

Introduction to Java with WSAD

Course No.	3453
Description	This course provides an introduction to Java programming as well as the WSAD development tool. It is designed to give programmers experienced in traditional technologies a smooth transition to Java. Students will learn the core language elements including control structures, operators, syntax, classes, inheritance, interfaces and exceptions. Students will also learn the basics of using WSAD in a development environment. Students experience hands-on workshops coding Java in WSAD.
Audience	This course is suggested for Application Developers who are new to the Java programming environment.
Prerequisites	Previous programming experience is very desirable but not required. A basic conceptual understanding of Object Oriented concepts is helpful.
Objectives	<ul style="list-style-type: none">• Learn core language elements• Use Java control structures and operators• Learn to build classes• Understand inheritance, abstract classes and interfaces• Learn to handle errors using exceptions• Gain practical exposure to key class hierarchies and libraries• Learn the workings of WSAD in developing applications• Understand and apply effective Java coding techniques
Major Topics	<ul style="list-style-type: none">• Java Fundamentals• Java Language Basics• The WSAD IDE• Debugging in WSAD• Fundamentals of Objects• Java Language Syntax Details• Object-Oriented Programming• Classes and Interfaces• Collection Classes• Exception Handling• Other Odds and Ends• Creating GUIs with Java• Event Handling
Format	Lecture and extensive hands-on workshops.
Duration	5 days



Course Contents

1. Java Fundamentals Why do we need Java?

- How did Java get here?
- Why is Java so popular?
- What is the JDK?
- How do I compile Java?
- What is Bytecode?
- What is a JVM?
- Java documentation?
- Final Notes
- Exercises

2. Java Language Basics

- Getting Started
- A Simple Program
- Variables and Constants
- Simple Math
- Strings and StringBuffer
- Comments
- Assignment Statement
- Classes
- Fields and Scope
- Parameters
- Method Calling
- Static
- Packages
- Directory Structure
- Final Notes
- Exercises

3. WSAD Overview

- Objectives
- What is WebSphere Studio?
- New Development Environment
- The Old and the New
- Role-Based Development
- The platform Core
- Application Developer Window
- Application Developer Preferences
- Projects
- Perspectives

- Importing Resources Into a project
- Java Development Features
- The Java perspective
- The Debug Perspective
- Other perspectives
- Relational Schema Center
- Team Development
- Help Contents
- Supported Standards

4. WSAD Java Development

- Objectives
- Project Set-Up
- Creating a project
- Create Project SmartGuide
- Project Resources
- SmartGuide for Creating a Class
- Additional Resources
- Importing Resources
- Setting Project Properties
- Project Properties
- The Java Perspective
- Views in Java Perspective
- Features of the java Editor
- Java Preferences
- Formatting Preferences
- Building Projects
- Searching
- Using the Search Dialog
- Refactoring
- Rename a Class
- Preview Window
- Extracting a Method
- Type Hierarchy View
- Using a Scrapbook
- Performance profiler
- Profiler perspective



5. WSAD Debugger

- The WSAD Debugger
- Using the Debugger
- The Debug Perspective
- Starting the Debugger
- Debug View
- Debug Toolbar
- Other Views – Breakpoint View
- Managing Breakpoints
- Other Views
- Variables View
- Variable View Toolbar
- Display View

6. Fundamentals of Objects

- What are Objects?
- Abstraction
- Encapsulation
- Interface versus Implementation
- Classes and Instances
- Constructors
- Object Notation
- Naming Conventions
- Using Objects
- Static members
- JDK Packages & Classes
- Wrapper Classes
- Final Notes
- Exercises

7. Java Language Syntax Detail

- Syntax Review
- Do the math
- Operators
- Functions
- String Handling
- Concatenation
- Related Types
- Date & Calendar
- Formatting

- Relational Operators
- Logical Operators
- Flow of Control
- if...else
- switch
- while & for loops
- Arrays of Primitives
- Arrays of Objects
- Using arrays
- Arrays of Arrays
- Final Notes
- Exercises

8. Object-Oriented Programming

- Object Relationships
- Object Communication
- Inheritance
- Object Hierarchies
- Overridden Methods
- Abstract and Final
- Polymorphism
- A new way of thinking
- Final Notes
- Exercises

9. Classes and Interfaces

- Object Typing
- Class definition
- Interface definition
- Extends vs. Implements
- Casting Revisited
- Interface Polymorphism
- Interface Constants
- Cloneable Interface
- this
- finalize
- Final Notes
- Exercises



10. Arrays and Collections

- One name, many items
- Collections – the old
- Vector
- Enumeration
- Hashtable
- Collections – the new
- ArrayList
- LinkedList
- Iterator
- HashMap
- Final Notes
- Exercises

11. Exception Handling

- When things go wrong
- Java Class Hierarchy
- Errors & Exceptions
- Types of Exceptions
- Catching Exceptions
- Not Catching Exceptions
- Throwing Exceptions
- Methods of Exceptions
- Defining your own Exceptions
- Throwing them
- Typical exceptions
- Final Notes
- Exercises

12. Finally, Briefly

- Deploying Java Apps
- Garbage Collection
- Jar files
- Java Beans
- Streams
- Threads
- JDBC
- Servlets
- Java Server Pages

13. GUI Development with Java

- Overview
- Applets and applications
- Painting and drawing
- Fonts and Colors
- Visual components
- Component hierarchy
- Component classes
- Menus & menuitems
- Layout Managers
- Applets
- Final Notes
- Exercises

14. Java Event Handling

- Overview
- The Event Model
- Types of Events

