uCertify

Course Outline

Core Java: Fundamentals

30 Apr 2024

1. Course Objective
2. Pre-Assessment
3. Exercises, Quizzes, Flashcards & Glossary

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

   Syllabus

   Chapter 1: Preface

   Chapter 2: An Introduction to Java

   Chapter 3: The Java Programming Environment

   Chapter 4: Fundamental Programming Structures in Java

   Chapter 5: Objects and Classes

   Chapter 6: Inheritance

   Chapter 7: Interfaces, Lambda Expressions, and Inner Classes

   Chapter 8: Exceptions, Assertions, and Logging

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   Chapter 12: User Interface Components with Swing

   Chapter 13: Concurrency

   Chapter 14: JavaFX

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   Videos and How To
9. Practice Test

   Here's what you get

Features

10. Post-Assessment

1. Course Objective

Use the Core Java Fundamentals course to learn the skills in Java programming. The Java course provides competency in all concepts of Java programming and includes topics such as objects, classes, inheritance, exceptions, assertions, logging, and generic programming. This Java online course provides students with knowledge in Java SE 7 enhancements including improved concurrency utilities and new file I/O API. The interactive learning resources highlight explanations of advanced Java programming techniques.

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: Preface

- To the Reader
- A Tour of This Course
- Conventions

Chapter 2: An Introduction to Java

- Java as a Programming Platform
- The Java “White Paper” Buzzwords
- Java Applets and the Internet

- A Short History of Java
- Common Misconceptions about Java

Chapter 3: The Java Programming Environment

- Installing the Java Development Kit
- Using the Command-Line Tools
- Using an Integrated Development Environment
- JShell

Chapter 4: Fundamental Programming Structures in Java

- A Simple Java Program
- Comments
- Data Types
- Variables and Constants
- Operators
- Strings
- Input and Output
- Control Flow

- Big Numbers
- Arrays

Chapter 5: Objects and Classes

- Introduction to Object-Oriented Programming
- Using Predefined Classes
- Defining Your Own Classes
- Static Fields and Methods
- Method Parameters
- Object Construction
- Packages
- JAR Files
- Documentation Comments
- Class Design Hints

Chapter 6: Inheritance

- Classes, Superclasses, and Subclasses
- Object: The Cosmic Superclass
- Generic Array Lists

- Object Wrappers and Autoboxing
- Methods with a Variable Number of Parameters
- Enumeration Classes
- Reflection
- Design Hints for Inheritance

Chapter 7: Interfaces, Lambda Expressions, and Inner Classes

- Interfaces
- Lambda Expressions
- Inner Classes
- Service Loaders
- Proxies

Chapter 8: Exceptions, Assertions, and Logging

- Dealing with Errors
- Catching Exceptions
- Tips for Using Exceptions
- Using Assertions

- Logging
- Debugging Tips

Chapter 9: Generic Programming

- Why Generic Programming?
- Defining a Simple Generic Class
- Generic Methods
- Bounds for Type Variables
- Generic Code and the Virtual Machine
- Restrictions and Limitations
- Inheritance Rules for Generic Types
- Wildcard Types
- Reflection and Generics

Chapter 10: Collections

- The Java Collections Framework
- Interfaces in the Collections Framework
- Concrete Collections
- Maps

- Views and Wrappers
- Algorithms
- Legacy Collections

Chapter 11: Graphical User Interface Programming

- A History of Java User Interface Toolkits
- Displaying Frames
- Displaying Information in a Component
- Event Handling
- The Preferences API

Chapter 12: User Interface Components with Swing

- Swing and the Model-View-Controller Design Pattern
- Introduction to Layout Management
- Text Input
- Choice Components
- Menus
- Sophisticated Layout Management

- Dialog Boxes

Chapter 13: Concurrency

- What Are Threads?
- Thread States
- Thread Properties
- Synchronization
- Thread-Safe Collections
- Tasks and Thread Pools
- Asynchronous Computations
- Processes

Chapter 14: JavaFX

- A Brief History of Java GUI Programming
- Displaying Information in a Scene
- Event Handling
- Layout
- User Interface Controls
- Properties and Bindings

- Long-Running Tasks in User Interface Callbacks

Chapter 15: Appendix A

Videos and How To

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

23	02:37
VIDEOS	HOURS

11. Practice Test

Here's what you get

101	131
PRE-ASSESSMENTS QUESTIONS	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. 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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