

Developing Applications for the J2EE Platform (FJ-310)

Product Description

Product Outline/Details

The Developing Applications for the J2EE Platform course provides students with the knowledge to build and deploy enterprise applications that comply with Java 2 Platform, Enterprise Edition (J2EE) platform standards. The enterprise components presented in this course include Enterprise JavaBeans (EJB) technology, servlets, and JavaServer Pages (JSP) technology, and the Java technology clients that use them. Students gain hands-on experience through labs that build an end-to-end, distributed business application. The labs explore session EJB components, which implement the Session Facade pattern and provide a front-end to entity EJB components using container-managed persistence. The labs also explore message-driven EJB components, which act as Java Message Service (JMS) consumers. Students use web and Java technology clients to access Java technology-based enterprise services using servlets and pages created with JSP technology (JSP pages). Students are taught how to assemble an application from reusable components and how to deploy an application into the J2EE platform runtime environment.

Students perform the course lab exercises using the Sun Java Studio Standard software. The Sun Java Studio software uses a bundled version of the Sun Java System Application Server (formerly Sun ONE Application Server) on which the applications created by students are deployed.

Note: Sun has recently rebranded Sun Open Net Environment (Sun ONE) Studio 5, Standard Edition to be Sun Java Studio Standard. You may see reference to either name within the course description and course materials.

Note: This course provides basic knowledge of the major J2EE technologies and is a prerequisite for SL-351, "Advanced Business Component Development With Enterprise JavaBeans Technology".

<i>Product ID:</i> FJ-310	<i>Duration:</i> 5 days	<i>Price:</i> \$2500.00
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Who Can Benefit

Students who can benefit from this course are Sun Certified Java technology programmers, who want to develop enterprise applications that conform to the J2EE platform standards.

Prerequisites

To succeed fully in this course, students should be able to:

- Experienced with the Java programming language
- Familiar with distributed programming (multi-tier architecture)
- Familiar with relational database theory and the basics of structured query language (SQL)
- Familiar with component technology

Skills Gained

Upon completion of this course, you should be able to:

- Describe the application model for the J2EE platform and the context for the model
- Develop and test an EJB technology application
- Develop a web-based user interface to an EJB technology application

- Configure the J2EE platform services layer

Related Courses

- **Before:** SL-275: Java Programming Language
- **Before:** OO-226: Object-Oriented Analysis and Design Using UML
- **Before:** SL-301: Distributed Programming With Java Technology
- **Before:** WFB-100: Sun Java Studio 4, Community Edition Bundle (Web-based Courses)
- **After:** SL-314: Web Component Development with Java Technology
- **After:** SL-330: Database Application Programming with Java Technology
- **After:** SL-351: Advanced Business Component Development With Enterprise JavaBeans Programming

Course Content

Module 1 - Placing the J2EE Model in Context

- Describe the needs of enterprise applications and how the J2EE platform addresses these needs
- Describe the Java2 Platform, Enterprise Edition 1.4 Specification (J2EE platform 1.4) application programming interfaces (APIs) and supporting services
- Describe the J2EE platform tiers and architectures
- Describe how to simplify J2EE application development using architecture patterns

Module 2 - J2EE Component Model and Development Steps

- Describe the principles of a component-based development model
- Describe the asynchronous communication model
- Describe the process used and roles involved when developing and executing a J2EE application
- Compare the different methods and tools available for developing a J2EE application and related components
- Describe how to configure and package J2EE applications

Module 3 - Using J2EE Development Tools

- Describe the benefits of the Sun Java Studio Standard Integrated Development Environment (formerly Sun ONE Studio 5, Standard Edition IDE) tools
- Describe the IDE tool
- Configure the IDE tool for deployment to an application server

Module 4 - EJB Component Model

- Describe the role of EJB components in a J2EE application
- Describe the EJB component model
- Identify the proper terminology to use when discussing EJB components and their elements

Module 5 - Developing Session Beans

- Describe the role of session beans
- Describe the function and operational characteristics of stateless and stateful session EJB components
- Describe the life cycle of session EJB components
- Implement a session bean

Module 6 - Basics of Entity Beans

- Describe the role of entity beans in a J2EE application
- Describe the persistence management options available when implementing entity EJB components
- Describe the elements of an entity EJB component
- Describe the life cycle and operational characteristics of a container-managed persistence (CMP) entity EJB component

Module 7 - Developing CMP Entity Beans

- Implement CMP entity beans
- Write finder methods with the use of query language for EJB technology (EJB QL)

Module 8 - Assembling EJB Components Into an Application

- Exploit reusable components
- Package components appropriately
- Use the java:comp/env namespace
- Resolve resource and EJB component references
- Use the EJB component's environment
- Use application client containers

Module 9 - Developing Message-Driven Beans

- Benefit from the use of enterprise messaging
- Describe the use of the JMS API
- Describe the role of message-driven beans
- Describe the object cardinality, life cycle, and pooling of message-driven beans
- Implement message-driven beans

Module 10 - Web Component Model

- Describe the role of web components in a J2EE application
- Define the HTTP request-response model
- Compare Java servlets and components and JSP components
- Describe the basic session management strategies
- Manage thread safety issues in web components

Module 11 - Developing Servlets

- Describe the servlet API
- Use the request and response APIs
- Forward control and pass data

- Use the session management API
- Call EJB components from servlets

Module 12 - Developing With JavaServer Pages Technology

- Evaluate the role of JSP technology as a presentation mechanism
- Author JSP pages
- Process data received from servlets in a JSP page
- Describe the use of custom tag libraries

Module 13 - Using Web-Tier Design Patterns

- Manage complexity in the web tier
- Define the Model-View-Controller design paradigm
- Use the Service-to-Worker, Dispatcher View, and Business Delegate patterns to provide a web-tier framework

Module 14 - Implementing a Transaction Policy

- Describe transaction semantics
- Compare programmatic and declarative transaction scoping
- Use Java Transaction API (JTA) to scope transactions programmatically
- Implement a container-managed transaction policy
- Predict the effect of transaction scope on application performance
- Describe the effect of exceptions on transaction state

Module 15 - Implementing a Security Policy

- Exploit container-managed security
- Define user roles and responsibilities
- Create a role-based security policy
- Use the security API
- Configure authentication in the web tier