IBM Websphere Developer

Java EE Application Developer skills for IBM WebSphere Application Server V7

Role
The Java EE application developer for WebSphere Application Server is expected to develop, test, debug and deploy Java EE applications. These applications may use Java EE Web components such as Servlets, JavaServer Pages, Java Standard Tag Library (JSTL), and JavaServer Faces. The applications may also use Java Persistence Architecture (JPA), Enterprise JavaBean (EJB), and Web services.

The Java EE application developer will also use an Integrated Development Environment (IDE) such as IBM Rational Application Developer or Eclipse to develop Java EE applications, package and deploy them to the IBM WebSphere Application Server runtime environment.

Assumptions
It is assumed that the individual following this roadmap has basic skills in the following areas:
- Working knowledge of the Java programming (see step 1)
- Experience developing dynamic Web-based applications

Objectives
After completing this training, students should be able to:
- Develop Web application using sevlets, JSPs and JSF with Rational Application Developer and WebSphere Application Server (see step 2)
- Develop, test, debug, package and deploy Java EE application using EJBs with Rational Application Developer (see step 3)
- Develop Web 2.0 applications for WebSphere Application Server using WebSphere Web 2.0 Feature Pack (see step 4)
- Develop mobile Web applications with Web 2.0 Feature Pack for WebSphere Application Server (see step 5)
- Develop SOA applications (see step 6)

1 Application Developer skills for Java

Objectives
After completing this step, students should be able to:
- Describe essential object-oriented (OO) programming concepts and terminology
- Perform OO requirements gathering, analysis, and design
- Describe the role of Unified Modeling Language (UML) in object-oriented analysis and design
- Read and create the most commonly used types of UML diagrams
- Understand the main features provided by the Java language
- Understand and use Java syntax
- Describe and use some of the important API classes and interfaces available in Java, including primitive wrapper classes, collections, I/O, threads and exceptions
- Create Java classes that implement an object-oriented design
- Apply Java language constructs that enable and enforce OO-related concepts such as data encapsulation, strict typing and type conversion, inheritance, and polymorphism
- Explain how design patterns can improve the implementation of OO designs
- Refactor Java code
- Use an integrated development environment (IDE) such as IBM Rational Application Developer or Eclipse to develop, test, run, debug, and package Java applications
- Perform unit testing of Java applications using JUnit

Proceed to training path:
A: Application Developer skills for Java

CONTINUED
on the following page...
Web application development skills

Objectives
After completing this step, students should be able to:
- Develop, debug, and test server-side applications using IBM Rational Application Developer V7.5 and IBM WebSphere Application Server V7
- Develop and test servlets
- Develop and test JSP pages
- Understand the JSF component model
- Understand the JSF life-cycle management of requests
- Understand the event handling model
- Develop a JavaServer Faces (JSF) application
- Describe the Java Persistence API (JPA)
- Access data in relational databases using JPA
- Use annotation-based development
- Assemble and perform integration testing of a Java EE application using IBM WebSphere Application Server V7

START HERE...

Do you know J2EE 1.4?

Yes

Java EE 5 Development for WebSphere Application Server V7
WD370 Classroom (4 days)
VD370 Instructor-led online (4 days)
WF212 Self-paced virtual class (4 days)

No

Mastering Servlet and JSP Development with Rational Application Developer V7.0
RD810 Classroom (5 days)
WD510 Classroom (5 days)

Mastering Web Application Development with Rational Application Developer V7.5
RD815 Classroom (4.5 days)

Developing Web Applications with JSF using Rational Application Developer

RV030 (V7.5) Classroom (3 days)
RV065 (V8) Classroom (3 days)
3 EJB application development skills

