

Introduction to Programming in Java 5 Part 2

Training Course Outline

Course Description:

Are you interested in learning Java programming? Are you looking for a Java programming course that provides easy, expert training? Our introduction to Java two-part series provides outstanding instruction on how to program in Java.

This Java programming training class provides a guided, in-depth introduction to the Java programming language, highlighting key benefits and features. You will learn about saving objects to disk and reloading objects from disk, creating and working with threads, handling exceptions, working with dates and numbers, creating networked Java applications, working with generics and collections, and integrating Java applications with databases.

Note: This is a training class in Java 5. If you wish to learn Java 6, please see *Programming in Java 6 with Swing and Servlets Parts 1 & 2*.

Course Prerequisites:

Students should have taken *Introduction to Programming in Java 5 Part 1*. Prior programming experience with any procedural or object-oriented language. Experience with SQL is helpful. Experience with graphically-oriented IDEs, such as Eclipse, is helpful.

Course Objectives:

As a result of taking this Java training course, you will be able to:

- Describe and obtain an overview of Java's capabilities, benefits and features.
- Define object oriented programming concepts and their implementation in Java.
- Utilize classes from Java core packages in a Java application.
- Create a graphical user interface (GUI) using Java classes.
- Program using Java event listeners.
- Build programs that directly read and write operating system files from within Java.

Course Outline:

Module 01: Object Serialization - Part 1

- Describe the Fundamentals of Object Serialization
- Explain How to Implement the Serializable Interface
- Show How Access Qualifiers Affect Serialization

Module 02: Object Serialization - Part 2

- Examine How to Override Default Serialization Behavior
- Define Which Classes Provide Their Own Serialization Behavior
- Exercise

Module 03: Threads, Exception Handling and Assertions - Part 1

- Describe Threads and Multithreading
- Create Multithreaded Programs

Module 04: Threads, Exception Handling and Assertions - Part 2

- Utilize Thread Modifiers
- Explain Exception Handling

Module 05: Threads, Exception Handling and Assertions - Part 3

- Create Programs with Exception Handling
- Build Programs with Assertions
- Exercise

Module 06: Dates, Numbers and Strings - Part 1

- Define Java Date and Number Classes
- Explain How to Instantiate and Use the DateFormat and NumberFormat Classes

Module 07: Dates, Numbers and Strings - Part 2

- Searching for Data
- Describe How to Use the Scanner Class to Tokenize Input
- Tell How to Use the Split Method of the String Class to Split a Text String
- Exercise

Module 08: Networking Java Applications

- Using Java to Network Applications
- Applets vs. Standalone Programs
- The URL Class
- Sockets and ServerSockets
- Implementing a TCP/IP Server
- Protocol and Content Handlers
- Exercise

Module 09: Generics and Collections - Part 1

- Explain How to Use Sets, Maps, Lists and Queues

Module 10: Generics and Collections - Part 2

- Describe How to Sort and Search Collections and Arrays
- Show How to Use Generics for Compile-Time Type Safety
- Explain How to Mix Legacy Code with Generic Code
- Exercise

Module 11: Database Connectivity - Part 1

- JDBC and How it Works
- Database Access Methods
- The DriverManager Class
- Database Connection URL

- Drivers and JDBC Architecture

Module 12: Database Connectivity - Part 2

- Connection and Statement Interfaces
- ResultSets and Data Manipulation
- Exercise

Module 13: The Web Services Architecture

- Evolution of Web Services
- Motivation for Web Services
- HTTP and XML
- Interoperability Stacks
- The Wire Stack
- Simple Object Access Protocol (SOAP)
- The Description Stack
- Web Service Description Language (WSDL)
- The Discovery Stack
- Universal Description, Discovery and Integration (UDDI)
- Observing SOAP Traffic

Module 14: Creating and Hosting Web Services

- Scenarios for Hosting Web Services
- Service Descriptions
- Building Services and Clients from WSDL
- Publishing and Discovery
- Web Service Development Process
- Exercise

Module 15: Java and Web Services

- Java and Web Services
- Web Services and the J2EE
- The Java API for XML Processing (JAXP)
- The Java API for XML Binding (JAXB)
- The SOAP With Attachments API for Java (SAAJ)
- The Java API for XML Messaging (JAXM)
- Low-Level Messaging (SAAJ)
- The Java API for XML-Based RPC (JAX-RPC)
- High-Level Messaging (JAX-RPC)
- WSDL-to-Java vs. Java-to-WSDL
- The Java API for XML Registries (JAXR)
- Exercise

Module 16: Introduction to Programming in Java 5 Online Training - Course Summary