Custom
TRAINING INSTITUTE

Programming in Java 5
(5 Days)

Custom Training Institute
9085 Coyote Springs Road
Prescott Valley, AZ 86314
(928) 772-3811
FAX (928) 441-6444

Programming in Java 5

(CTI 281)

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
- Java's Core Packages
- The Java Developer's Kit
- Applets vs. Applications
- Object References
- Variables and Arrays
- Methods: Java's Functions
- Control Flow

Module 2: Object-Oriented Programming (OOP) in Java
- Understand Object-Oriented Programming Concepts
- Understand How Java Implements Object-Oriented Programming
- Understand the Structure of Classes
- Understand How Simple Inheritance is Used
- Understand Class and Variable Access Modifiers

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: Java AWT and JFC
- Understand How to Construct a Graphically-Oriented Interface in Java
- Understand the Classes that Comprise the Abstract Windowing Toolkit
- Understand the Graphically-Oriented Java Foundation Classes
- Understand How the Event-Listener Mechanism Handles Events

Module 5: File I/O
- Manipulate Files, Directories and Their Contents from Within Java Applications
- Understand How to Open and Close Files from Within a Java Application
- Understand How to Read and Write Files from Within a Java Application
- Understand How to Use Formatting Specifiers to Construct Custom Output

Programming in Java 5 (CTI 281) - continued

Module 6: Object Serialization
- Understand Fundamentals of Object Serialization
- Understand How to Implement the `Serializable` Interface
- Understand How Access Qualifiers Affect Serialization
- Understand How to Override Default Serialization Behavior
- Understand Which Classes Provide Their Own Serialization Behavior

Module 7: Threads, Exception Handling and Assertions
- Understand How to Create and Use Threads
- Understand How to Use Exceptions
- Understand How to Create and Use Try, Throw and Catch Blocks
- Understand How to Create and Use Assertions

Module8: Dates and Numbers
- Understand the Java Date and Number Classes
- Understand How to Instantiate and Use the DateFormat and NumberFormat Classes
- Understand How to Use the Scanner Class to Tokenize Input
- Understand How to Use the Split Method of the String Class to Split a Text String

Module 9: 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

Module 10: Generics and Collections
- Understand How to Use Sets, Maps, Lists and Queues
- Understand How to Sort and Search Collections and Arrays
- Understand How to Use Generics for Compile-Time Type Safety
- Understand How to Mix Legacy Code with Generic Code

Module 11: Database Connectivity
- JDBC and How it Works
- Database Access Methods
- The DriverManager Class
- Database Connection URL
- Drivers and JDBC Architecture
- Connection and Statement Interfaces
- ResultSets and Data Manipulation

Module 12: Key Topics and Feature Review
- Review Key Features of the Java Language and Development Environment
- Highlight Key Topics Covered During the Series