

# Programming in Java (5 Days)

## Custom Training Institute

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## Programming in Java

(CTI 088)

*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 NT 4.0 or Windows 2000 or later. Sun's JDK release 1.3 or later. Microsoft Access or equivalent relational database. Java-compatible browser.*

Minimum hardware requirements: *Pentium at 500 MHz, 256 Mb RAM; 500 Mb free hard disk space before installation. Classroom machines do not need to be networked. Internet access.*

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

- Abstraction
- Inheritance
- Interfaces
- Encapsulation
- Scope Modifiers
- Polymorphism
- Method Overloading

### 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

- How the AWT Works
- JFC Lightweight Framework
- Components and Containers
- Layout Managers
- Delegation Event Model
- Pluggable Look and Feel

### Module 5: File I/O

- Files and Streams
- Standard Input and Output
- DataInput and DataOutput
- Random Access Files
- Networking I/O

### Module 6: Object Serialization

- Object Streams
- The Serializable Interface
- Protecting Data from Serialization
- Versioning

### Module 7: Threads and Exception Handling

- Multithreading
- Creating Threads
- The Error and Exception Hierarchy
- Throwing Exceptions
- Handling Runtime Exceptions
- The ThreadDeath Error

### Module 8: 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

**Programming in  
Java (CTI 088) -  
continued**

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**Module 9: 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 10: Review and Summary**