

Introduction to Java EE Development (5 Days)

Audience Java developers, web page designers and other professionals that will be designing, developing and implementing large scale server-side applications.

Course Abstract This course will integrate a combination of instructor-led discussions and interactive workshops to demonstrate the development and testing of server-side applications using JEE component model. This course will focus on illustrating the use of the Eclipse IDE product for developing servlets, filters, JavaServer Pages, custom JSP tags, JavaBeans, XML deployment descriptors, MVC concepts, Additionally, the role of the Application Server for testing, use of WAR and EAR files, debugging and deployment will be highlighted. Each student will learn the best practices solution for developing JEE applications using Model-View-Controller framework and the separation of J2EE components.

Objectives Upon conclusion, each participant will have acquired these skills:

- Understand the role of the IDE tool
- Explain the role of IDE projects and perspectives
- Demonstrate the usage of wizards for rapidly developing components, projects and servers
- Illustrate the JEE component model and role in designing server-side applications
- Develop, debug and test servlet and JSP components
- Demonstrate usage of custom JSP tags and tag libraries.
- Understand role of JDBC to establish connectivity to relational structures
- Illustrate the role of session management and session data
- Understand the role of Web Services, UDDI Registries and the Service Oriented Architecture
- Depict the role of JMS and message-oriented-middleware
- Illustrate the JEE packaging and deployment strategies
- Illustrate EAR, WAR and JAR packaging and deployment to embedded Application Server

Prerequisites Each student should have a basic understanding of the internet and have been exposed to the Java programming language.

Course Topics The following list represents the sections and topics discussed in this onsite instructor-led course offering:

JEE Overview

- JEE overview
- JEE packaging
- Application lifecycle
- JEE architecture
 - o Cells
 - o Clusters
 - o Nodes
 - o Node Agents
 - o Web Services Gateway

IDE Toolset

- IDE environment
 - o Perspectives
 - o Editors
 - o Views
 - o Layouts
- Project architecture
 - o EAR
 - o WAR
 - o JAR
 - o RAR
- Project types
 - o Enterprise
 - o Application Client
 - o Dynamic/Static Web
 - o Connectors
 - o Server
- Project properties

Servlet Development

- Servlet Evolution
- Characteristics
- Stateless vs Stateful
- Servlet message structure: HTTP header & FORM data
- Web Container: Instance Pool, JVM and JRE roles
- Lifecycle
- HTML FORM interaction: ACTION and METHOD parameters
- POST vs GET processing
- Reading POST data
- Java Servlet API
- init and destroy methods

Session Data

- Session management
- Retrieve HttpSession
- Invalidation
- Accessing existing sessions
- RequestDispatcher
- Servlet Contexts
- Session configuration
- Persistent Session types
- Internal messaging: Peer-to-Peer vs Client/Server
- Session affinity
- Cookies

JavaServer Pages

- JSP Components
- JSP & Servlet integration
- Servlet/JSP model
- JSP request cycle
- Operational model
- JSP translations
- Forwarding
- JSP methods: jspInit, jspService and jspDestroy
- JSP Tags and scripting elements
- Implicit objects
- Directives
- Declarations
- Expressions
- Scriptlets
- JSP Action tags
- JavaBean integration
- useBean Scope attribute

JSP Tag Libraries

- Custom Tag libraries
- Tag Handler classes
- Tag Library Descriptor file
- taglib page directive
- Defining TLD entries
- Deploying Tag libraries
- Using web.xml aliases
- JSP Standard Tag Libraries
- JSTL tag libraries
 - Core
 - Formatting
 - Database
 - XML
- JSTL Expression language

Introduction to JDBC

- JDBC Overview
- JDBC Components
 - o Connections
 - o Statement
 - o ResultSet
- Depict JDBC Drivers
- JDBC 2.0 and 3.0
- Data Types
- Single and Multi Cursors