

Java Programming

(5 days)

Background

This five day course provides a practical and comprehensive introduction to the Java language commencing with an understanding of the principles of Object Orientated Programming (OOP).

All of the main language features are covered including a range of packages which provide additional functionality in Java. The course also covers the class libraries which allow you to build graphical applications and client-server systems.

This course is designed for anyone who wishes to add the power of Java technology to their websites.

The course is also ideal for programmers seeking to build Java solutions and anyone who needs a strong foundation in Java skills.

Course Outline

DAYS ONE TO THREE

INTRODUCTION

Programming in typed languages
Typed vs. untyped variables
Type errors
Type theory
Common types
Introduction to the JDK/SDK
Using Jcreator

INTRODUCTION TO OBJECT ORIENTATION

Benefits of Object Orientation
What is an object?
Defining classes and instances
What are Fields and Methods?
The use of class members vs. instance members
Messages and invoking methods

THE JAVA LANGUAGE

Garbage collection
Comparison of objects
Primitive data types: what they are and how they work
Compilation and execution of Java code
Use of packages
Java sourcefile structure
Defining classes and interfaces
Defining Methods and Fields
JavaDoc and writing code comments
Looping and conditional constructs
Creating instances
Java expressions

Accessing members
Creating and using arrays

MODES OF EXECUTION

Types of Java application (application, applet, servlet etc)
Applets as applications
Java security model
JDK tools

QUESTIONS AND ANSWERS

DAYS FOUR AND FIVE

OBJECT ORIENTATION II

Constructors and static initialisers
Finalisers
Inheritance
Casting
Abstract classes
Interfaces
Modifiers in Java



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BUILDING USER INTERFACES IN SWING

The Abstract Windowing Toolkit
Swing overview
Components and containers
Building a user interface
Layout managers
Designing complex user interfaces

EVENTS AND EXCEPTIONS

Events
Listener interfaces
Event propagation
Exceptions
Using try/catch/finally block

INPUT AND OUTPUT

Input and output streams
Stream concatenation
Common stream types
Text streams
Object streams and serialisation

THREADS

Threads in Java
The Thread class
Creating new threads
Stopping and controlling threads
Synchronisation issues

QUESTIONS AND ANSWERS