Java SE: Programming I Ed 2

Duration: 5 Days

What you will learn

This entry-level course is aimed at programmers who are new to Java and who need to learn its concepts, language constructs, and data types. Included in the agenda are topics on exception handling, lambda expressions, and modular programming.

The course is designed for programmers who will apply these language skills to develop programs using the latest major versions of the JDK, currently Java 11. Students practice the skills learned in each lesson through hands-on labs.

Related Training

Required Prerequisites

Familiarity with general computer programming concepts and techniques

Suggested Prerequisites
Experience with another programming language

Course Objectives

Write Java code that uses variables

arrays

conditional and loop constructs of achieve program objectives

Identify modular programming principles

Access and create static fields and methods

Encapsulate a class using access modifiers and overloaded constructors

Manipulate numeric

text

and string data using appropriate Java operators

Set environment variables to allow the Java compiler and runtime executables to function properly

Create simple Java classes and use object references to access fields and methods in a class

Demonstrate polymorphism by implementing a Java interface

Handle a checked exception in a Java application

Use a Predicate Lambda expression as the argument to a method

Define and implement a simple class hierarchy that supports application requirements

Course Topics

What is a Java Program
Key features of the Java language
Java technology and development environment
Running and testing a Java program

Creating a Java Main class
Java classes
The Main method
Adding a Main method

Data in the Cart
Introducing variables
Working with strings
Working with numbers
Manipulating numeric data

Managing Multiple Items
Working with conditions
Using IF statements
Working with a list of items
Processing a list of items

Describing Objects and Classes

Working with objects and classes
Defining fields and methods
Declaring, instantiating, and initializing objects
Working with object references
Doing more with arrays

Manipulating and Formatting the Data in Your Program
Using the String class
Using the Java API docs
Using the StringBuilder class
More about primitive data types
More numeric operators
Promoting and casting variables

Creating and Using Methods
Using methods
Method arguments and return values
Static methods and variables
How arguments are passed to a method
Overloading a method

Using Encapsulation
Access control
Encapsulation
Overloading constructors

More on Conditionals
Relational and conditional operators
More ways to use IF/ELSE constructs
Using switch statements
Using the Netbeans debugger

More on Arrays and Loops
Working with dates
Parsing the args array
Two-dimensional arrays
Alternate looping constructs
Nesting loops
The ArrayList class

Using Inheritance
Overview
Working with subclasses and superclasses
Overriding methods in the superclass
Creating and extending abstract classes

Using Interfaces
Polymorphism
Polymorphism in the JDK foundation classes
Using interfaces
Local-variable type inference
Using the List interface

Introducing Lambda expressions

Handling Exceptions
Overview
Propagation of exceptions
Catching and throwing exceptions
Handling multiple exceptions and errors

Deploying and Maintaining the Soccer Application
Packages, JARs, architecture
Application modification and requirements

Understanding Modules
The Module system
JARs
Module declarations
Modular JDK

JShell
Testing code
JShell basics
JShell in an IDE