions, How Can I Contact Barry Burd?

11. 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

Running Programs

- Running a Canned Java Program

Exploring the Parts of a Program

- Printing the Data

Composing a Program

- Building an Echo Chamber

Using the Building Blocks: Variables, Values, and Types

- Reading Decimal Numbers from the Keyboard
- Experimenting with JShell

Numbers and Types

- Reading Whole Numbers From the Keyboard
- Finding a Remainder

Numbers? Who Needs Numbers?

- Making a Word Go Backward

Forks in the Road

- Using the Java if Statement

Which Way Did He Go?

- Enumerating the Possibilities

Around and Around It Goes

- Priming the Loop

Circling Back to Java Loops

- Deleting a File

Programming with Objects and Classes

- Creating Several Objects

Using Methods and Fields from a Java Class

- Putting a Name in String Variable

Creating New Java Methods

- Calling a Method
- Getting a Value from a Method

Piles of Files: Dealing with Information Overload

- Running Disk-Oriented Code

How to Flick a Virtual Switch

- Using the Switch Statement
- Using a Conditional Operator

Creating Loops within Loops

- Interacting with Disk Files Using a Loop

Out of Many, One

- Using Conditions in a for Loop
- Storing Occupancy Data in an Array

Oooey-GUI Was a Worm

- Creating a Window with an Image in It
- Creating a GUI Window

Here's what you get

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LIVE LABS

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VIDEO TUTORIALS

01:11

HOURS

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