

Programming Java 5 with Swing and Servlets (5 Days)

Custom Training Institute

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Programming Java 5 with Swing and Servlets (CTI 286)

Java is an object-oriented programming language specifically created for developing applications that will run on a LAN or the Internet. Students will learn to write standalone and LAN-based Java applications and applets, using command-line tools and a simple editor.

Prerequisites: Prior programming experience with any procedural or object-oriented language. Experience with SQL or other GUI IDEs is helpful.

Minimum software requirements: Microsoft Windows 2000 Professional (SP 3 or later) or Windows XP (SP 1 or later). J2SE 5.0 SDK. Microsoft Access, MySQL or equivalent relational database. Java-compatible browser.

Minimum hardware requirements: Pentium III at 1 GHz; minimum of 1 Gb RAM; 3.5 Gb free disk space, plus additional space for development; Internet connection.

Microsoft PowerPoint on instructor's workstation for presentation purposes.

Module 1: Introduction and Overview

- Benefits and Features of Java
- The Java Virtual Machine
- The Java Language
- Java's Core Packages
- Java Developer's Kit
- Applets and Applications
- Data Types and Operators
- Simple Variables and Arrays
- Expressions
- Control Flow

Module 2: Object-Oriented Programming (OOP) in Java

- Implementing Java's Object-Oriented Features
- Advantages of Object-Oriented Programming
- Employing Accessibility Constraints on Java Objects

Module 3: Java Core Packages

- What are Packages
- Lifecycle of a Java Object
- Memory Management and Garbage Collection
- The lang Package
- The util Package
- The net Package
- The awt Package
- The io Package
- The applet Package
- Applets and HTML
- Events in the Lifetime of an Applet

Module 4: Building Graphical User Interfaces with Swing and JFC

- Graphic User Interfaces (GUI)
- Java Foundation Classes (JFC)
- The Swing API
- Handling Events

Module 5: File I/O

- Java's File I/O Classes
- Open and Read Text Files
- Write to Text and Data Files

Module 6: Object Serialization

- Introduction to Serialization
- Object Streams
- Creating a Serialized Class
- Protecting Data from Serialization
- Versioning of Serialized Objects

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Module 7: Threads, Exception Handling and Assertions

- Understanding Threads and Multithreading
- Creating Multithreaded Programs
- Utilize Thread Modifiers
- Understanding Exception Handling
- Creating Programs with Exception Handling
- Creating Programs with Assertions

Module 8: Dates and Numbers

- Performing Date- and Time-Related Manipulations
- Formatting and Parsing Dates
- Creating and Working with Locales
- Formatting Numbers and Currency
- Searching for Data in Strings and Files

Module 9: Networking Java Applications

- Exploring the URL Class
- Utilizing the `java.net` Classes
- Implementing a TCP/IP Server
- Implementing a TCP/IP Client of Images

Module 10: Generics and Collections

- Sets, Maps, Lists and Queues
- Sorting and Searching Collections and Arrays
- Using Generics for Compile-Time Type Safety
- Mixing Legacy Code with Generic Code

Module 11: Database Connectivity

- Using JDBC to Access Relational Databases
- JDBC Drivers and `DriverManager` Class
- Manipulating `ResultSet`s for Data Display

Module 12: Server-Side Programming

Using Java Server Pages

- Server-Side Scripting
- Java Server Pages (JSP)
- Client Communication
- JSP Lifecycle and Events

Module 13: Servlets

- Uses of Servlets
- Servlet API
- Communicating with Clients
- Session Tracking

Module 14: Integrating Servlets and JSP

Using the Model-View-Controller (MVC) Architecture

- Understanding MVC
- Using Servlets, Resources, Requests and `RequestDispatcher`
- JSP Output Using Servlets

Module 15: Key Topics and Feature Review

- Review Key Features of the Java Language and Development Environment
- Highlight Key Topics Covered During the Series