JAV400 : Java EE Web Services

Code : JAV400 **Duration :** 4 days **Category :** Java EE

Audience :

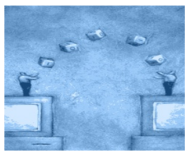
This course is aimed at experienced Java developers who want to develop Web Services in a Java EE environment.

Prerequisites :

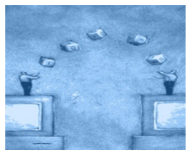
To join this course, knowledge of and experience with programming in Java and Java EE Web Applications is required.

Realization :

This course has a hands-on character. The theory is covered on the basis of presentation slides and is interspersed with practical exercises. Demos are used to clarify the theory. The course material is in English..



Java EE Web Services



Contents :

This course will teach you what Web Services are and how you can create Web Services in Java and how they can be accessed from Java and other platforms. The various basic standards involved in Web Services are covered such as XML Schema, SOAP and WSDL. In particular, there is emphasis on the various Java APIs for Web Services such as JAX-WS 2.x, SAAJ (SOAP with Attachments API) and JAXB (Java API for XML Binding). Further attention is paid to the measures that are needed to make sure that Web Services are interoperable between different platforms such as Java and. NET. And finally, the various mechanisms and standards for securing Web Services are a subject in the course. This course covers the exam topics that are asked at the Java EE Web Services exam (CX 310-230).

Module 1 : Web Services Intro

What are Web Services?
Distributed Applications Evolution
Role of interface
RPC Example
Interoperability
Web Service Types
Web Services Stack
SOAP Web Services
REST Web Services
RPC Style Web Services
Document Style Web Services
Service Oriented Architecture

Module 2 : SOAP

What is SOAP?
SOAP Characteristics
SOAP Design Goals
SOAP Protocol Concepts
SOAP Messages
SOAP Body
SOAP Headers
SOAP Namespaces
SOAP Faults
SOAP Version differences
SOAP Messages as payload
Message Exchange Patterns
SOAP Message Path
SOAP Intermediaries
actor and mustUnderstand attribute

Module 3 : SAAJ

What is SAAJ?
SOAP message structure
SOAP Message Parts
SOAP Part
Attachment Parts
SAAJ and DOM
SAAJ Class Hierarchy
SAAJ programming API's
SAAJ Connections
Creating a Message
Adding Message Elements
Sending and Receiving
Accessing SOAP Body

Module 4 : XML-Schema

Why XML-Schema?
Well formed and valid documents
What XML-Schema's?
Markup Languages
XML Schema Advantages
XML Schema design models
Classic Use of Schema's
XML Namespaces
Simple and Complex types
XML Schema Data Types
User Defined Data Types
Derivation by Restriction
Derivation by Extension

Module 5 : JAXB

XML Processing Options
What is JAXB?
JAXB versus DOM and SAX
JAXB Design Goals
Building JAXB Applications
JAXB Architecture
JAXB Binding Life Cycle
Role of Binding Compiler
XML tot Java Mapping Rules
Mapping of XML Schema Types
Binding Elements and Attributes
Named Complex Types
Customized Mappings
Adapter Classes
JAXB Annotations Types
JAXB API

Module 6 : WSDL

What is WSDL?
Where is WSDL used?
Benefits of WSDL
WSDL and Code Generation
WSDL in Web Service stack
WSDL Namespaces
WSDL Structure
WSDL Elements
Types and Messages
PortType and Operations
WSDL Bindings
Service Element
SOAP Messages Modes
WSDL 2.0

Module 7 : JAX-WS

What is JAX-WS?
JAX-WS Design Goals
Differences JAX-RPC- JAX-WS
JAX-WS Runtime System
JAX-WS Basic Operation
JAX-WS Development Approaches
JAX-WS Tools
Service Endpoint Models
JAX-WS Servlet Endpoint
Enterprise Java Beans Endpoints
JAX-WS Architecture
Client Side Programming Models
Dynamic Proxy Invocation Model
Dispatch Invocation Model

Module 8 : Message Handlers

Message Handlers
Characteristics
JAX-WS Handler Types
SOAP Message Handlers
Logical handlers
Call Chain
Inbound Messages
Outbound Messages
Processing the Payload
Handler Chains

Module 9 : Asynchronous Calling

Web Service Invocations
Supporting Asynchrony
Client Side Fire and Forget
Client Side Polling
Client Side Callbacks
Enabling Asynchronous calls
Callback Handler
Calling Asynchronously
Asynchronous Web Services
Asynchronous Web Service Model

Module 10 : REST Services

What is REST?
REST Web Services
Simple REST Examples
REST Web Service Principles
ID and Links
REST Services in Java
Multiple Representations
Embedded Path Parameters
Common REST Patterns
Resources URI Access
JavaScript Object Notation (JSON)
XML versus JSON

Appendix Module : JAXR

What is JAXR?
Registry Interoperability
What is UDDI
Business Registration Data
UDDI Data Types
tModel
UDDI Categorization
UDDI API

Module 11 : WS-I

WS Interoperability Organization
Challenges and Deliverables
Profiles
Basic Profile 1.0 and 1.1
WS-I Testing Tools
Interoperability Technologies
WS-Reliable Messaging
WSDL Reliable Messaging
Bootstrapping and Configuration
Message Transmission Optimization

Module 12 : WS-Security

Web Service Security
Security at Transport level
Security at XML Level
XML Encryption
XML Digital Signature
XML Signature Forms
XML Key Management
XKMS
WS-Security
Security Enabled SOAP