# Malcolm Kayser Computer Training Limited

# JAVA PROGRAMMING

*This concise course provides details of the differences between C++ and Java, and discusses how specific concepts like File Handling and Networking is implemented in Java.*

## Audience

This course is aimed specifically at experienced 'C' or C++ application programmers.

## Prerequisites

Experience in using 'C' or an Object-Oriented language such as C++.

## Duration

Two days.  The course uses a mixture of quick desk quizzes and short hands-on practical exercises.

## Course objectives

On completion of this course the delegate will be able to:

- Understand any differences with C++ in structure and syntax of the language
- Be aware of the format and construct of Java classes and methods
- Use Exception handling constructs
- Understand file streams and network capabilities
- Be able to write Java applications

## Course contents

*Introduction to Java Programming*
What is Java?; Applications and applets; Development Environments; JDK; The Java Virtual Machine (JVM); Producing, compiling and executing; Just-In-Time compilation; CLASSPATH.

*Introduction to Object-Oriented Programming*
What is OOP?; Objects and Classes; using Objects; Object references; Constructors; Access modifiers; Packages; Inheritance; Polymorphism; Encapsulation; OOD; the Java API.

*Data types and Operators*
Coding a program; Reserved words; Data types, variables and operators; Statements and expressions; Strings; StringBuffer; arrays; arguments to main().

*Flow Control*
Decision-making; program flow control; loops.

*Classes and Methods*
More on objects; passing arguments; Polymorphism and Abstract classes; constructors and initialization; the *this* keyword; interfaces; method signatures; casting and instanceof; static and final modifiers; overriding and overloading.

*Exceptions*
How exception handling works; class hierarchy; class wrappers; try...catch; try...finally; throw and throws; writing and using exception handlers.

*File Handling*
The File class; Input and output streams; Readers and writers; Standard input and Standard output; File streams; BufferedReader class; Object Serialization; Exceptions.

*Networking*
Protocols; Client - Server; sockets and streams.