

Price: R8,600.00 excl. VAT
Duration: 5 days
Code: AJAVA

Advanced Java Programming

Description

The Advanced Java course covers more advanced features of the Java programming language and APIs, including threads, collections, JavaBeans, JDBC, RMI, CORBA, security, networking, the new Java 5 language features, the Java Persistence API (JPA), Web Services and XML.

Objectives

Delegates who complete the Advanced Java Programming course will be able to:

- Develop Java applications using the new Java 5 language features.
- Choose the correct collection based on intended use within an application.
- Develop database applications using JDBC.
- Develop distributed applications using the correct choice of RMI and/or CORBA.
- Develop network applications using sockets.
- Understand Java Virtual Machine security.
- Understand XML as it pertains to Java.

Intended Audience

Experienced Java programmers who require more advanced knowledge of Java APIs and programming techniques.

Prerequisites

Our Java Programming course (or equivalent) and 6 months Java programming experience.

Course Contents

The lecturer reserves the right to modify the contents of the course to suit the needs of the delegates.

Overview • Review of the Java platform. • Portability issues between JVM versions.

Language topics • Java 1.4 assertions. • Java 5 new language features • Generics, enums, boxing/unboxing, enhanced for loop, static imports, annotations. • Interfacing to C.

Java Collections API • Sets, Lists, Maps. • Trees and hash tables. • Iterator and Enumeration interfaces. • Big O notation. • Sorting and searching.

JavaBeans • JavaBean architecture and reflection API. • MVC. • Canonical classes.

Persistence • Flat files. • Serialization. • XML encoding. • Java API for XML Binding (JAXB). • Java Persistence API (JPA).

Java Database Connectivity • Client/server methodology. • JDBC API: Driver, Connection, Statement and ResultSet interfaces. • Driver types and loading drivers. • Connecting to a JDBC database. • Executing queries and extracting data.

Remote Method Invocation • RMI architecture vs Remote Procedure Calls (RPC). • RMI interface definitions, stubs and skeleton classes. • Overview of Java 5 dynamic proxies.

CORBA • CORBA vs COM. • Interface Definition Language. • Internet InterORB Protocol.

Security • VM instruction set, bytecode verifier, class loader and security manager. • Writing a custom SecurityManager. • Security policies and certificates. • Cryptographic APIs.

Web Services • Introduction to Web Services. • SOA. • Comparison to RMI. • XML. • WSDL. • CORBA and EJB. • SOAP.