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Java SE 12 Programming

(5 days)

Course overview

This is our mainstream course for developers wishing to get up to speed with Java. You will learn how to implement object-oriented applications using Java, and how to make use of common APIs in the Java SE library. You'll also get an introduction to modules, a major new feature that will impact the way we all write Java code going forward.

You can use this course as part of your preparation for Oracle exam 1Z0-815, Java SE 11 Programmer I.

What you'll learn

- Writing clean Java code
- Implementing object-oriented solutions in Java
- Using core Java SE classes
- Handling exceptions and assertions
- Working with files and databases
- Using multithreading and concurrency
- Introduction to modules

Prerequisites

- At least 6 months programming experience
- Familiarity with OO concepts would be an advantage

Course details

- **Getting Started with Java:** Java goals and principles; Installing and using the Java SE; JAR files; Using an IDE
- **Java Language Fundamentals:** Basic syntax rules; Defining classes; Defining and using packages; Declaring and using variables; Useful Java classes; Wrapper classes
- **Operators and Flow Control:** Survey of common operators; Decision making; Looping constructs; for-each style loops
- **Defining and Using Classes:** Essential concepts; Defining a class; Creating and using objects; Initialization; Using the static keyword
- **Arrays:** Declaring and using arrays; Traversing arrays; Using the Arrays class; Multi-dimensional arrays
- **Additional Language Features:** Autoboxing / unboxing; Varargs; Type-safe enumerations; Static imports
- **Useful Java SE Classes and Techniques:** The Console class; The StringBuilder class; Formatting techniques; Regular expressions

- **Inheritance:** Overview of inheritance; Defining superclasses and subclasses; Polymorphism; Abstract classes and methods; Final classes and methods
- **Interfaces:** Overview of interfaces; Defining and implementing interfaces; Using interfaces in client code
- **Collections and Generics:** Overview of collections and generics; The need for generics; Using collections; Defining generic classes; Defining generic methods
- **Exceptions and Assertions:** Overview of exception handling; Throwing and catching exceptions; Standard exception classes; Defining new exception classes; Working with assertions
- **File Handling:** Overview of working with files; Reading and writing text files; Reading and writing binary files; Serialization
- **Multithreading:** Creating multiple threads; Synchronizing threads; Synchronization classes; Concurrency API
- **Accessing Databases using JDBC:** JDBC drivers and connections; Statements and results; Obtaining metadata; Additional techniques
- **Working with Modules:** Overview of Java modules; Understanding how the JDK is modularized; Declaring modules; Using other modules