Enterprise JavaBean (EJB) Development

This course teaches Java programmers how to create EJBs using the Enterprise JavaBean API to develop and test Enterprise JavaBeans (EJBs). The course can be taught using the IBM WebSphere Application Developer (WSAD), Borland JBuilder, or JBoss. The course lectures use a set of Microsoft PowerPoints and the book Mastering Enterprise JavaBeans, Second Edition by Ed Roman published in 2002 by John Wiley and Sons, Inc.

Audience
- Java programmers who wish to learn how to develop distributed applications in a Web or Client/Server environment using Enterprise JavaBeans (EJBs).

Prerequisites
- Prior to attending this course students should have attended an Introduction to Java course, or be proficient in the Java language. Familiarity with distributed development and Web development concepts is helpful, but not required.

Course Length
- Five Days

Learning Objectives
- Enterprise JavaBean Overview
- EJB Fundamentals
- Writing Enterprise JavaBeans
- Introduction To Session Beans
- Introduction To Entity Beans
- Writing Bean-Managed Persistent Entity Beans
- Writing Container-Managed Persistent Entity Beans
- Introduction To Message-Driven Beans
- Adding Functionality To Your Beans
- Transactions
- BMP And CMP Relationships

Teaching Methods
- Lectures with hands-on workshops

Course Outline

Introduction to Session Beans
- Session Bean Lifetime
- Stateful Session Beans
- Stateless Session Beans
- Special Characteristics of Stateful Session Beans

Introduction to Entity Beans
- Persistence Concepts
- What Is an Entity Bean?
- Features of Entity Beans
- Entity Contexts

Writing Bean-Managed Persistent Entity Beans
- Entity Bean Coding Basics
- BMP Example: A Bank Account
- Running the Client Program
- Life Cycle of a BMP Entity Bean

Writing Container-Managed Persistent Entity Beans
- Features of CMP Entity Beans
- Implementation Guidelines for Container-Managed Persistence
- CMP Example: A Product Line
- Running the Client Program
- Life Cycle of a CMP Entity Bean

Introduction To Message-Driven Beans
- Motivation to Use Message-Driven Beans
- Java Message Service (JMS)
- Integrating JMS with EJB
- Developing Message-Driven Beans
- Advanced Concepts
- Message-Driven Bean Gotchas
- Returning Results to Message Producers

Adding Functionality To Your Beans
- Calling Beans From Other Beans
- Resource Factories
- Environment Properties
- Understanding EJB Security
- Understanding Handles

Transactions
- Motivation for Transactions
- Benefits of Transactions
- Transactional Models
- Enlisting in Transactions with EJBs
- Container-Managed Transactions
- Programmatic Transactions in EJB
- Transactions from Client Code
- Transactional Isolation
- Distributed Transactions
- Designing Transactional Conversations

BMP And CMP Relationships
- The CMP and BMP Difference
- Cardinality
- Directionality
- Lazy Loading
- Aggregation vs. Composition and Cascading Deletes
- Relationships and EJB-QL
- Recursive Relationships
- Circular Relationships
- Referential Integrity

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