Enterprise Application development with JBOSS – Custom for World Bank

Course Summary

Description

This is a custom course is specially designed for the needs of the World Bank team responsible for migrating applications from WebSphere 5.1 to JBOSS EAP. The goal of the course is to provide students with an overview of the key technologies available on JBOSS 5.0.1 EAP and Java 6 that are not available on WebSphere 5.1 along with overviews of the modern frameworks used in developing enterprise java systems.The course excludes dependency injection and aspect oriented programming two critical concepts that are at the heart of modern application development using Java.

Topics

- Java 5 New Language features
- Java 5 and Java 6 new API)
- Maven Overview
- JEE Stack - JSF Overview)
- JEE Stack – JPA Overview)
- JUnit Testing Framework
- Mock Object Testing Frameworks
- Fit and Fitness Testing Framework)
- Web Services Frameworks Overview (
- Developing Clustered Applications
- Migrating to JBOSS

Audience

This course is designed for experienced Java developers who have solid understanding of Java and JEE development.

Duration

Three days

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Course Outline

I. Java 5 New Language features
This module covers new language features introduced in Java 5 including:
A. Generics
B. Enumerations
C. Autoboxing and Unboxing
D. Annotations
E. Variable argument methods
F. For/in statement
G. Static imports
H. Materials:
I. Sample Programs
J. Instructor Code Walkthroughs
K. List of books on the new language features
L. Short student programming assignments

II. 5 and Java 6 new API
This module provides an overview of new standard APIs that were introduced with Java 5 and further improved on in Java 6, including:
A. StringBuilder vs. StringBuffer
B. Concurrency APIs
C. Formatting API's
D. Materials:
E. Sample Programs
F. Instructor Code Walkthroughs
G. List of books on the new language features
H. Short student programming assignments

III. Maven Overview
This module provides an overview of the Maven Build tool. Students will learn the basic philosophy behind maven and learn how to setup a simple maven project. Key feature of this module is that it distinguishes maven build philosophy from the Ant based builds. Concepts such as, Goals, Project Object Model, Maven Repository, Transitive Dependencies, Maven Plug-in, Maven project directory layout will be explained. Only basic maven is covered, complex project structures will not be covered.
A. Materials:
1. Electronic Copies of Freely downloadable Maven Books
2. Sample Maven projects
3. Hands on Maven lab

IV. JEE Stack - JSF Overview
This module provides an overview of JSF framework. Students will learn the key concepts of component based frameworks such as:
A. Components
B. Component tree
C. How JSF requests are processed
D. How component based frameworks are fundamentally different than action based frameworks
E. What JSF implementation are available to use
F. Materials:
G. Slides providing an overview of JSF
H. Sample JSF hello world program used to illustrate the key concepts of JSF
I. Demo and code walkthrough showing the key features of JSF
J. Exercises for students to try out JSF component libraries
K. List of books on JPA

V. JEE Stack – JPA Overview
This module provides an overview of the Java Persistence API a key addition to the Enterprise Java Stack. The module covers the key ideas of Object Relational Mapping including:
A. Entities
B. Identity
C. Mapping
D. Object Query Languages
E. Fundamental Problems of ORM
F. Limitations
G. configuration
H. Materials:
I. Slides providing an overview of JPA
J. Sample JPA programs to use to demonstrate how JPA works
K. Demo and code walkthrough showing the key features of JPA
L. List of books of JPA

Enterprise Application development with JBOSS – Custom for World Bank (cont'd)

Course Outline

VI. JUnit Testing Framework
This module introduces students to the basics of JUnit 4. Students will learn the key JUnit concepts such as: Test case, test suite, runner, setup, teardown … etc. JUnit 4 uses annotations and requires at least java 5 and is easier to use than previous versions:
- A. Materials:
- B. Sample programs demonstrating JUnit features
- C. Demo and code walkthrough showing the key features of JUnit
- D. List of books on JUnit
- E. Hands on Lab for students to try out JUnit 4

VII. Mock Object Testing Frameworks
This module introduces students to what mock objects are, and how they can be used to make unit testing effective and more practical. Students will learn how to use the EasyMock framework to quickly and effectively create mock objects.
- A. Materials:
  - 1. Slides and lab handbook
  - 2. Hands on exercises demonstrating EasyMock

VIII. Fit and Fitness Testing Framework
This module introduces students to the Functional Integrated Testing Framework, showing them a best of breed framework for testing business logic in the application server. Students will learn key concepts of Fit as such as test fixtures, action fixtures, row fixtures, and column fixtures.
- A. Materials:
  - 1. Slides and lab handbook
  - 2. Hands on exercises demonstrating Fit and Fitness
  - 3. List of books to learn more about functional integrated testing

IX. Web Services Frameworks Overview
This module provides students with an overview of the current frameworks that are available for building web services, and provides a description of the typically architecture of modern web services frameworks. Topics covered include:
- A. XML Processing Models
- B. DOM based Parsers
- C. Event based Parsers
- D. Pull based Parsers
- E. Data Binding Parsers
- F. JAXB Java XML Binding Framework
- G. Overview of various web services frameworks
- H. Materials:
- I. Slides
- J. Code samples
- K. Demos and code walkthroughs

X. Developing Clustered Applications
This section provides a list of best practices to follow when developing clustered applications.
- A. Materials:
  - 1. Slides

XI. Migrating to JBOSS
This module provides some tips on how to migrate from WebSphere to JBOSS.
- A. Materials:
  - 1. Slides