RESTful Web Services Training

COURSE CONTENT

About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

The RESTful Web Services Training by Multisoft Systems is designed to equip participants with a deep understanding of building and managing RESTful APIs for modern web applications. This comprehensive training program covers the core principles of Representational State Transfer (REST) architecture and its application in creating scalable, secure, and high-performance web services.

Module 1: Web Services Overview

1.1 Definition

- ✓ Legacy Systems
- ✓ Benefits of Web Services
- ✓ Architecture

1.2 Standards and Portability

- ✓ XML and Related Standards
- ✓ JSON
- ✓ HTTP

1.3 SOAP-Based Services

- ✓ Overview
- ✓ SOAP Messages, Requests, and Responses
- ✓ WSDL
- ✓ Java APIs and Programming Models

Module 2: Introduction

- ✓ Overview and Principles
- ✓ REST Characteristics
- ✓ Resources and Operations
- ✓ REST Principles
- ✓ Requests and Responses
- ✓ REST APIs
- ✓ URI Templates
- ✓ GET, POST, PUT, DELETE
- ✓ Safe and Idempotent Methods
- ✓ Comparison of REST and SOAP

Module 3: Introduction to JAX-RS

3.1 APIs and Implementations

- ✓ JAX-RS Overview, Annotations
- ✓ JAX-RS Implementations

3.2 Runtime Environment

- ✓ Application Server, Servlet-Only Container
- ✓ Architectural and Implementation Perspectives
- ✓ Configuring the Application

3.3 Applications, Resources, and Providers

- ✓ JAX-RS Applications
- ✓ Resource Classes and @Path
- ✓ Provider Classes and @Provider
- ✓ Default Lifecycles
- ✓ The Application Class and rest-path

3.4 Ajax-JavaScript Clients

- ✓ Overview
- ✓ Classic vs. Ajax Interactions
- ✓ Working with Ajax-JavaScript

Module 4: Resources and Requests

4.1 Resources and Sub-Resources

- ✓ Sub Resource Locators
- ✓ Naming Conventions and Rules
- ✓ Dispatching Requests to Methods

4.2 Binding Request Data

- ✓ Request Data Injection and Conversion
- ✓ Default Values
- ✓ Fields vs. Method Parameters

4.3 Context-Based Injection

- ✓ Injection via @Context
- ✓ Context-Injectable Types
- ✓ Context Injection from the Web Container
- ✓ Fields vs. Method Parameters

Module 5: HTTP Entities

5.1 Complex Content and Entities

- ✓ Working with Complex Content
- ✓ @Consumes and @Produces
- ✓ Content Negotiation
- ✓ Standard Entity Providers

5.2 Working with JSON

- ✓ Returning Data as JSON
- ✓ Working with JSON in JavaScript
- ✓ Processing JSON Responses

5.3 Working with XML

- ✓ JAXB and Mapping to XML
- ✓ Returning Data as XML
- ✓ Working with XML on the Client
- ✓ Customizing Content, Custom Media Types
- ✓ Working with Collections

5.4 XML vs. JSON

Module 6: Responses

6.1 Response Class

- ✓ Return Types and HTTP Response Codes
- ✓ Appropriate Responses for HTTP Methods
- ✓ Choosing the Right Response

6.2 Error Handling

- ✓ Exception Mappers
- ✓ Web Application Exception
- ✓ Response vs. Thrown Exception
- ✓ Error Responses

6.3 Sub Resource Locators Motivation and Uses

- ✓ Locating the Locator
- ✓ Initializing the Sub Resource

6.4 Binary Content

- ✓ File, InputStream, StreamingOutput
- ✓ Using StreamingOutput

Module 7: Java Client API

- ✓ Java Client – Options and Ingredients
- ✓ Building and Sending the Request
- ✓ Consuming the Response
- ✓ Options for the Response Data
- ✓ Asynchronous Requests

Module 8: Integration with Java EE

- ✓ Integration with EJB CDI – Contexts and Dependency Injection
- ✓ Activation, Scopes, and JAX-RS Lifecycles
- ✓ Injection in CDI-Enabled JAX-RS Applications
- ✓ Enhanced Java EE Lifecycle

Module 9: Security

- ✓ Java EE Security Overview
- ✓ Security Requirements in JAX-RS
- ✓ Declarative, Role-Based Security
- ✓ Security Constraints
- ✓ Annotation-Based Security Authentication
- ✓ Configuration
- ✓ Authentication Models: Basic, Digest, Client-Cert Programmatic Security
- ✓ Security Context
- ✓ Client Security HTTPS