

Introductory Java Course, 2 days

Prerequisites: Intermediate to advanced understanding of programming. At least one object oriented language.

Course Text book: Learning Java

Day 1

1) A Modern Language

- Enter Java, A Virtual Machine, Java Compared with Other Languages, Safety of Design, Safety of Implementation, Application and User-Level Security, Java and the Web, Java as a General Application Language, A Java Road Map

2) A First Application

- Java Tools and Environment, HelloJava, HelloJava2: The Sequel, HelloJava3: The Button Strikes!, HelloJava4: Netscape's Revenge, Troubleshooting

3) Tools of the Trade

- The Java VM, Running Java Applications, The Classpath, The Java Compiler, JAR Files, Policy Files

4) The Java Language

- Text Encoding, Comments, Types, Statements and Expressions, Exceptions, Assertions, Arrays

5) Objects in Java

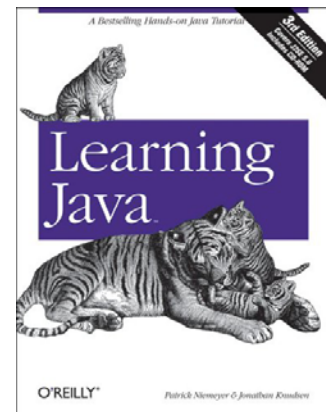
- Classes, Methods, Object Creation, Object Destruction, Enumerations

6) Relationships Among Classes

- Subclassing and Inheritance, Interfaces, Packages and Compilation Units, Visibility of Variables and Methods, Arrays and the Class Hierarchy, Inner Classes

7) Working with Objects and Classes

- The Object Class, The Class Class, Reflection, Annotations



Day 2

8) Generics

- Containers: Building a Better Mousetrap, Enter Generics, "There Is No Spoon", Parameterized Type Relationships, Casts, Writing Generic Classes, Bounds, Wildcards, Generic Methods, Arrays of Parameterized Types, Case Study: The Enum Class, Case Study: The sort() Method

9) Threads

- Introducing Threads, Threading an Applet, Synchronization, Scheduling and Priority, Thread Groups, Thread Performance, Concurrency Utilities

10) Core Utilities

- Math Utilities, Dates and Times, Timers, Collections, Properties, The Preferences API, The Logging API, Observers and Observables

Day 2 Optional Subjects (choose 1 or 2 options)

1) Input/Output Facilities

- Streams, Files, Serialization, Data Compression, The NIO Package

2) Network Programming

- Sockets, Datagram Sockets, Simple Serialized Object Protocols, Remote Method Invocation, Scalable I/O with NIO

3) Swing

- Components, Containers, Events, Event Summary, The AWT Robot!, Multithreading in Swing

4) Drawing with the 2D API

- The Big Picture, The Rendering Pipeline, A Quick Tour of Java 2D, Filling Shapes, Stroking Shape Outlines, Using Fonts, Displaying Images, Drawing Techniques, Printing

5) Working with Images and Other Media

- Loading Images, Producing Image Data, Filtering Image Data, Saving Image Data, Simple Audio, Java Media Framework

6) JavaBeans

- What's a Bean?, The NetBeans IDE, Properties and Customizers, Event Hookups and Adapters, Binding Properties, Building Beans, Limitations of Visual Design, Serialization Versus Code Generation, Customizing with BeanInfo, Hand-Coding with Beans, BeanContext and BeanContextServices, The Java Activation Framework, Enterprise JavaBeans

7) Applets

- The Politics of Applets, The JApplet Class, Using the Java Plug-in, Java Web Start, Using Digital Signatures

8) XML

- A Bit of Background, XML Basics, SAX, DOM, XPath, XInclude, Validating Documents, JAXB and Code Generation, Transforming Documents with XSL/XSLT, Web Services