

Java EE 7: Front-end Web Application Development

Duration: 5 Days

What you will learn

This Java EE 7: Front-end Web Application Development training helps you explore building and deploying enterprise applications that comply with the Java Platform, Enterprise Edition 7 Web Profile. Expert Oracle University instructors will help you explore annotations, Session Enterprise JavaBeans (EJB-Lite), Java Persistence API (JPA), servlets, JavaServer Pages(JSPs), Contexts and Dependency Injection (CDI), JAX-RS RESTful web services, the Java API for WebSocket and the Java API for JSON processing.

Learn To:

Develop web-based interfaces for both desktop and mobile devices.

Assemble an application.

Build Java applications.

Deploy an application into an application server (Java EE platform runtime environment).

Benefits to You

By taking this course, you'll gain hands-on experience building Java EE web applications. You will get the chance to create web-based user interfaces using HTML5 and JavaScript along with JSPs and servlets. Web-based user interfaces will use AJAX to communicate with RESTful web services you create; data will persist using JPA and optimistic locking.

Participate in Hands-On Labs

By learning through hands-on exercises via structured labs, you'll get a chance to explore EJB-Lite session bean components, which can be used with container-managed transactions. You'll perform lab exercises using the NetBeans IDE and WebLogic Server.

J2EE Developer

Java Developers

Java EE Developers

Web Administrator

Related Training

Required Prerequisites

Able to author HTML, CSS, and JavaScript enabled web pages

Basic understanding of database concepts and SQL syntax

Experience with Java SE, or Java Programmer Certification

Understand object-oriented principles

Java SE 8 Programming

Suggested Prerequisites

Experience with an Integrated Development Environment

JavaScript and HTML5: Develop Web Applications

Course Objectives

Create and use Java annotations

Select the correct Java EE Profile for a given application

Develop and run an EJB technology application

Create Java EE technology applications with the Java EE 7 Platform

Identify the services provided by an Application Server

Package, deploy and debug enterprise applications

Create web-based user interfaces using Servlet, JSP, JAX-RS, and JavaScript technologies

Access relational databases using the Java Persistence API

Create scalable, transacted business logic with EJB-Lite

Develop basic Java Persistence API entity classes to enable database access

Develop a web-based user interface using Servlets, JSPs, and JAX-RS

Design applications to use dependency injection

Use IDEs and Application Servers for Java EE development

Course Topics

Java Platform, Enterprise Edition

The Java EE Platform

The needs of enterprise application developers

Java EE specifications

A comparison of services and libraries

The Java EE Web Profile

Java EE application tiers and layers

Enterprise Development Tools and Applications

- The purpose of an application server
- Starting and stopping WebLogic Server
- Properties of Java EE components
- The development process of a Java EE application
- Configuring and packaging Java EE applications

JavaBeans, Annotations, and Logging

- Java SE features used in Java EE applications
- Creating POJO JavaBeans components
- Using Logging
- Using Common Java Annotations
- Develop custom annotations
- The role of annotations in Java EE applications

Java EE Web Architecture

- The HTTP request-response model
- Differences between Java Servlets, JSP, and JSF components
- Application layering and the MVC pattern
- Avoiding thread safety issues in web components
- Use the Expression Language

Developing Servlets

- The Servlet API
- Request and response APIs
- Set response headers
- Two approaches to creating a response body
- Uploading files using a servlet
- Forwarding control and passing data
- Using the session management API

Developing with JavaServer Pages

- The role of JSP as a presentation mechanism
- Authoring JSP view pages
- Processing data from servlets in a JSP page
- Using tag libraries

JAX-RS Web Services

- The need for web services
- Designing a RESTful web service
- Create methods that follow the prescribed rules of HTTP method behavior
- Create JAX-RS resource and application classes
- Consume query and other parameter types
- Produce and consume complex data in the form of XML
- HTTP status codes

Java RESTful Clients

- Pre-JAX-RS 2 Clients: HttpURLConnection and the Jersey Client API
- The JAX-RS 2 Client API

HTML5 Applications with JavaScript and AJAX

- HTML DOM manipulation with JavaScript

RESTful clients with JavaScript (AJAX)

Limitations of JavaScript clients

The Same-Origin policy and CORS

WebSocket and the Java API for JSON Processing

Web Service Limitations

WebSocket Explained

Creating WebSockets with Java

Client-side WebSockets with JavaScript

Client-side WebSocket with Java

Consuming JSON with Java

Producing JSON with Java

Implementing a Security Policy

Container-managed security

User roles and responsibilities

Create a role-based security policy

The security API

POJO and EJB-Lite Component Models

The role of EJB components in Java EE applications

The benefits of EJB components

Operational characteristics of stateless and stateful session beans

Creating session beans

Creating session bean clients

The Java Persistence API

The role of the Java Persistence API in Java EE applications

Basics of Object-relational mapping

The elements and environment of an entity component

The life cycle and operational characteristics of entity components

Implementing a transaction policy

Transaction semantics

Programmatic vs. declarative transaction scoping

Using JTA to scope transactions programmatically

Implementing a container-managed transaction policy

Optimistic locking with the versioning of entity components

Pessimistic locking using EntityManager APIs

The effect of exceptions on transaction state

Related Courses

Java EE 6: Develop Web Services with JAX-WS & JAX-RS