ITSC 2040 Developing EJBs with IBM Rational Application Developer V6.0

Duration

36-hours

Course Description

This course teaches students how to develop and test Enterprise Java Beans (EJBs) using IBM Rational Application Developer Version 6, and to deploy J2EE enterprise applications to IBM WebSphere Application Server V6. It also covers how to design enterprise applications in which core business functionality is encapsulated in EJBs, and how to develop EJBs as reusable components.

This course is based on the J2EE 1.4 and EJB 2.1 specifications, and introduces extensions to these standards provided by WebSphere Application Server Version 6. Through extensive hands-on exercises and labs, students explore tools for developing EJBs in IBM Rational Application Developer and discuss best practices for designing and building EJB-based applications.

Audience

This course is designed for Java developers who build J2EE compatible application components, and architects who design EJB-based applications for WebSphere Application Server Version 6.

Prerequisites

ITSC 2036 Servlet and JSP Development with Rational Application Developer V6 or equivalent knowledge.

Students should be professional developers or software architects with

• Expert knowledge of the Java Language
• Experience building J2EE Web Applications that involve servlets and JSPs
• An understanding of the MVC design pattern and how it relates to the J2EE n-tier architecture
• Experience building and debugging Java programs with IBM Rational Application Developer
• An appreciation of the concerns and problems related to e-business transaction processing
• Knowledge of basic concepts of XML

Learning Objectives

- Describe the J2EE component model and its use in building server-side applications
- Develop, debug, and test server-side applications using IBM Rational Application Developer
- Develop and test servlets using IBM Rational Application Developer
- Develop and test JSPs using IBM Rational Application Developer
- Develop and test JavaBeans using IBM Rational Application Developer
- Develop and test JSP custom tags using IBM Rational Application Developer
- Use JavaBeans, JSPs, and servlets in accordance with the MVC programming model
- Describe deployment and run-time issues of J2EE-based applications including

security, scaling, work load management in the context of WebSphere Application Server
- Assemble and perform integration testing of J2EE based applications using the IBM WebSphere tools: WebSphere Application Server.
- Identify the best practices needed to design and build Web applications (application frameworks and design patterns)

Required Materials

IBM Course Number: SW285 [supplied]

Evaluation

Students who participate in class discussions, complete course lab work, and miss no more than two class meetings will be awarded 3.6 continuing education units.

Course outline

Day 1

- Unit 1 - Introduction
- Unit 2 - Introduction to Enterprise JavaBeans
- Unit 3 - Session EJBs
- Unit 4 - Developing and Testing Session Beans
- Lab - Creating a Stateless Session EJB
- Lab - Using the EJB Universal Test Client
- Unit 5 - J2EE Architecture Overview
- Unit 6 - Using EJBs: A First Look at EJB Clients
- Unit 7 - Library Case Study
- Lab - Developing an EJB Client

Day 2

- Lab - Creating a Stateful Session EJB
- Unit 8 - Entity EJBs
- Unit 9 - Mapping CMP Beans with Cloudscape
- Lab - Creating a Simple CMP Entity Bean
- Unit 10 - Container-Managed Relationships
- Unit 11 - EJB Inheritance
- Lab - Creating CMP EJBs with RDBMappings
- Lab - Container Managed Entity Beans with CMR Fields
- Unit 12 - EJB Query Language
- Lab - EJB Query Language

Day 3

- Unit 13 - Bean-Managed Persistence
- Lab - Bean-Managed Persistence EJBs
- Unit 14 - Message-Driven Beans
- Lab - Creating a Message-Driven Bean
- Unit 15 - Developing EJB Client
- Lab - Developing a Session Façade for Entity Beans
- Lab - Developing a Session Façade for the EJB Clients
- Lab - Adding a Web User Interface

Day 4

- Unit 16 - EJB Container Services for Transactions
- Lab - Defining Transactional Characteristics of EJBs
- Unit 17 - EJB Timer Service
- Lab - Implementing an EJB Timer
- Unit 18 - EJBs and Web Services
- Unit 19 - Exceptions in EJBs
- Unit 20 - EJB Security
- Lab - Defining Role-Based EJB Security

Day 5

- Unit 21- EJBs Best Practices
- Unit 22 - J2EE Packaging and Assembly
- Unit 23 - Overview of WebSphere Application Server V6
- Unit 24 - WebSphere Administration
- Unit 25 - Wrap-Up