



Java Advanced

About this course

This course follows on from our Java Basic Level course. This course will cover topics such as JavaBeans, Servlet Programming, Java Database Connectivity, Remote method Invocation along with JavaFX. It is suitable for those who wish to

Duration: 5 days

Participants: Min 5, Max 15, Optimal 12

Learning outcomes

Upon completion of this course participants will be able to:

- Create World wide web applications using Java run-time class libraries
- Use the I/O streams model, file handling and object serialisation.
- Use streams to communicate over network sockets and use the reflection API and dynamic proxies.
- Develop complex GUI designs
- Use Java Database connectivity (JDBC) with relational databases
- Utilise Java Networking for distributed applications using RMI and TCP/IP sockets

Who should attend

This course is suitable for those who have already taken our basic level Java course and wish to learn more advanced Java Topics. It is recommended that students have at least 6 months experience working with Java.

Course syllabus

Module 1: Recap on Java Basics

Module 2: Java development using Generics

- Generics and Subtyping
- Wildcards
- Bounded Wildcards
- Generic Methods.

Module 3: Java Development - Threads & Concurrency

- Creating Threads by Extending Thread
- Creating Threads by Implementing Runnable
- Advantages of Using Threads

- Daemon Threads
- Thread States
- Thread Problems
- Synchronization
- Performance Issues

Module 4: Logging API

- Logger Levels
- Configuring Logger Handlers
- Specifying Handlers and Formatters

Module 5: Remote Method Invocation

- Remote Method Invocation (RMI) & Architecture
- The Remote Interface and Remote Object
- Writing the Server
- The RMI Compiler
- Writing the Client
- Remote Method Arguments and Return Values
- Dynamic Loading of Stub Classes
- Remote RMI Client Example
- Running the Remote RMI Client Example

Module 6: Input/Output Stream

- Java I/O Classes and Interfaces
- Using Filename Filter
- The listFiles() Alternative
- Creating Directories
- Stream Classes & Byte Streams, Character Streams
- Using Stream I/O and Serialization

Module 7: Inner classes, Sockets, Web connectivity & Security:

- Describe the Software Component Model
- Understand BDK(Bean Development Kit)
- List the tools for bean development
- Create your own bean
- Describe CustomBean properties and events
- Understand Introspection Reports
- Implement various types of properties
- Describe event listeners

Module 8; Servlets

- Define and compile Servlets
- Use a servlet to retrieve information
- Define Session Tracking
- Describe InterServlet communication
- Use a servlet to access a database



Module 9: Java FX-based

- JavaFX UI controls, charts, shapes, effects, transformations, and animations to create stunning, responsive, user interfaces
- User interfaces using JavaFX builder classes.
- FXML
- JavaFX Scene Builder to interactively design the graphical user interface (GUI).
- Use existing Swing applications that can be updated with JavaFX features, such as rich graphics media playback and embedded Web content.

Module 10: Database Connectivity

- Define JDBC API
- Describe the various JDBC drivers
- Outline JDBC design considerations
- Describe the Two-Tier Client Server Model
- Use JDBC to access a database
- Set up a connection to the database
- Create and execute SQL Statements
- Describe the ResultSet object
- Describe the ResultSetMetaData interface
- Define and create stored procedures