

Hands-on course , 5
day(s)
Ref : JSP

Pre-requisites

Goods Knowledges in
Java Language and
Web's technologies.
Experience required in Java
programming.

Next sessions

Java Web Programming

OBJECTIVES

Java has become indispensable for developing server-side Web applications, thanks especially to Servlet and Java Server Page (JSP) technologies. This course will allow you to successfully carry out a company Web project based on the Java platform. You will find out about MVC (Model View Controller) architectures in order to construct solutions that are robust and easy to expand, with, among others, an introduction to development with the help of the Apache Struts environment. The knowledge acquired by practical work on Tomcat, the leading J2EE implementation, as well as on development tools such as Eclipse or WSAD, will allow you to construct your solutions on various Java applications servers such as WebLogic, WebSphere, Jrun or iPlanet.

1) Review of the company Web applications environment

2) Development based on servlets

3) Web applications and servlets

4) Presentation of Java Server Pages

5) Tag libraries

6) Accessing databases

7) Introduction to Struts

8) Making the application secure

9) Other development techniques

Workshop

The servlet/JSP container used is Tomcat, the leading J2EE implementation. The development environments are Eclipse and WSAD.

1) Review of the company Web applications environment

Basic concepts

- Web client and server. Application protocols (HTTP). CGI scripts and managing sessions.
- Access to the company's resources: RDBMS, document database and XML, transaction monitor, directory, inherited application.
- HTML-XML, Java applets.
- The Java 2 Enterprise Edition (J2EE) platform. Multi-tier architecture.

2) Development based on servlets

Presentation of the components required for server-side Java use

- Web server and server platform. Servlet engine. Java Virtual Machine.

Presentation of the development and operating environment

- Development and de-bugging tools: NetBeans and Eclipse.
- The architecture of Apache's Web container, Tomcat.
- Deploying servlets and JSP pages.

Developing an initial servlet

- Generating dynamic content. The structure of a servlet.

3) Web applications and servlets

Developing a Web application based on servlets

- The servlet container. The life cycle of a servlet.
- Initialising a servlet. Writing the service methods.
- Handling HTML forms.
- Processing the response, sending information, generating HTML.
- Filtering requests/responses. Programming filters.
- Retrieving information: from the Web server, the client and the environment.
- Invoking other Web resources. Including and transferring control.

Handling errors and logging events

- Handling execution errors. Handling and using Java exceptions.
- Sending http errors. Logging events.

Monitoring sessions

- The various methods.
- Obtaining, consulting and abandoning sessions. The session environment.

4) Presentation of Java Server Pages

Presentation of the objectives and the architecture

- Objectives. Mechanism of operation. Examples of JSP pages.

Development technique

- Scriptlets. Integrating them in the Web page.

- JSP directives, declarations, expressions and actions.
- Versions of the language, XML syntax.

Using JavaBeans from JSP pages

- Definition, creation, deployment and use.
- Accessing and modifying them from a JSP page.

Developing applications with the help of JSP

- Combining JSP and servlets. Including applets.
- Accessing the company's resources.

5) Tag libraries

The principle of tag extensions and libraries

- Introduction to tag extensions.
- Operation. Example of their use.

Developing tag extensions

- Developing your own tags. Simple tags, with attributes, with a body, embedded.
- Deploying and using a tag library.

Presentation of JSTL (Java Standard Tag Library)

- Designing JSPs with JSTL. Examples.
- The various libraries: core, XML, i18n, SQL, functions.

6) Accessing databases

Studying an application with access to relational databases

- Putting the database and the JDBC interface in place.
- Connecting to the database, retrieving information, updating data.
- Transaction. Connection pool.
- Different connection methods. DataSources: configuring and using them.

BDRs/Object models correspondence

- Objectives. Java tools and approaches.
- Presentation of the SimpleORM (Simple Java Object Relational Mapping) framework

7) Introduction to Struts

Using an MVC-type (Model, View, Controller) framework

- Presentation. Architecture. The components of the framework.
- Handling events. Configuring the application.
- Struts Tag Libraries and Extension.

8) Making the application secure

- Security in a Web environment. Notions of users, realms, roles.
- Authentication and authorisation.
- Security and programming servlets.
- Installing and configuring SSL. Digital certificates.
- Java Authentication and Authorization Service.
- Configuring Tomcat.

Workshop

Adding access security to the site constructed.

9) Other development techniques

Re-usable framework and package

- Uploading files (FileUpload package).
- De-bugging/logging (Logging package).
- Tests and performance. JUnit, Open Source framework for writing tests. Cactus, server-side test framework.

In the pipeline from Sun...

- JSF (Java Server Faces), objectives, example.