

## Oracle 10g: Build J2EE Applications

**Duration** 5 Days

### What you will learn:

This course teaches developers how to create J2EE applications using Servlets, JavaServer Pages (JSP), Enterprise JavaBeans (EJB), and Web services. Students will learn how to design and develop J2EE applications, as well as make decisions about when to use the various J2EE components. Students will deploy the applications to Oracle Application Server 10g (OracleAS 10g) using Oracle JDeveloper 10g.

#### **Audience:**

J2EE Developer  
Java Developer

#### **Required Prerequisites:**

Basic JDBC knowledge  
Basic HTML knowledge

#### **Suggested Prerequisites:**

Experience with the JDeveloper IDE

### **Course Objectives:**

- Identify appropriate J2EE components and architectures based on the needs of specific applications
- Describe the MVC architecture and create development plans for J2EE Applications
- Build a Web-enabled database application using J2EE components, including Servlets, JavaServer Pages and Enterprise
- Test J2EE components using Web and Java clients
- Provide versatile access to applications through Web services, and utilize a published Web service in an application
- Deploy J2EE applications to the Oracle Application Server 10g
- Manage Transactions in EJBs
- Implement J2EE Security in applications

### **Course Topics:**

#### **J2EE Overview**

- J2EE Overview
- Deploying J2EE Applications
- OC4J settings and configuration
- OC4J architecture
- OC4J Configuration files
- Data Sources
- Starting and stopping the OC4J server
- Oracle Enterprise Manager (OEM)

#### **Architecting J2EE Applications**

- Designing J2EE Applications
- J2EE design patterns
- MVC Architecture
- The Model
- The View
- The Controller
- Problems J2EE Resolves
- J2EE Issues

#### **Creating the web tier: Servlets**

- Servlet Lifecycle
- Handling Input using forms
- Exception handling
- Debugging a servlet

Creating a servlet in JDeveloper  
Servlet Mapping  
Deploying a servlet

### **Access the database with Servlets**

Review of JDBC  
ResultSet navigation  
Registering a driver  
Connection pooling  
Creating a PreparedStatement Object  
Configuring and using Data Sources  
Data sources overview  
Data source definition

### **Utilizing additional Servlet techniques**

Sending and Retrieving HTTP headers  
Creating cookies on the client  
Preserving State in Servlets  
Servlet filters  
Event Listeners  
ServletContext events  
HttpSession events

### **Maintaining state within J2EE Applications**

Sessions in Servlets  
URL Rewriting  
HttpSession  
HttpSessionBindingListener interface  
Session objects  
Sessions and events  
Multi-threading aspects  
Creating distributable applications

### **Creating the web tier: JavaServer Pages**

JSP Lifecycle  
Directives  
Scriptlets  
Expressions  
Implicit objects  
JSP and JavaBeans  
Creating and reusing a bean  
JSP XML Documents

### **Modularizing JavaServer Pages Development with Tags**

Creating custom tags  
Creating custom tag libraries  
The JSP Standard Tag Library (JSTL)  
Expression Language in JSTL  
Iteration Tags  
URL Tags  
The XML Tag Library  
The SQL Tag Library

### **Communication in J2EE**

Communication in J2EE  
Overview of RMI  
Java Naming and Directory Interface (JNDI)  
Accessing an object  
Initial context factories  
Configuring environment variables  
EJB references  
Data source references

### **Creating the business tier: Enterprise Java Beans**

- Types of EJBs
- EJB architecture
- EJB Classes and interfaces
- Remote interface and object
- Home interface and object
- Local interface and local home interface
- EJB deployment to OracleAS 10g
- Creating an EJB in JDeveloper

### **Implementing business tasks with Session EJBs**

- Implementing services using session beans
- Types of session EJBs
- Developing Stateless session beans
- Lifecycle
- Session bean class
- Client application
- Deployment
- Stateful session beans

### **Managing persistent data in the business tier: Entity EJBs**

- Types of Entity EJBs
- When to use entity beans
- Types of persistence
- BMP versus CMP beans
- Primary key class
- Bean class
- Bean interface
- Defining deployment descriptors

### **Achieving State Management in the Business Tier**

- Features of BMP beans
- Features of CMP beans
- Developing CMP beans
- Implementing Methods in Entity Beans
- Mapping CMP Fields to Database Table Columns
- Utilizing CMP entity beans

### **Specifying Relationships in CMP Entity beans**

- Overview of container managed relationship (CMR) between CMP beans
- Implementing Relationships
- Cardinality and Direction of Relationships
- One-to-One Relationship
- One-to-Many Relationship
- Many-to-Many Relationship
- Develop CMP Beans With Relationships Using Oracle JDeveloper 10g

### **Creating Message Driven Beans**

- Different types of MOM types
- Point to Point MOM type
- Publish / Subscribe (Pub/Sub) MOM type
- Overview of Java Messaging Service (JMS)
- Developing MDBs
- Implement interfaces
- Receiving messages
- Deploying MDBs

### **Integrating J2EE Components**

- Creating remote clients for EJB
- Creating local clients for EJB
- EJB Tags
- Packaging and Deploying a J2EE Application
- EAR file
- Deploying from OEM

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## **Distributing Modular Applications: Introduction to Web Services**

- Web services overview
- Benefits
- Communication with SOAP
- Searching for a Web service using UDDI
- UDDI specification
- UDDI data structure
- Support for UDDI in Oracle JDeveloper 10g

## **Distributing Modular Applications: Developing Web Services**

- Exposing a Java Class as Web Service
- Develop the Web Service
- Create a Client Application
- Deploy The Web Service
- Test The Web Service
- Generating Wrapper Classes Using JPublisher
- JMS Web Services

## **Implementing Security in J2EE Applications**

- Deciding where to implement security in J2EE Applications
- Utilizing the OracleAS JAAS Provider
- JAZN Security in OracleAS 10g
- Managing users and groups
- Defining and using local roles
- Implementing security in Enterprise JavaBeans
- EJB security roles
- Method permissions

## **OracleAS 10g: Transaction Support**

- Transaction Services Overview
- EJB support for transactions
- Container-managed transactions
- Local and global transactions
- Single-phase commit
- Retrieving connections to a data source