

Java Fundamentals

detailed 3-day course contents

This 3 day training is designed to equip programmers with the skills they require to develop solid object-oriented applications written in Java, using sound coding techniques and best coding practices.

This is a hands-on practical workshop based around the development of fully working Java applications. Strong emphasis is laid on practical exercises and worked examples.

Participants will understand not only the fundamentals of the Java language, but also its importance, uses, strengths and weaknesses - understand the basics of the Java language and how it relates to OO programming and the Object Model, learn to use Java multi-threading and exception handling features, understand and use classes, inheritance and polymorphism, develop GUI applications using AWT and Swing. Participants will use Java for client-side applets, networking and communication applications and apply the JDBC API for database access.

Target audience

This training is meant for those planning on starting to program with Java.

Prerequisites

We advise following knowledge:

- Windows knowledge
- A solid understanding of the English language.
- Some exposure to a third generation programming language.

Target

The purpose of this training is to gain insight into the workings and possibilities of Java and put them into practice.

Training contents

Introduction:

- JAVA as a programming language
- JAVA as a platform
- Different Java application types

The Java Development Kit environment:

- Java Development Kit environment

Essential Java Programming:

- Fields and Variables
- Using Arrays
- Static Methods and Fields
- Using the JDK

My first Java application

- The creation of code source
- The compilation of code source
- Execution of code
- The structure of a program

My first JAVA applet

- The creation of code source
- The compilation of code source
- Creation of a HTML document for usage by an applet
- Execution of an applet
- The structure of an applet

Object Oriented Programming:

- Objects
- Messages
- Classes
- Derivation and hierarchies of classes
- Interfaces
- Polymorphism

The Java programming language:

- Variables
- Operators
- Expressions, instructions and blocs
- Program flow control Instructions

Graphical User Interfaces:

- Containers and Layout Managers
- Writing Simple Graphical Applications
- Writing Complete Graphical Applications

Management of objects:

- The creation of objects
- Utilization of objects

Java Developer's Toolbox:

- Utility Classes
- Vector and Hash table
- Collections
- Inner Classes
- Java I/O

Simple Objects

- Chains
- Numbers
- Series

Definition of classes:

- Introduction
- The declarations of a class
- Class descriptions
- Exercises

Derivation and hierarchy of classes:

- Derivation
- Final Classes
- Abstract Classes
- The super class
- Class Inheritance
- Polymorphism
- Exercises

Interfaces:

- Usage of Interfaces
- Definition of an interface
- Implementation of an interface
- The interface as a data type

Packages:

- Creation of packages
- Hierarchy of packages
- Using packages for code organization
- Access levels for packages
- Packages that are imported by default