Objectives
After completing this training, students should be able to:
- Describe the Java EE application architecture
- Use annotation-based development for EJBs
- Explain the relationship between annotations in code and deployment descriptor files
- Define and use dependency injection and resource injection
- Develop and test the various types of EJBs (stateless session, stateful session, or message-driven) and Java Persistence API (JPA) entities
- Use Java persistence query language (JPQL)
- Perform object-to-relational mappings (ORM) for persistent data
- Implement persistent entities with associations
- Integrate an application with messaging using message-driven beans
- Use EJB timers and interceptors
- Leverage container services for transaction management
- Create and test EJB clients
- Create Web services from EJBs
- Apply recommended practices in EJB design and implementation
- Use IBM Rational Application Developer V7.5 to develop and test an EJB 3 application
- Deploy an EJB 3-based application to WebSphere Application Server V7

Developing EJB 3 Applications for WebSphere Application Server V7

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Training Method</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD352</td>
<td>Classroom</td>
<td>5 days</td>
</tr>
<tr>
<td>VD352</td>
<td>Instructor-led online</td>
<td>5 days</td>
</tr>
<tr>
<td>ZD352</td>
<td>Self-paced virtual class</td>
<td>5 days</td>
</tr>
</tbody>
</table>

4 Web 2.0 application development skills

Objectives
After completing this training, students should be able to:
- Describe the benefits of using Ajax in web application development
- Describe the technical architecture for Ajax applications
- Describe the use of JavaScript, XML, and web services in Ajax applications
- Apply Ajax techniques to enhance the responsiveness and interaction of web pages
- Describe the benefits of using an Ajax toolkit, such as the Dojo toolkit V1.5
- Debug JavaScript code in Ajax applications
- Use the web remoting capability to simplify connecting directly to Enterprise Java services using REST (Representational State Transfer)
- Identify and select the appropriate APIs and widgets provided by the Dojo toolkit V1.5
- Compare and contrast mechanisms to transfer data between client and server in Ajax applications
- Leverage JavaScript Object Notation (JSON) as a lightweight data format
- Extend the components and widgets provided by the Dojo toolkit V1.5
- Set up a development environment to use IBM WebSphere Application Server Feature Pack for Web 2.0
- Use the WebSphere Application Server Feature Pack for Web 2.0 to build rich internet applications
- Build Dojo-based applications and use compression to improve runtime performance

Ajax and Web 2.0 Development with WebSphere Application Server V7

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Training Method</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD322</td>
<td>Classroom</td>
<td>5 days</td>
</tr>
<tr>
<td>VD322</td>
<td>Instructor-led online</td>
<td>5 days</td>
</tr>
</tbody>
</table>

CONTINUED on the following page...
5 Mobile Web application development skills

Objectives
After completing this training, students should be able to:

- Identify usage patterns for mobile web applications
- Compare and contrast native, hybrid, and web mobile applications
- Use the HTML5 File API to handle concurrent file uploads to the server
- Use the Geolocation API to provide location-based services
- Store and query information locally using IndexedDB
- Provide multimedia using HTML audio and video elements
- Explain the role of Cascading Style Sheets (CSS) and JavaScript for animations
- Build a mobile operating system look and feel using dojox.mobile widgets
- Support multi-touch and gestures using the Dojo Toolkit
- Install and use application services from the Web 2.0 and mobile feature pack for WebSphere Application Server

<table>
<thead>
<tr>
<th>Training Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing Mobile Web 2.0 Applications for WebSphere Application Server V8</td>
</tr>
<tr>
<td>WD470 OR Classroom (3 days)</td>
</tr>
<tr>
<td>WD470 Instructor-led online (3 days)</td>
</tr>
</tbody>
</table>

6 SOA application development skills

Objectives
After completing this training, students should be able to:

- Understand the SCA assembly model
- Understand the SCA Java common annotations and APIs
- Describe the Rational Application Developer tooling for SCA development
- Create and assemble SCA components
- Deploy and test SCA components

<table>
<thead>
<tr>
<th>Training Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java SCA development with Rational Application Developer</td>
</tr>
<tr>
<td>RD250 OR Classroom (2 days)</td>
</tr>
<tr>
<td>YD250 Instructor-led online (2 days)</td>
</tr>
</tbody>
</table>

Proceed to training path:
A: For full SOA skills see SOA training path

Proceed to training path:
B: For full Web Services skills see this training path